

Zeit und Geschichte
Time and History

Beiträge
Papers

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28

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Time and History

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Grenzziehung bei Kant und Wittgenstein

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I Die Bestimmung der Grenzen

Die Vernunft tendiert laut Kant notwendig in ihren Nachforschungen dazu, über die Grenzen der Erfahrung hinaus zu gehen. Der Grund für diese Überschreitung liegt in einer Maxime der Vernunft, die verlangt: "zu dem bedingten Erkenntnis des Verstandes das Unbedingte zu finden (B 364)." Diese Maxime macht das theoretische Interesse der Vernunft aus. Sie liegt allen philosophischen Problemen zugrunde und öffnet die Tür zu den metaphysischen Fragen.

Die Zurückführung des metaphysischen Fragens auf diese Maxime der Vernunft bedeutet, dass die Metaphysik aus der Struktur der Vernunft selbst entspringt und dass sie in allen Menschen wirklich ist, wenn nicht als Wissenschaft mindestens als Naturanlage. Wenn es so ist, dann kann die Möglichkeit oder Unmöglichkeit der Metaphysik nur entschieden werden, durch eine tiefe Nachforschung über die Struktur der Vernunft. Die *Kritik der reinen Vernunft* soll durch eine Analyse des Vernunftvermögens feststellen, ob die von der Metaphysik erhobenen Ansprüche berechtigt oder ob sie nicht selbstproduzierte Täuschungen der Vernunft sind.

Die Grenze der Erfahrung wird in der ersten *Kritik* durch den Begriff des Ding an sich selbst gezogen. Die Gegenstände überhaupt können zu "zwei verschiedenen Zeiten betrachtet werden" (B XIX), entweder werden sie als Gegenstände der Sinne oder als Gegenstände, die man bloß denkt, begriffen. Diese Distinktion, der von Kant so genannte "transzendente Unterschied" (A 45 B 62), betrifft die Grundeinsicht des kritischen Idealismus, nämlich, dass Raum und Zeit nur formale Bedingungen unserer Sinnlichkeit sind. In der Tat bildet die Idealität von Raum und Zeit den Ausgangspunkt der Argumentation für die notwendige Annahme der Distinktion zwischen Noumena und Phaenomena.

Kant formuliert zwei Argumente für die notwendige Annahme des Dinges an sich. Beide Argumente beziehen sich wieder auf die Struktur unserer Sinnlichkeit und hängen in dieser Hinsicht zusammen: (i) wir können nicht behaupten, dass die Form unserer Sinnlichkeit die einzige mögliche Anschauungsart ist aber (ii) wir können genauso wenig die Existenz anderer Anschauungsarten behaupten oder annehmen. Aus der erste These ergibt sich die Konsequenz, dass wir die Sphäre der uns gegebenen Gegenstände nicht mit der Sphäre der Dinge überhaupt identifizieren dürfen. Es bleibt immer möglich, dass es andere Gegenstandsformen gibt, die uns nicht zugänglich sind. Aus der zweiten These folgt, dass wir aber nicht annehmen dürfen, dass es tatsächlich andere Gegenstände gibt, die außerhalb unserer Erkenntnis-sphäre liegen und anderen Anschauungsformen zugänglich sind. Beide Thesen erklären zusammen den Status des Begriffs des Dinges an sich. Dieser Begriff soll lediglich die Anmaßungen der Sinnlichkeit und des Verstandes einschränken, er ist bloß ein Grenzbegriff und hat nur einen negativen Gebrauch.

Wittgenstein schreibt im Vorwort des *Tractatus*, dass das Thema des Werkes die philosophischen Probleme sind, dasselbe Thema wie in der *Kritik der reinen Vernunft*. Diese Probleme haben aber nicht in der Natur der Vernunft ihren Grund, sondern in "ein[nem]

Missverständnis der Logik unserer Sprache". Weil die logische Struktur in der gewöhnlichen Sprache verhüllt ist, entstehen vielen Scheinprobleme durch Täuschung. Eine Befreiung dieser Pseudofragen wird nur dadurch erreicht, dass man eine deutliche Grenze zieht. Im Kontrast zu Kant aber, denkt Wittgenstein, dass man *nur* dem Ausdruck der Gedanken und nicht dem Denken eine Grenze ziehen könnte, weil "um dem Denken eine Grenze zu ziehen, müssten wir beide Seiten dieser Grenze denken können (wir müssten also denken können, was sich nicht denken lässt)." Es ist interessant zu merken, dass die Orientierung an der Sprache hier mit der These legitimiert wird, dass nur in der Sprache eine konsequente Grenzziehung durchführbar wäre. Der sprachlich orientierte philosophische Ansatz lässt durch diese Kritik deutlich erkennen, dass die Art und Weise der Problemstellung kantische Züge hat.

Die Frage über den transzendentalen Charakter von Wittgensteins *Tractatus* ist aber umstritten. Zwei Interpretationen haben sich in der Sekundärliteratur herausgebildet, entweder hat man auf deutliche Unterschiede zwischen Kant und Wittgenstein hinsichtlich einiger Themen (die Natur von Zeit und Raum, Struktur der Erfahrung, das synthetische *a priori*) hingewiesen und daraus auf den nichttranszendentalen Charakter dieses Werkes geschlossen.¹ Oder man hat ein von der kantische Formulierung unabhängiges Konzept einer Transzendentalphilosophie zu bestimmen versucht und auf der Basis dieses Konzept dieses Werkes als ein Beispiel dafür beurteilt.²

Obwohl die Debatte hier nicht ausführlich behandelt werden kann, möchte ich für die zweite Interpretationsweise ein Argument vorbringen. Es ist klar, dass die Idee der Transzendentalphilosophie seit Kant verschiedene Formen und Gestaltungen angenommen hat. Und in dieser Hinsicht sollte man den transzendentalen Charakter einer Philosophie nicht so sehr in der Tatsache suchen, dass sie kantische Thesen vertritt, sondern vielmehr darin, ob sich bei ihr die wesentlichen Elemente einer Transzendentalphilosophie finden lassen. Freilich ist die Bestimmung dieser wesentlichen Elemente keine leichte Aufgabe, was eine Lektüre der Diskussion über transzendente Argumente ganz konkret zeigt. Provisorisch verwende ich hier, um den *Tractatus* als eine Variation der Transzendentalphilosophie zu betrachten, eine sehr weite und nicht kontroverse Definition von Transzendentalphilosophie, nämlich: Transzendental ist eine Philosophie, die das Verhältnis zwischen einer faktischen Gegebenheit und seinen *a priori* Bedingungen untersucht. Nach dieser Definition versucht der *Tractatus* die *a priori* Bedingungen der Möglichkeit zu bestimmen, die eine Sprache erfüllen muss, um die Wirklichkeit abbilden zu könne.

In dieser Richtung sondert Wittgenstein die Sphäre des Sagbaren von der des Unsagbaren ab. Die Grenzziehung im *Tractatus* ist eine Konsequenz aus der Bildertheorie der Sprache. Eine ontologische Voraussetzung liegt dieser Konzeption zugrunde, nämlich die

1 Vgl. dazu z. B. Röd, Wolfgang vgl., 1981 Enthält Wittgensteins *Tractatus* transzendente Ansätze? und Haller, Rudolf, 1981 War Wittgenstein ein Neo-Kantianer?.

2 Vgl. dazu Hintikka, Jaakko, 1981 Wittgenstein's Semantical Kantianism und Stenius, Erik, 1960 Wittgenstein's *Tractatus*, A Critical Exposition of its Main Lines of Thought, Basil Blackwell, Oxford.

Idee, dass die Sprache und die Wirklichkeit die gleiche Struktur, eine gemeinsame Form der Abbildung haben. Die Logik liefert den Leitfaden für die ontologische Frage: "Das Wesen des Satzes angeben, heißt, das Wesen aller Beschreibung angeben, also das Wesen der Welt" (TLP 5.4711). Aus diesem Zusammenhang zwischen logischen Strukturen und ontologischen Entsprechungen lassen sich die Grenzen der Sprache und der Welt, die im Grunde die gleichen sind (TLP 5.6), setzen. Nun, wenn die Welt die Gesamtheit der positiven Tatsachen, d.h. der bestehenden Sachverhalte ist, dann bestimmt sie gleichzeitig auch welche Sachverhalte nicht bestehen (TLP 2.05). Das Positive schränkt das Negative ein. Analog dazu kann die Grenze des Sinnes von innen in der Sprache selbst gezogen werden. Die Philosophie, schreibt Wittgenstein, "wird das Unsagbare bedeuten, indem sie das Sagbare klar darstellt" (TLP 4.115). Es geht lediglich um eine Analogie, um eine Ähnlichkeit in der Strategie, die Sphäre des Unsagbaren bezieht sich nicht auf die Sphäre der negativen Tatsachen, sondern auf das, was außerhalb der Welt liegt. Aber beide werden durch die deutliche Bestimmung des Positiven beschränkt. Wenn das Sagbare sich auf Tatsachen, d.i. die in der Welt bestehenden Sachverhalte beschränkt, dann bezieht sich das Unsagbare auf das was außerhalb der Welt liegt.

II Methodologische Probleme

Hinsichtlich der Begrenzungsproblematik bieten sich einige spezifische methodische Schwierigkeiten, die letztendlich auf das Thema der Metareflexion oder Metasprache hinauslaufen. Ist es möglich, über die Bedingungen der Reflexion zu reflektieren? Unabhängig von dem Ansatzunterschied stößt die Analyse in beiden Richtungen auf eine Grenze, die sie selbst nicht gezogen hat. Es drängt sich eine neue Sphäre, die Sphäre der Bedingungen der Beschreibung oder der Bedingung der Vorstellung auf, die sich aber jeder Art von Thematisierung entzieht. Ich gehe auf diese zentrale Aporie hier nicht direkt ein, sondern greife zwei andere Fragen auf, die sich auf das zentrale Problem beziehen, aber andere Schwierigkeiten betreffen. Die erste Schwierigkeit betrifft die Möglichkeit der Grenzziehung: (i) Ist die Setzung der Grenze des Sinns methodisch möglich oder widersprüchlich? Wird die Grenze nicht unmittelbar durch das Ziehen selbst überschritten? Es scheint unmöglich zu sein, nur auf einer Seite der Grenze zu bleiben, ohne irgendwie auf das Jenseits hinzuweisen, ohne irgendwie da draußen zu sein. Wenn es so ist, dann stellt sich eine zweite Frage: (ii) Was ermöglicht diese Anzeige auf das, was jenseits der Grenze liegt, wie kann man mit Berechtigung über das, was sich nicht erkennen bzw. nicht sagen lässt, etwas sagen und erkennen? Die vorgebrachten Vorwürfe wurden wiederholt gegen beide Philosophen erhoben.

III Lösungsansätze

(i) Die Antwort auf die erste Kritik soll Aufschluss über einen nicht kontradiktorischen Gebrauch des Begriffs des Ding an sich geben. Im Lichte dieser Fragen scheint in der *Kritik der reinen Vernunft* derselbe Begriff, der die Grenze der Erfahrung bestimmt, eine Überschreitung der Grenze zu implizieren.³ Nach der Affektionstheorie hat unsere Sinnlichkeit passiven Charakter, d.h. dass uns Gegenstände nur gegeben werden, indem sie "das Gemüt auf gewisse Weise affiziere" (A 19 B 33). Diese Erläuterung der Passivität des Sinnes wendet eine Kategorie des

Verstandes auf ein Objekt an, das nicht in der Erfahrung gegeben werden kann. Die Anwendung verletzt die Einschränkung der objektiven Gültigkeit der Verstandesbegriffe *a priori* auf die Erscheinungswelt und könnte deswegen als ein Beispiel für den illegitimen transzendenten Gebrauch der Kategorien gesehen werden.

Die Kategorien gründen sich jedoch nicht auf die Sinnlichkeit. Die nicht schematisierten Kategorien behalten eine logische Bedeutung; selbst wenn sie von der Sinnlichkeit ganz abgesondert werden, sind sie nicht „toten Fächer der Intelligenz.“⁴ Die Verstandesbegriffe stellen zwar ohne Sinnlichkeit keinen Gegenstand vor, aber drücken als Funktionen des Verstandes verschiedene Einheitsformen der Vorstellungen eines Objekts überhaupt aus, die nicht auf die Gegenstände der Sinne eingeschränkt sind. Diese Unabhängigkeit der Kategorien von der Sinnlichkeit enthält – schreibt Kant – "etwas Verhängliches" (AA Bd. IV, *Prolegomena*, S.315.), weil sie die Erwartung bestärken könnte, dass die Kategorien noch über die Erfahrung hinausreichen und etwas mehr bedeuten könnten. Es gibt aber eine positive Seite der Unabhängigkeit der Kategorien. Wenngleich die Unabhängigkeit keine übersinnliche Erkenntnis begründet, kann sie eine nichtsinnliche Anwendung der Kategorien legitimieren. Die Legitimation gilt freilich nur mit der Restriktion, dass man dadurch nur Objekte im allgemeinen *denkt*, aber nicht *erkennt*. Die Distinktion zwischen Erkennen und Denken⁵ rechtfertigt Erklärungen des Dinges an sich als Ursache der Erscheinungen, ohne die Grenzen der Erfahrung zu überschreiten. Die negative Bedeutung des Begriffs des Dinges an sich beschränkt die theoretisch-spekulative Vernunft und zeigt, dass die Grenzziehung vermittels der Analyse der Erkenntnisvermögen methodisch durchführbar ist. Außerhalb der Erfahrung *denkt* die Vernunft einen leeren Raum, der auf das Unbekannte hinweist und die Absolutheit der Erscheinungswelt bestreitet.

Dieselbe Schwierigkeiten haben das Projekt des *Tractatus* problematisiert. (i) Im Hinblick auf die Frage ob die Grenzziehung methodisch ohne Widerspruch durchführbar wäre, antwortete Wittgenstein mit einem Werk, das am Ende sich selbst widerlegt. Da die Sätze des *Tractatus* keine Tatsache in der Welt abbilden, sind sie insgesamt als unsinnig zu betrachten. Der *Tractatus* versucht absichtlich über das zu sprechen, was sich nicht sagen lässt. Der Diskurs, der die Grenze zwischen dem Sagbaren und dem Unsagbaren festlegt, befindet sich nicht in der Sphäre des Sagbaren. Die Grenzziehung impliziert das Überschreiten der Grenze. Gegen diese problematische Konsequenz steht die Idee der Überwindung der Sätze des *Tractatus* durch das Verstehen ihrer Unsinnigkeit. Diese befreiende Erhebung des Verstehen durch erhellende unsinnige Sätze, illustriert mit der Metapher der Leiter, deutet auf den ethischen Sinn des Buches. Der *Tractatus* weist mit diesem Fingerzeig auf die andere Seite der Grenze.

(ii) In dieser Richtung wird auch die Antwort auf die zweite Frage gegeben. Wittgenstein unterscheidet im *Tractatus* sagen und zeigen. Beide schließen sich aus, "was gezeigt werden kann, kann nicht gesagt werden" (TLP 4.1212), sie befinden sich auf verschiedenen Seiten der Grenze des Sinns. Man hat drei Anwendungen des Begriffs des Zeigens im *Tractatus* unterscheiden können, und nur eine davon betrifft das, was in der Sprache nicht präsent ist. In dieser dritten Bedeutung ist das Zeigen ein Hindeuten auf etwas, das weder in der Sprache noch in der Wirklichkeit ist, sondern das Unausprechliche betrifft (TLP 6.522).

4 Hegel, 1801 Die Differenz des Fichteschen und Schellings Systems der Philosophie, Gesammelte Werke, Bd. 4., S.5.

5 Vgl. dazu Kritik der reinen Vernunft B XXVII Fußnote.

3 Vgl. dazu Strawson, P.F., 1966, The Bounds of Sense, S. 254.

Beide philosophischen Projekte laufen parallel in den Zielsetzungen, Themen und Problemen, was mich zunächst zu einem vergleichenden Zugang veranlasste. Im Hinblick auf die methodische Frage einer Grenzziehung könnte man behaupten, dass die kantische Position von Vorteil ist. Die Strukturen, die das Ziehen der Grenzen ermöglichen, in diesem Fall die *a priori* formale Beschaffenheit des Subjekts, befinden sich auf einem anderen Niveau als die der Exposition der Resultate. *Die Sprache kann sinnvoll über das sprechen, worüber wir nicht erkennen können.* Bei Wittgenstein befinden sich beide Momente, die Basis für das Ziehen der Grenzen - d.h. die logische Struktur der Sprache - und das Medium der Exposition der Resultate, die Sprache, auf demselben Niveau. *Man kann nicht nur nicht sagen, sondern auch nicht denken was sich nicht sagen lässt.* Bei Kant ist das Unbekannte sagbar und denkbar und das Ziehen der Grenze ist methodisch durchführbar, während bei Wittgenstein der Unsinn unsagbar und undenkbar ist und das Ziehen der Grenze methodisch nur problematisch durchführbar ist. Dieser Gegensatz ist weit davon entfernt, ein Urteil über beide Philosophien, über die Überlegenheit dieses oder jenes methodischen Ansatzes, zu liefern, sondern er zeigt lediglich, dass die Grenze des Sinns nur gezogen werden kann durch das Zusammenspiel der Sprache und des Denkens.

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Der Wittgensteinische Abgrund der Hoffnungslosigkeit

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Durch das Verschieben der Aufmerksamkeit von Wittgensteins Bildern über felsigem Boden hin zu seinen Bildern, in denen sich Abgründe eröffnen, hoffe ich zeigen zu können, dass das spätere Werk Wittgensteins durch eine Spannung charakterisiert ist, welche die Notwendigkeit generiert, eine adäquate Haltung zum Abgrund des Unbegründeten einzunehmen.

Erwähnungen über Ludwig Wittgensteins Werk basierten oftmals auf seinen Bildern. Auf diese Art können einige subtile Nuancen plastisch ausgearbeitet werden, was aber auch einige Risiken mit sich bringt. Einerseits kann man der Versuchung erliegen, die gewählten Bilder so aufzufassen, als spiegle sich in ihnen das Gesamtwerk wider, zu dem sie gehören. Andererseits kann man diese Bilder so missverstehen, als wären sie die Wirklichkeit selbst. Dementsprechend können wir der Versuchung erliegen, Bilder zu benutzen, die nicht die Realität darstellen oder eine Regel zur Verwendung von Sprache veranschaulichen sollen, sondern die als bloße Illustrationen gemeint sind, welche der Sprache und – im weiteren Sinne – ihrer Bedeutung Plastizität verleihen sollen.

Es sind mehrere Bilder aus Wittgensteins Spätwerk, die etliche Dekaden lang kommentiert werden. Einige von ihnen haben sich im Laufe der Zeit fast zwangsweise in Anspielungen verwandelt, weil diese wie keine anderen den versteckten Grundgedanken dieses späten Wiener Autors repräsentieren. So hat man oft, um einen einführenden Kommentar über sein Werk *Philosophische Untersuchungen* zu geben, das Gefühl, nicht an den Grund des Werkes zu kommen, solange man nicht die „harten Felsen“ erwähnt, an denen sich alle Begründungen erschöpfen, welche erklären könnten, warum man einer Regel folgt: der Spaten des Philosophen biegt sich hier zurück (vgl. PU § 217). In seinem Buch *Philosophische Untersuchungen* können wir kein anderes Bild finden, dass das Fehlen von Begründungen klarer und schlagkräftiger vor Augen führt und letztendlich eingesteht: „So handle ich eben“. Ebenfalls dient das Flussbett, das aus grammatischen Sätzen besteht, als Leitung für Erfahrungssätze (ÜG § 96-99) und wurde zweifellos in ein charakteristisches Bild in *Über Gewißheit* überführt. Dieses Bild hilft uns, den dynamischen Zusammenhang zwischen grammatischen Sätzen und Erfahrungssätzen einzuschätzen. Obwohl die Verfälschungen nur sehr knapp und kaum wahrnehmbar sind, zeigt dieses Bild ausdrucksvoll, wie Erfahrungssätze erstarren und sich in grammatische Sätze verwandeln können - und umgekehrt. Im Hinblick auf das Gesagte wird deutlich, dass beide Bilder die Vorstellung einer fast unerschütterlichen Stabilität heraufbeschwören. Tatsächlich fordert uns Wittgenstein häufig und ausdrücklich dazu auf, die Erklärung zugunsten der Beschreibung zu verlassen (PU § 124, 126, 496; Z § 315; ÜG § 189; Dbw § 183; usw.). Da uns die Erklärung nur bis zu einem gewissen Punkt bringen kann, weist er darauf hin, dass unser Verlangen nach einem letzten Beweis einer einfachen Betrachtung weichen muss, das heißt, einer Betrachtung, die Sprachspiele beschreibt. Man kann sagen, dass es Wittgensteins Absicht ist, die vertikale Richtung, die der Erklärung, zu verlassen, um die horizontale, die der Beschreibung, einzuschlagen. Es

scheint, dass die zwei Bilder, auf die ich vorher hinwies, dabei hilfreich sein können, einen Hauptaspekt von Wittgensteins Werk zu verstehen. Trotzdem glaube ich, dass die wiederholte Erwähnung dieser Bilder außerordentlich dazu beigetragen hat, das spätere Denken des österreichischen Philosophen zu verfälschen. Die erneute Hervorhebung des Bildes vom felsigen Boden lädt zu der Interpretation ein, dass, obwohl es keine endgültige Rechtfertigung für unsere Sprachspiele gibt, die unbegründete Natur dieser Sprachspiele dieselben mit einer so gut wie unerschütterlichen Stabilität ausstattet. Und dies hört nicht auf, unsere Aufmerksamkeit auf sich zu ziehen.

Man kann nicht daran zweifeln, dass die Bilder des felsigen Bodens sehr geeignet sind, um gewisse Ideen, über die Wittgenstein nachdachte, plastisch zu veranschaulichen. Aber wenn wir an der Festigkeit dieses Substrats festhalten, so kann man bemerken, dass nicht das Bild des Abgrunds, das unseren primitiven Reaktionen zugrunde liegt, Wittgensteins spätere Werke prägt. Trotzdem ist das Bild vom felsigen Boden inkompatibel mit dem des Abgrunds oder der Leere. Ab 1929, dem Jahr, das seine Rückkehr zur Philosophie markiert, wird Wittgenstein sich häufig durch Bilder, in denen der Abgrund eine sehr wichtige Rolle spielt, ausdrücken. Während die Bilder vom felsigen Boden uns einladen, in der unbegründeten Natur unserer Sprachspiele selbst den Ursprung ihrer Stabilität zu sehen, denke ich jedoch, dass die Bilder des Abgrunds zeigen, dass es durch die unbegründete Natur unserer Sprachspiele keine Garantie gibt, dass wir auf unbestimmte Zeit fähig sind an ihnen teilzunehmen. Allerdings meine ich damit nicht, dass die Sprachspiele nicht gefestigt sind. Ich will nur hervorheben, dass, wenn man vom Bild des felsigen Bodens zum Bild des Abgrunds übergeht, sich dann die Aufmerksamkeit vom Sprachspiel zur Person verschiebt. Kurzum, es sieht danach aus, als ob das verführerische Bild des soliden und stabilen, felsigen Bodens nicht erlaubt, das Bild auf sämtliche instinktiven und tierischen Einstellungen, für deren Fortdauern es keine Garantie gibt, anzuwenden.

Diese Handlungsweise stellt dar, was Wittgenstein „das Leben selbst“ (VB, S. 456) nennt: das Problem besteht nach ihm darin, dass wir uns gewöhnlicherweise dessen nicht bewusst sind, weil wir die entsprechende Perspektive nicht annehmen. Um dieser Schwierigkeit die Stirn zu bieten, schlägt er vor, dass wir uns ein Theater denken, wo der Vorhang aufginge und wir einen Menschen sähen, der allein in seinem Zimmer auf und ab geht, sich eine Zigarette anzündet, sich hinsetzt, usw. Wittgenstein sagt, dass wir plötzlich einen Menschen von außen sähen, wie man ihn sonst nie sehen kann. Wenn wir quasi ein Kapitel seiner Biographie mit eigenen Augen sähen, müßte das unheimlich und wunderbar zugleich sein. Der Wahnsinnige erscheint eigentlich in diesem Kontext als derjenige, der vom Leben abrückt: Man sagt „Wahnsinniger“ zu demjenigen Individuum, dessen primitive Reaktionen inkompatibel mit den unsrigen sind (ÜG § 155, 281, 572, 611, usw.), sodass er – zumindest vorübergehend – unbefugt ist, an unseren Sprachspielen teilzunehmen. Trotzdem spielt Wittgenstein auf eine andere Art des Wahnsinns an (Z § 393), die paradoxerweise zeigt, dass der Wahnsinnige der treueste und hartnäckigste Exponent des Lebens ist. Man kann das deutlich sehen, wenn wir uns auf jene Fälle ausrichten, in

denen der Wahnsinnige sich selbst eingesteht, wahnsinnig zu sein: mal wegen einer radikalen Veränderung der Umgebung, mal wegen der gewöhnlichen primitiven Reaktionen. Der Wahnsinnige ist derjenige, der beim Verzicht auf eine Erklärung, die ihn zufrieden stellen könnte, einräumt, dass er wahnsinnig geworden ist. Im ersten Fall, das heißt wenn sich die Umgebung drastisch verändert, wird sich der Wahnsinnige nach dem Leben, den Sprachspielen und dem Weltbild, das er in seiner Kindheit erlernt hat, ausrichten: letzten Endes ist es die Diskrepanz zwischen seinem Bezugssystem und der neuen Umgebung, welche das betroffene Individuum dazu bringt anzunehmen, es sei wahnsinnig geworden. Im zweiten Fall treten die charakteristischen primitiven Reaktionen des Lebens nicht (mehr) auf, es scheint, als würde das Subjekt endgültig davon abweichen. Wenn es sich aber eingesteht, dass es wahnsinnig, im Sinne von desorientiert, geworden sei, dann hat dies zur Folge, dass es sich das Leben als Referenz beibehält, obwohl sich die für das Leben charakteristischen primitiven Reaktionen nicht zeigen.

Das Individuum, das glaubt, es sei wahnsinnig geworden, befindet sich in einer besonders günstigen Lage, um uns unseren „Zustand“ zu zeigen: dieser Zustand ist nichts anderes als das Schweben über dem Abgrund des Unbegründeten (vgl. Dbw § 201-202). Die Sprachspiele sind nicht unbegründet. Sie sind weder vernünftig noch unvernünftig, sondern sind einfach vorhanden. „Wie unser Leben“, wie Wittgenstein sagt (ÜG § 559). Der Wahnsinnige tritt als jemand auf, der plötzlich und ohne Erklärung aufgehört hat, die primitiven Reaktionen, zu teilen, die es ihm erlaubten, zur unserer grammatischen Gemeinschaft zu gehören. Aber insofern jemand Zweifel an diesen primitiven Reaktionen, verursacht, die Wittgenstein das „Leben“ nennt, wird er von den Lebensfragen abweichen. Wir dürfen nicht vergessen, dass Wittgenstein dachte (Dbw § 203), dass religiöse Fragen entweder Lebensfragen oder leeres Geschwätz sind. Bezüglich der Probleme des Lebens kommentierte Wittgenstein, dass sie an der Oberfläche unlösbar, und nur in der Tiefe zu klären sind (VB, S. 555) – eine Tiefe, die meiner Ansicht nach auf eine veränderte Denk- und Lebensweise referiert (BGM, S. 132).

Also: Während wir im Leben bleiben, können wir die Grammatik zwar teilweise aufgeben, aber nur, um uns zum Abgrund hinauszustrecken. Wenn ich meine Hand erhebe und sage: „Dies ist meine Hand“, kann ich mich fragen, ob es wirklich meine Hand ist: Scheinbar besteht ein berechtigter Zweifel, aber das Einzige, was ich erreicht haben werde, wird sein, die Grammatik aufzugeben. Denn diese berücksichtigt in einem ähnlichen Fall, nicht die Möglichkeit zu irren. Wittgenstein (ÜG § 370) sagt, dass ich das Sprachspiel hinausziehe oder aufhebe, weil es vor allem durch Zweifellosigkeit charakterisiert ist. Deshalb ist der Skeptiker gemäß Wittgenstein „vor dem Nichts“, sobald er diese Art des Zweifels aufweist. Das Wort „Hand“ ohne Skrupel zu gebrauchen, platziert den Skeptiker am Rande des Abgrunds, aber es reicht für ihn nicht aus, um in den Abgrund zu fallen. Obwohl die oben erwogenen Zweifel sich auf nichts stützen, behält der Skeptiker noch bei, was Wittgenstein „das Leben“ nennt. Letzten Endes, ist es bloß ein verbaler Zweifel, ohne Auswirkung auf seine primitiven Reaktionen. Dieser punktuelle Zweifel verhindert nicht, dass der Skeptiker seine Fähigkeit erhält, an den Sprachspielen teilzunehmen, die er mit seiner linguistischen Gemeinschaft teilt. Er hat sich deshalb nur teilweise zum Abgrund hinausgestreckt und ist sich dessen nicht bewusst.

Geht man von der Maxime „wo Leben ist, da ist Hoffnung“ aus, so kann sich – kommentiert Wittgenstein – „der Abgrund der Hoffnungslosigkeit im Leben nicht zeigen. Wir können nur bis zu einer gewissen Tiefe in ihn hineinschauen“ (Dbw § 171). Sobald wir das Geschenk des Lebens löschen, so der Wiener Denker, können wir jederzeit dem Wahnsinn verfallen (Dbw § 174). Aber um unser Leben als Geschenk zu betrachten, brauchen wir eine besondere Perspektive. Das heißt, Wittgenstein beschreibt unseren Zustand folgendermaßen: „[W]ir wissen nicht, daß wir auf einem hohen schmalen Felsen stehen und um uns Abgründe [sich auftun], in denen alles ganz anders aussieht“ (Dbw § 140). Das Bild des Mannes im Allgemeinen als ein Wesen, das auf einem hohen, schmalen Felsen steht, umgeben von Abgründen, ähnelt sehr einem anderen Bild: dem Bild, das uns Wittgenstein von dem ehrlichen religiösen Denker (VB, S. 554) gibt. Dieser Denker ist wie ein Seiltänzer, der scheinbar nur auf Luft geht: sein Boden ist der schmalste, den man sich denken kann, aber es lässt sich auf ihm gehen. Um zu verstehen, wie Wittgenstein dieses Bild meint, müssen wir uns daran erinnern, dass von seinem Blickpunkt aus die religiösen Fragen, die nicht Lebensfragen darstellen, nur leeres Geschwätz wären. Im Hinblick darauf folgt, dass der ehrliche religiöse Denker einen außerordentlichen Wert auf den Glauben legen muss, auf ein Handeln mit blindem Vertrauen, ohne sich intensiv mit metaphysischen Fragen zu beschäftigen.

In gewissem Sinne glaube ich, dass der religiöse Denker am Wahnsinnigen als Modell festhalten müsste: ein Subjekt, das bedingungslos lebensstreu ist, sogar auf die Gefahr hin, die Isolation zu erleiden, die diese Treue fordern kann. Man könnte sagen, dass sich nicht vor dem Wahnsinn zu fürchten gleichwertig damit ist, sich nicht vor unserem Zustand zu fürchten; oder im weiteren Sinne, den Abgrund nicht zu fürchten. Deshalb sagte Wittgenstein (VB, S. 525), seine Furcht vor dem Wahnsinn sehe so aus, als wäre sie einer optischen Täuschung entsprungen; er halte irgend etwas für einen nahen Abgrund, obwohl es keiner sei. Das heißt, die reine Vorstellung, dass er sich in diesem gewissen Falle in einer Situation befinde, die ihn dazu bringen könnte, in den Abgrund des Wahnsinns zu stürzen, entsetzte ihn völlig. Wittgenstein dachte, dass nicht den Wahnsinn zu fürchten, seinem Leben Ernsthaftigkeit, und nicht Grauen (Dbw § 202) geben werde. Seine Idee war es, so zu leben, dass er gut sterben konnte. Also bestand die Aufgabe darin, so zu leben, dass er vor dem Wahnsinn bestehen konnte, wenn er käme (Dbw § 185). In der Absicht, ein solches Ziel zu erreichen, folgte Wittgenstein felsenfest dem, was William James (1985, S. 51), ein Autor, den er überaus bewunderte, 'the life of religion' („das Leben des Religions“) nannte. Eine solche Lebensweise charakterisiere vor allem der äußerste Glaube an eine unsichtbare Ordnung, in der sich das Glück des Individuums darauf stütze, sich an die besagte Ordnung harmonisch anzupassen. Und obwohl wir im *Tractatus* feststellen können, dass Wittgenstein eigentlich den Einklang mit der Welt anstrebte, wird er später versuchen, mit der Lebensform selbst zu harmonisieren. Hiermit schließend, kann man zwei Standpunkte zu *Über Gewissheit* anschneiden. Wenn wir einerseits uns am felsigen Boden orientieren, können wir bemerken, wie das Verlangen, eine letzte Rechtfertigung für unsere Handlungsweisen zu finden, auf jenem Boden zerschmettert. Wenn wir andererseits den Abgrund berücksichtigen, fällt uns das blinde Vertrauen (oder die Zweifellosigkeit) ins Auge, auf das sich unsere Sprachspiele stützen (vgl. ÜG § 39, 150, 337, 509, 600, 672). Die erste Perspektive erfüllt völlig die Forderungen derjenigen, die in Wittgensteins Werk eine Erkenntnistheorie suchen. Dennoch erweist sich

die Perspektive, die sich wirklich an Wittgensteins Verlangen, ein ernstes Leben zu führen, anpasst, als das, was auf dem Abgrund beruht. Man kann eine philosophische Theorie nicht vom Abgrund aus sehen, weil sich die Aufmerksamkeit von den Sprachspielen zum Subjekt selbst hin verschoben hat. Das bringt mit sich, den eigenen Fall und die eigene Lebensweise beiseite zu schieben und seine völlige Aufmerksamkeit auf die Theorie zu lenken. Was im Vordergrund steht, ist jedoch das Individuum, das stillschweigend eine Lebensform (PU, S. 572) akzeptiert. Das Geschenk des Lebens besteht genau darin, dass das Individuum handelt, obwohl es keine Grundlage für seine primitiven Reaktionen gibt. Es könnte jederzeit das Geschenk verlieren und in den Abgrund des Wahnsinns fallen, aber trotzdem würde es handeln. Diese Perspektive bevorzugt den Abgrund der Festigkeit des Bodens, gegen welche sich der Spaten des Philosophen zurück biegt. Eine Perspektive, die - eben weil sie die Haltung, in den Vordergrund stellt, sich an den Abgrund zu halten - die Aufmerksamkeit auf die einzige Einstellung verschiebt, durch die man gemäß Wittgenstein seiner Existenz Ernsthaftigkeit verleihen könnte.

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Revisiting the Problem of 'Private Language'

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Let us recall Wittgenstein's concern about a private language:

But could we also imagine a language in which a person could write down or give vocal expression to his inner experiences—his feelings, moods, and the rest—for his private use?—Well, can't we do so in our ordinary language?—But that is not what I mean. The individual words of this language are to refer to what can only be known to the person speaking; to his immediate private sensations. So another person cannot understand the language. (Wittgenstein 2001, §243)

Wittgenstein sets out to deny that such a language is possible. It is not his argument for this denial that I am concerned with here, but only what that argument is about. Wittgenstein describes a private language as one that has the following features: (i) only the person speaking the language can understand it, and (ii) the language describes the inner experiences of the speaker.

(i) is the more controversial of the criteria that Wittgenstein identifies. No one will likely deny the proposition "X talks about his immediate sensations", that is, in the ordinary sense. In any case, Wittgenstein does not find this any problem. But to say someone speaks a language only he can understand, regardless of what he uses it to describe (his immediate sensations or outward objects) is to say something stronger, and according to Wittgenstein logically impossible. Thus, the more interesting thing about a supposed private language is that no one but the speaker can understand it. I maintain that any language that satisfies this condition is either the only language the speaker can possibly have, or a language only its speaker can possibly know to exist.

In what follows, I defend this conditional by arguing that for any individual, N, and any language, L, these three statements are inconsistent:

- A. N can have a public language.
- B. There is a language, L, that only N can understand.
- C. Someone besides N can know that L exists.

I will quickly run through the basic idea. If A and B are true, then N can use his public language to tell another person what the meaning of the words of his supposedly private language are by describing correlations between what those words stand for and various public events, unless there are no public events correlating with the meanings of the private words (or, with N's use of the words to refer to his sensations). That is, if A and B are true, C is false. Similarly, if A and C are true, then there is nothing to prevent N from telling someone else what the supposedly private words of L refer to, by using his public language to describe correlations between the sensations he uses these words to refer to and the public events by which another person can know of the existence of L; i.e., no way that B can be true. Finally, if B and C are true, then the only thing that could prevent N from being able to explain the meanings of the words of L to another person would be N's inability to use a public language to specify the relevant correlations; i.e., by A being false.

Now any of the implications is enough to establish the inconsistency of {A, B, C}. But I use the second implication, i.e., from (A & C) to ~ B, to spell out the details. The strength of the implication can be established by a consideration of the following premises:

1. If C is true, then someone distinct from N, J, can have public evidence pertaining to N that tells J that L exists.
2. If A is true, then N can use a public language to explain to J what the words of L mean, if J can have public evidence pertaining to N that tells J that L exists.
3. If N can explain to J what the words of L mean, then B is false.

Premise 1:

If C is true, then someone distinct from N, J, can have public evidence pertaining to N that tells J that L exists. The point here is not to say that J must possess this or that specific form of public evidence, but only that she must have *some* public evidence. I do not expect that the speaker of this language will be making frantic gesticulations, nor be pointing to physical objects like tables, birds, and the like as he uses the language. Nonetheless, if J is going to know that N uses a language J must have *some* evidence of its existence and that evidence is necessarily public. J can know N uses a language only by means of some direct or indirect evidence about N's behaviour. This evidence must be public in character, since N can, in theory, have the evidence, if J can have it.

Premise 2:

If A is true, then N can use a public language to explain to J what the words of L mean, if J can have public evidence pertaining to N that tells J that L exists. The question now is whether N can use the same evidence to let J know what the words of L are about. I believe this is theoretically possible, if we grant both N and J a shared public language. Suppose N has a sensation, and he says in the words of L, "I have a so-and-so sensation" which, supposedly, J cannot understand. Suppose J knows a language is being used by observing some correlating public features of N. N can then use his public language to explain the words of L by focusing on the correlates. He is able to tell J: "By such-and-such words of L, I mean that which happens when such-and-such public events occur". One can imagine the sensation N focuses on to elicit in him the expression "I am having sensation S." And also imagine that each time he says this to himself, his blood pressure increases. (Wittgenstein 2001, §270). N can then use the physiological events to tell J the meaning of the words of L: "By 'S' I mean the sensation I have when my blood pressure increases."

But suppose the speaker is not aware of these correlations? One may agree that N is of course aware of his uses of L; but deny that he is aware of their public correlates. He is unaware of the public events that occur as he uses L. But *could* he not know about them? If another person could observe those features, then they could be brought to his notice also. It seems impossible that someone could have information about my public features that I cannot possibly have: if he could know

about them, he could then explain them to anyone with whom he shared a language, including me.

Premise 3:

If N can explain to J what the words of L mean, then B is false. If for every word of L, J knows how to specify exactly what that word stands for, then she understands L. There is at least a theoretical possibility that someone (apart from the person who uses the language) can understand the language even if a particular individual is unable to understand it (perhaps for lack of intelligence).

A critic may object that such an understanding would be incomplete. This objection might be inspired by Russell's distinction between knowledge by description and knowledge by acquaintance. (Russell, 1988). The observer may be able to gain a descriptive understanding of L, but a full understanding requires that she has acquaintance with the other's inner experience. This is to say that I can have a complete understanding of the proposition "X is in pain" only if I am acquainted, not with my pain, but X's pain.

But isn't this asking too much? If not, then every language, private or public, would require that we plug into the other person's mental states to understand his utterances about his sensations. In this case, we would probably have no need for psychological language, that is, the language with which we describe our sensations. All J needs do is simply pick up N's sensations at will and vice-versa. Moreover, if acquaintance with a word's referent is necessary for a full understanding of the word, we could not have a full understanding of words like "yesterday" and (when uttered by someone else) "I". Similarly, we could not fully understand words referring to events before our birth or after our death, since we cannot possibly have acquaintance with these events. Yet, we do take ourselves to have full understanding of these words.

Conclusion

My concern with the problem of private language involves at least three important questions: (i) what a supposed private language would be like; (ii) how the understanding of a private language might throw light on the private language argument and; (iii) how the impossibility of a private language could impact on some other problems in philosophy. On (i), I have argued that possession of a language that is incomprehensible to anyone but its speaker is either incompatible with possession of a public language, or is known to no one else but its speaker. I believe that a discussion of (ii) and (iii) must proceed from this interesting feature. However, these are questions for later consideration.

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“Time” Narratives: Religious and Historical

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This paper aims at understanding the concept of time in a religious framework, primarily from the perspective of Wittgenstein. In religious narratives, we find events happening in time. In every religious discourse, we come across events, which are captured in historical time. Each religion is embedded with stories, events and performances, which belong to a specific time in history. And many religious utterances were performed with reference to time – past and future. How far are these events, which happened in a religious setting, matched or corroborated with historical facts? What is the significance of these utterances? What do these events convey to us? Does it convey the same meaning to a believer and non-believer? In other words, how does the concept of ‘time’ function in historical and religious narratives? Does ‘time’ signify the same in both these frameworks or is it different? If it is same, then, in that case, how can one understand one’s religious stories/legends within the idea of historical time? If it is different, then what is the philosophical justification for it? We will focus on these issues in our paper, primarily from Wittgenstein’s perspective.

Wittgenstein believes that though there are utterances in religious domain with reference to time, it still belongs to a different framework altogether. Events that happened in time in a ‘religious sense’ signify something that is not signified and could not be signified by a ‘historical sense’. This is an outcome of the later Wittgenstein’s conception of language, where he believes that the meaning that is associated with respective words is different depending upon the context in which it is used. There is no one single essential meaning for a word, though the language that is used in different frameworks might be the same. The meaning that we derive out of that language is different from narrative to narrative. A concept that conveys a meaning in one narrative might be different from the meaning the same concept conveys in another narrative. Wittgenstein remarks: “The temporality of the clock and the temporality in music. They are not by any means equivalent concepts” (Wittgenstein 1980). This suggests that there is no one language and a corresponding meaning. On the other hand, there is only language-game and meaning, which exhibits its respective ‘forms of life’. For the later Wittgenstein, language has regularity and order, but this order is not a set of precise logical rules, this is a set of regular uses, institutions and customs. This set of rules is already a second order activity, a grammar that needs some reflection on something that is tacitly performed with spontaneity, founded on basic agreements and trust that exists between a hearer and a speaker. The grammar sets its rules only because there is proper use in a particular context. Meaningful modalities of human discourses are grounded in the reciprocal trust of man as they communicate with one another. Wittgenstein has further developed the notion of language-game into the notion of world-picture. A picture’s sense or non-sense can be determined only within the framework of its reference. These different pictures and different grammars have their basis on agreements on forms of life.

The mutual trust and tacit agreement made in the religious domain, makes religious language games possible in the wider context of life. One has to notice that the language of religion has its own “grammar”. Theology as

picture is a set of rules, the grammar that decides how a correct move is to be made in a particular religious context. Throughout his later work Wittgenstein tries to show that the utterances within religion must be understood as moves within a distinctive system of thought and language, otherwise they make no sense. What counts as evidence within this distinctive system would hardly do so elsewhere. Religious language is neither descriptive nor referential. It can be taken as an expression of value.

With this conception, Wittgenstein reminds us that the ‘time’ we are talking about need not mean the same in all contexts. He remarks: “Can I say that a play has a time of its own, which is not a segment of historical time? I.e., I can distinguish earlier and later within it but there is *no sense* to the question whether the events in it take place, say, before or after Caesar’s death.” (Wittgenstein 1980). This shows that there is the possibility of different frameworks to understand the concept of time. In the like manner, let us try to account for an event that happened in a religious narrative at a particular time. It must not be confused with a historical narrative, precisely because they belong to different frameworks altogether. Referring to Christianity, Wittgenstein says:

Christianity is not based on a historical truth; rather, it offers us a (historical) narrative and says; now believe! But not, believe this narrative with the belief appropriate to a historical narrative, rather: believe, through thick and thin, which you can do only as a result of a life. Here you have a narrative, don’t take the same attitude to it as you take to other historical narratives! Make a quite different place in your life for it. There is nothing paradoxical about that! (Wittgenstein 1980)

The point that Wittgenstein tries to drive home is that the religious (historical) narrative about the life of Christ cannot be equated with the historical narrative about the life of Caesar or Napoleon. A historical narrative enhances one’s knowledge of history. Thus it deals with a historical fact. On the contrary, a religious narrative enhances one’s faith in religion. A believer unlike a historian is not concerned with any concrete facts of existence, rather in the value of a given religious narrative as a parable. As he further points out: “A believer’s relation to these narratives is neither the relation to historical truth (probability), nor yet that to a theory consisting of ‘truths of reason’.” (Wittgenstein 1980). What is important here is that what difference does it make to one’s life when one comes across the narrative about the life of the Christ as a savior.

Christianity is said to have a historic basis. Its historical basis rests on certain historical facts such as the birth, crucifixion, and resurrection of Christ. But, says Wittgenstein: “here we have a belief in historic facts different from a belief in ordinary historic facts.” (Wittgenstein 1967). Although the facts about Christianity are treated as historical, they are not like ordinary historical facts because they have something more to cater to a believer than stating merely what has happened in the course of human history. In other words, they possess intrinsic value. It is not the indubitable evidence that makes a believer committed to a religious belief; rather it is his personal conviction that makes him committed to a religious belief. A religious belief,

is not, or not simply, a matter of weighing the evidence for or against certain propositions, and assenting or dissenting accordingly, but of holding a certain picture in mind and being moved by it affectively and cognitively. (Wittgenstein 1967)

Then, in a sense, events that happen in a 'religious time' need not carry the same sense like an event that happens in a 'historical time'. The narratives are different. 'Religious time' narrative is a logically self-contained universe of discourse. The idea that 'time' narratives are possible from different frameworks is available in philosophical thought. One of the prominent descriptions would be 'objective time' and 'subjective time'. The latter part is dealt elaborately in phenomenological analysis, especially the works of Paul Ricoeur's phenomenological analysis of human experience that reveals a temporal, narrative pattern. The time as past and future in a historical \objective sense is different from the time in a religious\ subjective sense, because of the meaning it conveys in the different discourses. An event that has happened in a historical narrative is 'past' and the event that is to happen is 'future'. Whereas this sense of 'past' and 'future' is not there in religious sense, we nevertheless talk of 'past' and 'future' happenings. Every year, we celebrate the birth of Krishna, the birth of Prophet Mohammed, the resurrection of Christ, etc. These aspects of the lived dimension of time are not in the 'grammar' of historical time. Phenomenologists like Husserl and Heidegger talked of lived dimension of time. Consciousness in terms of 'temporal structure' of human existence, which for Ricoeur is the 'narrative quality of experience'. "Time becomes human to the extent that it is organized after the manner of a narrative; narrative, in turn, is meaningful to the extent that it portrays the feature of temporal experience." (Ricoeur 1984-8). That all our understanding is embedded in a narrative framework – that it discloses the "mimetic" capacity of a text, not just to imitate actions but through the productive imagination to convey an admirable way of being-in-the-world.

Though the philosophical understanding of religious practices supports a view that there can be different narratives, still, how far such an interpretation is practiced by the 'actual' believers of a particular religion is subject to scrutiny. For, Wittgenstein acknowledges the fact that he is not a religious person.

Perhaps the most remarkable thing about religious language is that despite irreducible imprecision, and metaphorical language, religious languages are understandable even for one who is not an insider of that form of life. One may perhaps 'look and see' that there is a deeper structural connection of patterns in our experience that can not be fully grasped in precise univocal language, that there is scope for meaning to be expressed symbolically when symbolic language and narrative descriptions can point to some deeper truth and meaning that has a use in a community of language users. In this way all our thinking is imbedded within a narrative framework, even univocal language has its 'rough edge' and is not that precise, even a modern secular man of science takes recourse to some 'myths to live by.' There can be religious narratives depicting 'history-like' familiar world for those believers and language users for whom the meaning of that religious time or of that 'religious history' is constituted by the stories themselves since the meaning of these narratives is rooted in that very form of life within which it makes sense for meaning to be constituted. For a committed Christian, logic of the religious story in that particular context implies a historical referent such as an actual Jesus Christ undergoing an actual death and an actual resurrection, that is

what the logic of the narrative demands and that is what the logic of a fairy tale or a fiction can not demand. Here lies the difference between a religious story's depiction of a 'history like' situation irrespective of external verification of its claim, and of a historical depiction, that is open for a falsification claim. Wittgenstein remarks: "It strikes me that a religious belief could only be something like a passionate commitment to a system of reference." (Wittgenstein 1980). The meaning and its truth arise from the narrative itself, not from any external imposition, if it depicts a history- like situation or a lived dimension of time, that is how such stories are to be religiously narrated among a group of believers who are authentic participants of this shared language game.

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Narrative Identity and the Case for Wittgensteinian Metaphysics

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The debate as to what kind of philosophy – if any at all – is possible after Wittgenstein seems very much alive today. Many are facing up to the interpretational issues his methodological remarks present. Taken literally, these seem to imply that the philosopher true to the spirit of Wittgenstein should in fact stop doing philosophy altogether, or at least content himself with a description of everyday expressions. 'New Wittgensteinians' consequently insist that proper philosophy is therapeutic. They take Wittgenstein to show that a philosopher must not try and answer questions like: "What constitutes personal identity?" but should free us from the urge to ask such questions in the first place.

I myself do not think this reading does justice to the insights we find in Wittgenstein's work. Having always studied his writings next to those of philosophers like Heidegger and Levinas, I cannot help but see Wittgenstein as also contributing to an understanding of, e.g., self and subjectivity. But how can that be reconciled with Wittgenstein's blatantly anti-metaphysical statements? I prefer to follow Stephen Mulhall's advice and take (some of) Wittgenstein's methodological remarks rhetorically instead of literally. According to Mulhall, sections 108(b)-133 of the *Investigations* demonstrate the exact fallacy Wittgenstein is combating in other parts of the book: the idealization of phenomena like mind and meaning. Here, however, philosophy itself is presented in an overly purified form. These paragraphs should therefore be taken with a pinch of salt; they are not directed at metaphysics *per se*, i.e., at "a concern with essence as such", but only at "a particular fantasy of what such a concern must be." (Mulhall 2004, p. 76)

If Mulhall is right, Wittgenstein differs from his predecessors with respect to method but not with respect to goal. This reading holds the promise of a philosophy that still has significant things to say about matters metaphysical; that does not reify phenomena such as mind and identity, but does not remain silent about them either; that does not look for the wrong kinds of essences, but dares to ask fundamental questions nonetheless. Yet although such a philosophy would differ from both traditional metaphysics and an elimination of that tradition, it is not obvious how Wittgenstein's work can be said to exemplify it. For when he is not ridiculing one position or other, he is simply posing questions, often without answering them, or discussing examples, mostly without stating the conclusions he is driving at. One might wonder how *that* can be considered a genuine form of metaphysics.

In this paper I wish to elaborate upon Mulhall's suggestion by arguing that – despite his anti-metaphysical remarks and his seemingly superficial treatment of philosophical issues – Wittgenstein's oeuvre contains substantial ideas on matters such as mind and personal identity. I will focus on this latter topic. Now Wittgenstein does not discuss personal identity extensively, and the passages where it is mentioned (BB p. 61-74, PI § 404-413) indeed seem mere descriptions of our use of the pronoun 'I'. However, when we consult the writings that have a more personal or ethical flavour, we can see that Wittgenstein actually has more to say about what it means to be a person. Identity, moreover, is discussed *exten* by an author who is not often associated with Wittgenstein, but whose work can certainly be said to illustrate the type of philosophy

described above: Paul Ricoeur. He offers an account in which the self is not reified, but its existence is not denied either. And Wittgenstein's ideas turn out to be surprisingly similar to Ricoeur's. By thus focussing on an unusual topic and bringing Wittgenstein *tête-à-tête* with an unusual interlocutor, I hope to make plausible that there is such a thing as Wittgensteinian metaphysics. But I will turn to Ricoeur first. His treatment of personal identity is more accessible than that of Wittgenstein, so an exploration of Ricoeur's ideas will pave the way for an exploration of Wittgenstein's. Though the bringing together of thinkers from such different backgrounds may be controversial, I think that the work of the one will shed light on that of the other.

For the moment I will restrict myself to two of Ricoeur's shorter pieces: *Life: A Story in Search of a Narrator* and *Narrative Identity*. Ricoeur here asks what reasons we have for saying that a person remains the same over the years, and wonders whether the similarities between life and narrative are of any help. In a Wittgensteinian vein he immediately advises the reader of *Life [etc.]* not to ignore the differences between lives and stories, and begins *Narrative Identity* with a description of the many ways in which the term 'identity' is used. Some of these grammatical differences, Ricoeur continues, bespeak an ontological distinction between (in Heideggerian terms) *vorhanden* things and *daseinsmäßige* beings. It is therefore vital to distinguish between identity in the sense of sameness and identity in the sense of self: the identity of a person cannot be understood in the same way as the permanence of a thing over time.

Ricoeur illustrates what may result from overlooking this difference by discussing the work of Derek Parfit. As Ricoeur explains, Parfit presupposes that, since I am not my body or my experiences, the self must be some further fact. Parfit then considers some thought-experiments, each supposedly indicating the impossibility of deciding whether there is such a 'thing' as personal identity. He takes this to mean that the concept of identity is empty, and concludes that we should renounce all talk of the self. Ricoeur does not think this is the right conclusion to draw. In his view Parfit's puzzles only show that – to paraphrase Wittgenstein – personal identity conceived of as an *object* "drops out of consideration as irrelevant." (PI § 293) This does not mean that identity is an illusion; it means that we need an alternative account of the self.

According to Ricoeur personal identity does not reside in a pre-given substrate, but forms an "ambition" (Blamley 1995, p. 583) that has to take shape in the course of a lifetime. Identity consequently is more akin to a story than to any kind of substance, and recourse to narratological concepts is more helpful in explaining the self than talking in terms of facts and objects. Ricoeur thinks Aristotle's concept of plot is especially informative. Analogous to an operation of emplotment, the process of self-formation can be seen as the making into a meaningful whole of an uninterpreted sequence of disparate and sometimes conflicting events. Thus understanding a human life as a narrative unity enables us, Ricoeur believes, to incorporate both change and permanence without change threatening permanence, and *vice versa*. On this account identity is "neither an incoherent succession of occurrences nor an immutable substance incapable of becoming." (Ricoeur 1986, p. 131) Both

elimination and sublimation are avoided: "In the place of an ego enchanted by itself a *self* is born, taught by cultural symbols, first among which are the stories received in the literary tradition. These stories give unity – not unity of substance but of narrative wholeness." (Ricoeur 1986, p. 132)

Obviously this exposé cannot answer all questions concerning personal identity or Ricoeur's conception of it. I will concentrate on the question that is most urgent in the current context: what has Ricoeur's theory got to do with wittgensteinian metaphysics? At first glance Wittgenstein says little about the topic Ricoeur investigates so thoroughly. Only a few sections of the *Investigations* concern the pronoun 'I', culminating in the scornful remark that an account of the self may say more about "the state of a philosopher's attention when he says the word 'self' to himself" (PI § 413) than about identity. In the *Blue Book* Wittgenstein is more elaborate. He reminds us that 'I' generally is not used to denote a body. This may lead one to state that the I is of a mental nature, creating "the illusion that we use this word to refer to something bodiless, which, however, has its seat in our body." (BB p. 69) That is no improvement, Wittgenstein thinks, for then it is still assumed that words like 'I' and 'self' function as labels for objects. And there are important differences between the grammar of a statement about psychological phenomena and "the grammar of an outwardly similar statement about physical objects." (BB p. 70)

Wittgenstein's reflections abound with references to the way relevant concepts are used. But, on my reading, he does not claim that all problems surrounding the self are thereby (dis)solved. Although he clearly disapproves of several identity theories, Wittgenstein does not present his remarks as a remedy for all philosophical activity. He simply argues that theorizing is useless when guided by the wrong expectations. His diagnosis is similar to Ricoeur's: philosophers who assume that only a fact or object can explain personal identity, go astray even before they have started speculating. Subjects cannot be approached in the same way as objects.

So the upshot of Wittgenstein's discussion of the pronoun 'I' resembles the first step in Ricoeur's account of narrative identity; both question the foundations of certain theories on identity. But Ricoeur does not leave it at that, and also tries to provide an alternative to these theories. Since I am investigating the possibility of wittgensteinian metaphysics, it is interesting to examine whether an alternative can be formulated on the basis of Wittgenstein's work as well. For is the dismantling of philosophical creations his only goal, or does he also contribute to understanding the self in a more constructive way? The *Blue Book* and the *Investigations* do not contain an answer to this, but more can be learned from Wittgenstein's work on ethics and religion.

Of all his writings on these matters, I find the *Lectures on Religious Belief* most revealing. Here Wittgenstein looks for a way to distinguish the believer from the non-believer, for instance with regard to Judgement Day. One cannot simply state, he explains, that both take a different stance towards the same state of affairs, for a religious dispute strictly speaking never concerns facts. It seems more appropriate to say that the believer *always* thinks about Last Judgement, whereas the non-believer *never* has such thoughts: "Here, an enormous difference would be between those people for whom the picture is constantly in the foreground, and the others who just didn't use it at all." (LRB p. 56) Wittgenstein suggests that the believer is characterized by the thoughts he has or pictures he uses.

This suggestion should not be misunderstood. Wittgenstein is not claiming that a list of convictions inside a person's head makes him or her religious. That would contradict both his writings on the soul (which he thinks is not some private inner realm) as well as his other writings on religion (where he argues that being religious does not amount to having a theory). Fortunately the *Lectures* support a different reading.

Religious belief is not portrayed as something internal to the believer, but rather as something that "will show [...]" by regulating for in all his life." (LRB p. 54) The pictures Wittgenstein talks about therefore play a different role than simply floating before the believer's inner eye. That the religious person constantly thinks of Judgement Day means that he has made this picture into the "guidance for his life" (LRB p. 53). This picture moreover cannot be seen as something detached from or preceding the believer's living his life. For although terms with a theoretical connotation (like 'belief' and 'picture') are used as regards religion, Wittgenstein explains elsewhere, "it's really a way of living, or a way of assessing life" (CV p. 64). The difference between the believer and the non-believer, then, is existential rather than epistemological. The non-believer is characterized by a lack of a direction in life. The believer in contrast judges – to use Ricoeur's words – all his "doing[s] and undergoing[s]" (Ricoeur 1986, p. 127) in view of a certain picture and consequently makes his life into a meaningful whole.

This description of religious belief certainly is debatable. To Wittgenstein however one thing in these notes seems beyond doubt: life is a task one should take very seriously. His *Lectures* can thus be said to deal, not with religion narrowly defined, but with what it means to be a human being and lead a human life. If this is the right reading, these notes respond to questions akin to those Ricoeur investigates. And this means that there is not just fierce criticism on certain identity theories, but also an alternative to be found in Wittgenstein's work, even though it is not presented as such. This wittgensteinian alternative, moreover, is strikingly similar to Ricoeur's. Remember that Ricoeur refuses to assign personal identity to an immutable substance; likewise Wittgenstein does not reduce someone's life-view to a static internal state. Ricoeur maintains that identity is formed out of numerous heterogeneous elements; similarly Wittgenstein claims that a person's convictions show themselves in all the different things he undertakes and undergoes. Ricoeur states that life is but a biological phenomenon before it is narrated; likewise Wittgenstein feels that the good life constitutes a meaningful whole instead of a mere succession of events. Where Ricoeur argues that a story warrants the unity of a human life, Wittgenstein believes that a figure or pattern can be seen in the existence of someone who takes his humanity seriously.

Now I do not claim that Wittgenstein has hereby definitively answered the question: "What constitutes personal identity?" and has done so in exactly the same way as Ricoeur. That is not the case nor is it what I intended to show. I merely hope to have demonstrated that Wittgenstein's contribution to philosophy is not a purely destructive one. Despite his negative remarks and his reluctance to make conclusions explicit, Wittgenstein cannot be said to embody the very end of metaphysics. From his writings views on, e.g., self and subjectivity can be extracted – though admittedly in a sometimes roundabout way – that he may not have articulated himself, but that do not run counter to his philosophical convictions either. There is philosophical life after Wittgenstein after all.

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The Strange Case of the *Prototractatus* Note

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1. Warning

On presenting the so-called *Prototractatus* notebook to the press, von Wright pointed out the enigmatic nature of the remark at the manuscript's beginning, which so recites: "*Zwischen diese Sätze werden alle guten Sätze meiner anderen Manuskripte gefügt. Die Nummern zeigen die Reihenfolge und die Wichtigkeit der Sätze an. So folgt 5.04101 auf 5.041 und auf jenen 5.0411 welcher Satz wichtiger ist als 5.04101*" (Wittgenstein 1971, p.39). "A student of the manuscript - von Wright observed - is struck by the use of the *accusative* in '*Zwischen diese Sätze*' and by the phrase '*werden alle guten Sätze... gefügt*'. The question arises which are the sentences, of which is said that in between them all the good sentences of Wittgenstein's other notes will be inserted. My conjecture is that they are the sentences listed on the first text-page, or possibly first few text-pages. Perhaps the note at the very beginning was written after Wittgenstein had on the first text-page written down the remarks which so to speak constitute the backbone of the entire work" (Wittgenstein 1971, p.3). The attempt to face the question posed by von Wright leads us to try a more complete inquiry: what, when, where, who and above all why.

2. What

The first phrase of the note distinguishes between "these sentences" and "all the good sentences of my [of Wittgenstein] other manuscripts". Von Wright tries to identify the first ones; the answer becomes easier if one asks, instead, which are "the good sentences of the other manuscripts" that are inserted between those at the moment in the notebook. If we examine the *current* content of the notebook, it is easy to see that no citation from other manuscripts does appear until the horizontal line traced at page 28, after very 282 sentences that, so long as we know, are formulated *ex novo*.¹ Beginning from such line, 29 consecutive sentences follow, drawn from the 1913 *Notes on logic*; and so on. In total, the literal or nearly literal citations from known manuscripts are beyond 200, all successive (with one exception) to the line of page 28. We can therefore deduce that "these sentences" of the present manuscript, to which the note referred, are all those that precede the page 28 line.

If this is true, then the remark is not describing a state of fact: it rather prescribes a series of operations to do in order to complete the text according to the author's intent. In particular, the accusative of motion into place indicates that such job is in some way traced through numerals, but it is still in action, in an indeterminate stage at the moment in which the manuscript was taken in consideration. The part of von Wright's analysis tending to establish when the note has been affixed becomes therefore crucial.

3. When

The content of the warning leads us to exclude that it can have been formulated immediately after the first text-page.

It is more logical to think that it was written only once Wittgenstein arrived at page 28, since until that point there is no trace of the idea to systematically use material from any previous manuscripts. But when in effect the note is written up? That is: when Wittgenstein finishes the first 28 pages of the notebook?

According to (McGuinness 2002), the first 70 pages of the *Prototractatus* were composed between April 1915 and August 1916, in twofold shape: on notebook and on loose sheets. If we connect the structural change (implied from the passage from the notebook to the scattered sheets) with the methodological change (from the former drawing up *ex novo* to the systematic retrieval of previous material), it becomes natural to distinguish within these seventy pages the first layer, with all evidence directly composed on the notebook. Once Wittgenstein reached page 28, he would have written down the note and would have continued the job, now consisting in finding good sentences from other manuscripts, using the support offered by loose sheets, which better favour complex structural compositions. Therefore, in October 1915, when we have notice of a loose sheets support, the draft of the notebook is suspended at page 28; the numeration method now also concurs to virtually connect material of assorted origin, written in effects in physically different but logically coherent sequences.

4. Where

Thanks to the virtual structure determined by the numerical notation, the effective physical site in which the sentences are recorded becomes relatively indifferent. The diaries proceed in date order. *Prototractatus* notebook collects sentences in order of draft and/or of finding. The version on not-consecutive scattered sheets presumably reproduces essentially the sentences of that one, but by hypertextual pages (that is, for levels and subsequences). Such a version is moreover collecting the usable sentences drafted from previous manuscripts, by placing them on respective page and so assigning the right number to each. It is reasonable to think that *Prototractatus* notebook already carried its title "*Logisch-Philosophische Abhandlung*". The back page was still white, since Wittgenstein can have inserted the dedication to David Pinsent only after Mrs Fanny Pinsent's letter that on 6th July 1918 announced his death. The back of the sheet with Kürnberger's maxim, in front of the first text-page, is free too. So, where did Wittgenstein write his warning? The editors of the bilinguist 1971 edition reproduce it on the first text-page, over sentence number 1, but Wittgenstein really hasn't put it near the text. He wrote it on notebook's very first page, before the title, the maxim and the other free pages. Perhaps this note, unlike that one in the *Tractatus*, does not properly address the final reader.

5. Who

Who is therefore the addressee of the warning? Evidently, the addressee is the eventual publisher, an editor of Wittgenstein's papers who, opening the notebook, must be made aware of its possible use. So the remark acquaints

¹ The only exception is the 4.10013 short sentence at page 18.

him that the notebook contains only the skeleton of the work, which is still in progress: it has to be integrated with sentences of previous manuscripts, separately documented. Wittgenstein had often indicated Russell as his posthumous editor, even when the forecast of his imminent death sounded less outlandish; now, the hypothesis is anything but remote, and the papers are predisposed to such evenness. The purpose is reaffirmed in the letter of 22nd October 1915: "If I don't survive - he writes to Russell - get my people to send you all my manuscripts: among them you'll find the final summary written in pencil on loose sheets. It will probably cost you some trouble to understand it all, but don't be put off by that". The difficulty "to understand it all" does not refer as much to the content of the sentences, as instead to the unusual structure of the text, that has to be entirely recomposed.

McGuinness thinks that, as can be assumed for the following year's typescripts, the loose sheets listed the sentences in strict numeration order, according to the method of the final printed version. However numbered typescripts and loose sheets don't have the same structure at all. A drawing up in numeration order is closely sequential, it doesn't favour inserts and it doesn't take advantage of a single sheet support. On the contrary, loose sheets - if exactly every sheet is dedicated to a specific level of numeration - allow alternated orderings and different reading modalities; on this reticulum of sheets it is easier to make additions and transfers. It is the technique today used for hypertextual documents. It doesn't astonish that Wittgenstein did not think it was immediate not even for his elective addressee, Bertrand Russell, who even had a good familiarity with the decimal structure used also by *Principia Mathematica*.

6. Why

A last issue is: why to conclude the remark with such a specific example, and why just with the three propositions of the 5.401 branch? The reading of the passages themselves offers one answer that is in some way amazing.

- 5.041 In particular, the truth of a proposition *p* follows from [folgt aus] the truth of an other one, *q*, if all the truth-grounds of the former are truth-grounds of the latter.
- 5.04101 We also say that the truth-grounds of the one are contained in those of the other; *p* follows from *q*.
- 5.0411 That one proposition follows from an other, we can see it from the structure of the proposition.

As we can see, the sentences chosen to exemplify the way in which a sentence of the *Abhandlung* follows [folgt auf] an other, by consequence of theirs numerals, deal in effect with the manner how a sentence logically follows from [folgt aus] an other. Wittgenstein evidently suggests that his propositions follow from the departure sentence in a some analogous sense in which in logic *p* follows from *q*. To enunciate comments to the sentence *q* is equivalent to explicate the content of *q*. Wittgenstein's example suggests that his way to enunciate tends to find the intimate nexus between thoughts. So his propositions can be cited outside context, but the general sense of the work cannot be set aside from the organic relation between them, on vertical and on horizontal line.

A dramatic turn of events happens finally: in the *Tractatus*, the sentence 5.041 has been visibly corrected,

because it contained a logical error. The truth-grounds of a complex sentence *q* are all those combinations of truth-values of the elementary propositions that render the complex sentence true. Given a list of states of things represented from a truth-table with 4 rows that arranges two elementary sentences *a* and *b*, let *q* their logical product (*a* . *b*) and *p* their logical sum (*a* v *b*). We have that *p* logically follows from *q*; however, *q* has only one truth-ground (only one line of the four) while *p* has three truth-grounds. Therefore it is not true that all the truth-grounds of the consequence *p* are comprised between the truth-grounds of the premise *q*, but it exactly the opposite is true. The consequence has more truth-grounds in general than the premise from which it follows: its grounds are *not* "contained in those of the other", like instead also 5.04101 says. The error is discovered in 1922 by Ramsey during the job of translation; Ramsey suggests that there was an oversight, an exchange between "ersten" and "zweiten" in sentence 5.041, now numbered as 5.12. Wittgenstein answers in a very dry way, accepting the relief:

Your correction, the transposition of "first" and "second", is quite right. Is "first" and "second" in the wrong order in the German too? If so, please set it right. Otherwise leave the German as it is (Wittgenstein 1973, p.31).

The correction, although necessary, really distorts the whole passage. In effect it seemed natural that the premise sentence had more content than the single consequence: "If *p* follows from *q*, the sense of *p* is contained in the sense of *q*" (5.04102). However, the content of a sentence, how much it says, does not correspond to the truth content as number of "truth-grounds". If Wittgenstein had become aware in advance of the oversight, he could have made a step ahead, rather than to limit himself to a formal correction that leaves one inelegant situation. The content of a sentence is not in function of its possible verifications: it is not the number of "V"s in the truth-table to measure the empiricist content of a sentence, as rather the number of "F"s! In order to maintain the intuitive sense of "comprehensiveness" and "content", it would have been unavoidable to enter the road taken by (Popper 1934), recognising that the content of a sentence is proportional to its falsifiability, to the number of states of things that correspond to the "F"s of the table. In this way, the parallelism suggested by the sentences cited in the note to the *Prototractatus* would be totally strengthened and it could induce to an interpretation of the structure by decimals, so as the note suggested, still more meaningful and essential.

7. Epilogue

After writing the remark at the beginning of the *Prototractatus*, a little before October 1915, the systematic rereading of previous manuscripts begins, to find by successive screenings the best usable material. The new sentences are brought back on a loose sheets support - sheets organised as hypertext's pages. With the final 1918's restructure, the architectonic complexity and the formal design become so expressive that they can totally be appreciated perhaps only with an analogous representation by hypertextual pages.²

The final skim focuses on the second diary (and than the following one, today lost); the "good sentences" ultimately recovered have been copied (perhaps on little sheets singularly numbered) and marked at the same time

² For a version of the *Tractatus* as hypertext, see at the Internet address www.bazzocchi.net/wittgenstein.

on the notebooks. Of these first 42 special marked phrases, only four³ are comprised in the final typescript (but no more in the *Prototractatus*). A similar origin reasonably had the "supplement 72", stuck in extremis to the typescript sent in 1919 to Russell (and through Dorothy Wrinch to Ostwald for the publication in the *Annalen der Naturphilosophie*). The adding was not printed by Ostwald, who in its place leaves the reference: "4.0141 (*Siehe Ergänzung Nr. 72*)". The dance of the flying sheets, with the sentences to insert in between those of the book, continues until the end, and perhaps beyond. Until when, after an incautious solicitation of Ogden, publisher of the English edition, about the eventuality of other possible supplements, Wittgenstein loses his temper: "The supplements are exactly what must *not* be printed – he answers on May 1922 - To let you print the *Ergänzungen* would be no remedy. It would be just as if you had gone to a joiner and ordered a table and he had made the table too short and now would sell you the shavings and sawdust and other rubbish along with the table to make up for its shortness. (Rather than print the *Ergänzungen* to make the book fatter leave a dozen white sheets for the reader to swear into when he has purchased the book and cannot understand it)" (Wittgenstein 1973, p. 46).

The last "sentences drawn from other manuscripts", evidently not equally "good", are so omitted and the process of insertion, announced in 1915 note, finishes therefore in definitive way.

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³ See Tractatus, 3.221 (first part), 3.221 (second part), 3.251 and 4.0311.

Subjective Similarity and Public Language

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Kripke's version of "Wittgenstein's paradox" (Kripke 1982, pp. 7-22) can, as he suggests (p. 20), be presented as follows. Suppose that Mr. Green uses the words 'green' and 'blue' as most English speakers with normal colour vision do, at least in clear cases. It seems to him that he knows what the words mean, and that when he uses them he does so correctly. Although he has only used the words finitely many times in the past, it seems to him that he has grasped and that he follows implicit semantic rules which determine how he should use them in indefinitely many new cases. But now suppose that it is time T and that his strange friend Mr. Grue asks him what colour the grass lawn that they happen to be standing on is. Confidently and unhesitatingly Green replies "green". But Grue looks doubtful, and asks whether Green meant to say "blue" instead. In the past, Grue suggests, Green might have meant grue by "green" and bleen by "blue", and if so, then, as it is T time, Green should now reply "blue", not "green".¹ Grue is not questioning Green's perception or the accuracy of his memory. Rather, Grue claims, Green is mistaken in supposing that he is now acting in accordance with his previous linguistic intentions. There is, Grue claims, no *fact* about Green's past history – nothing that was ever in his mind, or in his external behaviour – which establishes that in the past he used 'green' and 'blue' to mean green and blue, not grue and bleen. So, nothing now compels Green to call the grass "green", rather than "blue". Moreover, Grue suggests, Green has no *justification* for doing so; in doing so Green is not following a rule but making a blind and unjustified stab in the dark. Green is astonished, and objects that in his past use of 'green' he intended that it apply to all and only objects of the same colour as the grass they are now standing on. But this does not impress Grue who suggests that Green might equally have meant same shmoulour.²

Kripke spells out the implications. Clearly, the same doubt can be raised about the use of any word. It is then pointless to attempt to explain the rule for using that word in terms of other more "basic" rules, because the sceptical move can be repeated at the more basic level. Eventually the process of using a rule to interpret a rule must stop, leaving rules whose use cannot be justified. Moreover, if no facts establish past meanings, then no facts can establish present meanings either: "It seems that the entire idea of meaning vanishes into thin air" (pp. 19-22).

Kripke suggests that Wittgenstein proposed a "sceptical" solution, which (unlike a "straight" solution) begins by conceding that the sceptic's negative conclusions are unanswerable, and aims to show that our use of language can nevertheless be justified. According to Kripke's Wittgenstein, we should abandon the attempt to find necessary and sufficient conditions (truth conditions) for following a rule, and look instead for justification (or assertability) conditions for doing so. These should give the circumstances in which a given assertion is allowed or licensed, and so should be based on an examination of

our actual use of language and the role that it plays in our daily lives. However Wittgenstein's paradox seems to show that justification conditions cannot be formulated on an individual basis. Kripke concludes that "if one person is considered in isolation, the notion of a rule as guiding the person who adopts it can have *no* substantive content, all we can say is that the individual uses rules "unhesitatingly, but *blindly*" (pp. 87-88). Consequently it seems that we must seek justification conditions in the public use of language, with the result that rule following becomes a matter of accepting the authority of a given linguistic community and of conforming with its conventions: "We say of someone else that he follows a certain rule when his responses agree with our own and deny it when they do not. ... Our entire lives depend on countless such interactions, and on the 'game' of attributing to others mastery of certain concepts or rules, thereby expecting them to behave as we do" (pp. 91-93). This view is consistent with Wittgenstein's remarks that: "the *speaking* of a language is part of an activity, or of a form of life" which simply "has to be accepted" as "the given" (Wittgenstein 1953, §23, p. 226).

However Kripke suggests that this solution is inadequate because it allows no place for individual understanding and offers no explanation for the agreement required for rule following: "On Wittgenstein's conception, a certain type of traditional – and overwhelmingly natural – explanation of our shared form of life is excluded. We cannot say that we all use the word 'green' as we do *because* we all grasp the concept green in the same way, ... *because* we share a common concept of green. ... For Wittgenstein, an 'explanation' of this kind ignores his treatment of the sceptical paradox and its solution. There is no objective fact – that we all mean green by 'green', or even that a given individual does – that explains our agreement in individual cases. Rather our license to say of each other that we mean green by 'green' is part of a 'language game' that sustains itself only because of the brute fact that we generally agree. (Nothing about 'grasping concepts' guarantees that it will not break down tomorrow.)" (p. 97).³

I suggest that, given reasonable assumptions, individual understanding of language is possible, and that it can be used to provide the traditional, overwhelmingly natural, explanation for our shared form of life. It is assumed that language can be defined recursively. Many words can be defined verbally; in terms of others. But ultimately we are left with the problem of the "base cases"; words which can only be defined ostensively. Examples include sensation language and basic mathematical concepts; such as 'plus two' and even 'plus zero' (Wittgenstein 1956, §3). My proposal is intended to apply generally but, for the sake of simplicity, I will concentrate on sensation language here.

It is assumed that the speakers are human and that they use language intentionally. Each speaker is assumed to have a (partly innate) subjective standard of similarity; see e.g. (Quine 1969, ch. 5). For present purposes the problem of vagueness can be ignored, and so subjective

1 Here Grue is appealing to the following rules. An object should be called "grue" at time t if it is green and t is before T, or it is blue and t is T or later. Similarly, an object should be called "bleen" at time t if it is blue and t is before T, or it is green and t is T or later (Ullian 1961).

2 Just as 'green', and 'blue' are colours, so 'grue' and 'bleen' are shmoulours. So if Green had meant shmoulour by "colour", then, as the grass at T is the same shmoulour as blue things before T (i.e., bleen), he should now call it "blue".

3 For the sake of coherence and readability 'plus' has been changed to 'green' without indication in this passage

similarity can be thought of as an absolute notion (for each speaker), as a binary relation which holds between objects of the appropriate type.⁴ The speaker may thus judge two colour patches to be the same_s; to be the same colour relative to the speaker's subjective standard of similarity. Judgments of this kind are pre-linguistic; a speaker may pre-linguistically judge that two colour samples are the same_s in the same way that a dog follows a scent or a bird recognizes its chick when returning to a crowded colony.

It is assumed that speakers learn sensation language by a process of internal ostensive definition in which words are uniformly_s associated with sensations. Wittgenstein describes this process as consisting of the speaker attending to samples of the sensation and impressing upon themselves the connection between the word and the sensation (Wittgenstein 1953, §258). If the speaker has always associated a word with samples of the same_s sensation (at least in all sincere uses of the word which the speaker regards as correct), then the speaker is said to have formed a semantic_s association between the word and the sensation; the speaker is said to have used the word in the same_s way, or semantically_s. It is also assumed that, on realizing that a word has been used semantically_s, speakers are capable of grasping the (implicit) general rule for the word, by inductively inferring that the word should always be used in the same_s way as it has been. Following a rule (given that one has done so in the past) thus consists of continuing to use the word semantically_s.

It is further assumed that (prompted and emboldened by accompanying dispositions) speakers normally *endeavour* to use language semantically_s, and that they are normally *capable* of doing so. Wittgenstein argues, in effect, that semantic_s association is unintelligible as a speaker has no justification for thinking that they are currently using the word in the same_s way as they have done in the past; (Wittgenstein 1953, §§258, 265), expounded in (Kenny 1973, ch. 10). However it seems to me that this objection is decisively met by Ayer (Ayer 1954) and Kripke (Kripke 1982, n. 47), who argue that speakers simply *have* to be trusted to identify their own sensations correctly; for if they could not then no appeal to public criteria would help them do so, as their ability to identify external phenomena depends on their ability to identify relevant sensory impressions. As the present proposal seeks only to embellish the sceptical solution, it is sufficient to assume that the speaker is *normally* successful in endeavouring to use language semantically_s, and this assumption can be supported by appealing to the causal basis of perception, memory, etc., and by inductive arguments for their reliability based on survival value and natural selection. The speaker may occasionally be unsuccessful without being aware of the fact. They may also become aware of a systemic error; for example an individual might go colour blind and discover this fact through taste (on failing to distinguish, say, between ripe and unripe fruit).

Speakers are normally *justified* in endeavouring to use language semantically_s. They should normally endeavour to do so in order to be able to refer to significant features of (regularities in) the world in a meaningful way; in order that their signs (marks, symbols,

sounds, etc.) signify (have significance). In exceptional circumstances a speaker may justifiably use a word non-semantically_s (pragmatically_s), but such use is only meaningful when contrasted with its normal semantic_s use.

Returning to the dispute between Green and Grue, Green is disposed to call the grass "green" and not "blue" at time T, and in intentionally doing so he is using 'green' semantically_s; he is following the rule that he has grasped for 'green'. As there are no unusual circumstances he is also justified in doing so; and would not be justified in answering any other way. Equally, and perhaps more surprisingly, Grue is justified in thinking that the grass should be called "blue" at T, as this would be to use 'blue' semantically relative to his subjective standard of similarity. On this account, Grue turns out to be far less bizarre than he at first seems. Like Green, he endeavours to use language systematically, and differs only in having an unusual sense of similarity.

The extension to the public case comes with the further assumption that the subjective standards of the speakers of the language are sufficiently similar. As Quine puts it: "the ostensive learning of words ... is a curiously comfortable case of induction, a game of chance with loaded dice. ... For the learner [of 'yellow'] is generalizing on his yellow samples by similarity considerations, and his neighbours have themselves acquired the use of the word "yellow", in their day, by the same similarity considerations" (Quine 1969, p. 125). This assumption seems reasonable given our common human nature ("we being birds of a feather").

The reinstatement of subjective similarity allows for individual understanding of concepts. The common-similarity assumption then provides an for agreement in public language use; for agreement in language games, for shared forms of life. Speakers who share a common standard of similarity all use a word such as 'green' in the same way because they all grasp the concept 'green' in the same way, because they share a common concept of green.⁵ Reinstating subjective similarity also accounts for significant isolated and novel use of language; such as used by desert-island castaways improvising new vocabulary and scientists introducing new theoretical terms. In practice, public and private uses of language are interwoven. Public meanings are established by agreement or convention, while concepts are typically acquired through a mixture of private ostension and public instruction. Public correction is possible when a speaker is mistaken about a definition or endeavours to use a word semantically_s but fails; but in the latter case the correction is only comprehensible if (at least some) agreement on subjective similarity is assumed.

A formal theory of the individual acquisition and use of ostensive concepts, on the basis of subjective similarity, is given in (Bell 2005); including a formal treatment of the proposed solution to Wittgenstein's paradox.

4 As Quine notes (p. 122), a comparative notion of similarity (a is more similar to b than to c) is needed to deal with vagueness. The speaker's absolute similarity judgments should thus be seen as the result of unconscious, "elementary", abstraction processes, which typically involve "delicate comparisons and shrewd inferences". However, the central problem of Wittgenstein's paradox arises once vagueness has been removed; when it is assumed that we are dealing with "clear" cases.

5 It is possible that we only agree up to equivalence; that is, that our sensations differ, but that we nevertheless make the same distinctions. This gives rise to the familiar colour-swap problem: you and I both use the words 'green' and 'red' in the same way, but whenever I experience green, you experience red, and vice-versa. It may thus seem odd to say that we have these concepts in common. However, given the shared biological basis of our perception, dramatic examples like this are unlikely. We may also be misled here by the importance that we attach to perceptions; by "the blinding dazzle of color vision" (Quine 1969, p. 128). Arguably a robot which intentionally (in realizing a program) used the words 'green' and 'red' as we do, would share these concepts with us. Consider also more abstract cases, such as 'plus one', where it is hard to see what could be added to agreement up to equivalence.

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Wittgenstein's Musing on the Self and its Other Through Philosophy of Language

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Wittgenstein remarks:

Not: "Without language we could not communicate with One another" – but for sure: Without language we cannot influence other people in such and such ways; cannot build roads and machines, etc. And also: without the use of speech and writing people could not communicate.¹

It is clear that Wittgenstein in his later philosophy speaks of two sorts of language. The first one is ordinary language and the other is private language. The first one is colloquial and easily communicable to people. This sort of language he names ordinary language. His assertion is that ordinary language removes the difficulties involved in case of artificial language or symbolic language. He, therefore clearly points out that ordinary language is colloquial. His later philosophy revolves around the circle of ordinary language.

Wittgenstein advocates that ordinary language has its prime role in human life. We cannot ignore that it is indispensably related with our life. Human life will be stagnant without ordinary language. Although we are in the 21st century, we have easiest and cheapest kinds of instruments like mobile, computer etc. to communicate from distant places to the nearest one; still we are in the grip of ordinary language. The reason is that the medium which we use to communicate is ordinary language. If we do not know how to use it, it will not be easy for us to run our life smoothly. So, we will have to understand the technique of using ordinary language. We know very well that nowadays life is competitive, so, if we fail to be master of the technique of ordinary language, we know, what will be our situation in the near future. Therefore, Wittgenstein significantly writes, "To understand a sentence means to understand a language and to understand a language means to be master of a technique."²

Ordinary language has a social nature. Because it can unite people coming from different backgrounds. As a result we can exchange our views and become familiar to each other. So, ordinary language can create a congenial atmosphere among people. The most significant aspect of ordinary language is that it can create mutual understanding among different types of people, which is really a center of gravity of ordinary language. We know that society is a network of people, so to regulate our society in a well ordered manner we have to preserve our values like-Truthfulness, Honesty, love, Justice, Patriotism, Tolerance, Humanity etc. These values are cream of social life. If we do not carefully handle, society will vanish forever. The cardinal point is that these social values are brought into light by the media of ordinary language. Over and above ordinary language can spread the awareness of social values to masses. Therefore, it can be opined that ordinary language has a unique role in society.

Wittgenstein in his *Blue and Brown Book* writes that ordinary language is that 'which pervades all our life.' It entails that ordinary language is indispensably related with our life. Apart from this, life will be sterile. He mentions "Language is an instrument. Its concepts are instruments."³ Just as instruments are used for various

purposes, so also language can be utilized to perform different activities. As for instance we can utilize language in case of giving orders and obeying them, constructing an object from a description, reporting an event, forming and testing a hypothesis, making a story; and reading it, play acting, solving a problem in practical arithmetic etc. These activities are nothing but language games or different forms of life. Forms of life show that language is public. Because people can understand others nature through linguistic discourse.

Ordinary language indicates that there is an interrelation between language and activity. He holds that language game is meant to bring into prominence the fact the speaking of language is part of an activity or form of life⁴. Activities are performed through language. In society, human life is pursued through different activities. So, it is lucid that ordinary language is a media and through this media life is regulated. Nothing remains, if we left out linguistic media from human life. So, language has a unique role in social life, because it can create unity, co-ordination among people. Malinowski adds, "Speech is the necessary means of communication; it is the one indispensable instrument for creating the ties of the instrument. Without which unified social action is impossible."⁵ Wittgenstein, through his later philosophy of language, time and again carries the picture of social nature of language. He emphatically views that language is part of an activity or form of life. H. R Smart points out that language is founded in the very life of people. The life of people is the ultimate ground which gives language its unity and significance. As language is essentially an activity, it can be understood only with reference to the moods of life people⁶.

It can be stated that Wittgenstein in his later philosophy confirms the view that his language is ordinary language, which is easily communicable. We know that society is a center of living for different people coming from different backgrounds. People follow ordinary language because it is accessible or communicable. So, it can unite people or bring harmony or co-ordination among people. Again it can bring out the defects of society. People come out from the cave of egoism and can concentrate on society through ordinary language. Therefore, he implies that language is a social phenomenon.

Wittgenstein in his later philosophy holds that private language is impossible in the sense that it cannot take any role to spread the social aspect of language in society. He means by private language a typical language, which is only accessible to the speaker. He defines it as "The individual words of this language are to refer to what can only be known to the person speaking to his immediate private sensations, so another person cannot understand language"⁷. Wittgenstein does not accept it because it is not communicable to others. Again people do not share it. Language becomes communicable when others share it. Therefore, it can be opined that private language is not entertainable in the context of society. He views that

Let us imagine a table (something like a dictionary) that exists only in our imagination. A dictionary can be

used to justify translation of a word X into a word Y. But are we to call it an imagination if such a table is to be looked up only in the imagination? Well this is subjective justification. But justification consists in appealing to something independent. But surely I can appeal from one memory to another. For example, I do not know if I have remembered the time of a departure of a train right and to check it I call to mind how a page of the timetable looked? Is not it the same here?— No; for this process has got to produce a memory which is actually correct. If the mental image of the timetable could not itself be tested for correctness, how could it conform the correctness of the first memory?⁸

The above assertion implies that Wittgenstein makes an implicit distinction between private language and ordinary language (self and other). Private language is private in the sense that it is not justifiable or correctable, while ordinary language is public in the sense that it is correctable or justifiable or sharable. So, ordinary language has a great demand in society. D.W. Theobald mentions, "A Private language as Wittgenstein pointed out is inconceivable because there would be no possible check upon whether it was being used correctly or not. The use of language is after all public – it can be checked."⁹ Wittgenstein's view is that language needs criteria or grammar. As for instance, in respect of pain we cannot exactly comment in which place the person is feeling pain. Even a doctor fails in this context because at first he wants to know about the symptoms of pain. So, Wittgenstein asserts that without outward expression private language has no role in public life.

In the context of discourse between private language and ordinary language Wittgenstein mentions that "I have toothache" "I" does not "denote a possessor," he pointed out that when I talk of "my body," the fact that the body in question is "mine" or belongs to me," cannot be verified by reference to that body itself, when I say "This body belongs to me," is used in the second of senses which he distinguished for "I", which does not "denote a possessor." He said, "If there is an ownership such that I possess a body, this not verified by reference to a body," i.e. "this is my body" cannot possibly mean, "this body belongs to this body." He said that, where "I" is replaceable by "this body", "I" and "he" are "on the same grammatical level." He said that the word "I" or "any other word which denotes a subject" is used in "two utterly different ways," one in which it is "on a level with other people", and one in which it is not. This difference, he said, was a difference in the "the grammar of our ordinary language." He again points out that "I have got a match box" and "I have got a bad tooth," which he said "on a level" with "skinner has a match box" and "skinner has a bad tooth." He said that in these two cases "I have ..." and "skinner has ..." really were values of the same propositional function, and that "I" and "skinner" were both "possessors." But in the case of "I have toothache" or "I see a red patch" he held that the use of "I" is utterly different¹⁰.

Wittgenstein's main attempt in his later philosophy is that how language can be communicated to each and every people. So, private language would be confined, if people embrace it. Therefore, he insists on ordinary language, which has a public demand in the context of society. And the most important aspect of public language is that it maintains unity among human beings, because people come together through different activities. So, it is a bond of connection among human beings. Therefore, it can be highlighted that ordinary language brings out social perspective through the technical concept of language games or forms of life.

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¹Wittgenstein, L 1953: *Philosophical Investigations*, trans.G.E.M. Anscombe (Basil Blackwell, oxford) sec-491

²Ibid: sec-199

³Ibid: sec-569

⁴Ibid: sec-23

⁵Malinowski-The problem of meaning in Primitive Language p-310

⁶H.R Smart 1957- *Language Games* (The Philosophical Quarterly, vol-7, no-28) p-232

⁷Wittgenstein, L 1953: *Philosophical Investigations*, trans.G.E.M. Anscombe (Basil Blackwell, oxford) sec-243

⁸Ibid: sec-265

⁹Theobald, D.W: *An- Introduction to the Philosophy of Science* (Methuen & CO. Ltd) p-8

¹⁰Ammerman, Robert R (ed) 1965: G.E. Moore *Wittgenstein's Lectures in 1930-1933* In *Classics of Analytic Philosophy* (Tata Mc Grew –Hill Publishing Company, Bombay- New-Delhi) p-275.

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On Spinoza's Conception of Time

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Spinoza developed his philosophy as a correction of his earlier following of Descartes. Descartes postulated that God, and two substances, thought and matter, extended in space-time, constituted the three components of the universe. Spinoza maintained that thought and extension were attributes of the same substance, which he identified with God, or Nature. The power of God is the dynamic power of this self-creating substance. Thought, as an attribute of Nature – to be distinguished from human thoughts – is represented by the laws of nature. Every thing created by the power of God-Nature is a modification of substance. Such a thing retains that part of God's power that maintains its own existence. However, its actual existence is always a result of complex causal interactions of several things acting by several laws. Therefore, Spinoza defines the duration of a thing as an 'indefinite continuation of existing' [E. II, definition V].

It is indefinite because this continued existence does not follow from the nature of the thing itself [C. XII]. It is because our mind is incapable of grasping such complexity that, already at the level of perception, it abstracts essential features of those things which recognizing their effects on us is essential for our survival [TCU VI and XIV]. This is the reason we must be satisfied with knowing the world by its abstract logical structure, as it is best represented in mathematical equations, where the relations between things are reduced to the relations between their essential features by which they exist.

Descartes distinguished between objective and formal knowledge. The former is derived from known objects, and the latter – like his analytic geometry – provides knowledge of space that cannot be derived from objective knowledge. Spinoza agreed with Descartes that objective knowledge presupposes some formal knowledge, but only of the most general features of the universe by which we understand it. Apart from such general features, of which one is the conception of time, all knowledge of the world, including mathematically formulated knowledge, is objective knowledge. For example, we would not know the essence of a parabola – namely its mathematical equation in a coordinate system – without first knowing parabolas. And we know parabolas because they exist [part III of PCP (p.99)].

Most remarkable among Spinoza's corrections of Descartes, is the correction of his claim that, in order to have a method on which we can rely, he had to prove the necessary existence of God, who imposed order on his creation. According to Spinoza, all we need is to acknowledge our natural tendency to reduce all knowledge into one idea, the object of which is understood as God's creation. The phrase 'the object of which' requires to say something about Spinoza's theory of mind.

In part II of the Ethics, proposition xiii says: "The object of the idea constituting the human mind is the body, or a certain mode of extension actually existing and nothing else." In other words, the concept 'mind' represents the totality of our ideas. Each idea represents an object of consciousness, not necessarily of thought. For example, when we feel hungry, we are conscious of certain physical changes in the body, combined with a tendency – part of the body's conatus – to restore the body to its natural capacity. This tendency is experienced as a

desire combined with an idea how to do so. The latter involves ideas whose objects exist, i.e. 'have some mode of extension,' outside the body. The 'nothing else' is his claim that the function of the mind is to maintain the natural capacity of a person to act according to his internal power. Creating the knowledge how to do so, is the function of thinking.

A corollary of this conception of the mind is that, on the level of thought, the natural desire is to create a coherent idea of Nature with ourselves in it. According to Spinoza, the best way to fulfil this desire is to start from the ideas naturally characterizing our understanding, and, by using our natural power of reason, proceed to include all knowledge, while its forming a coherent conception of Nature provides a standard of truth [TCU VII]. The problem is that, although from his conception of human nature follows that in principle true ideas must be naturally embedded in our minds we do not directly know what they are. He explains that to say that to have a certain idea is natural is not to say that knowing it is easy to come by. A fact he compares to knowledge of the body, which everybody agrees that whatever happens in it is natural, but our knowledge of it is limited and difficult to gain [TCU IV].

Concerning the concept of time, then, we must distinguish between a postulated undefined but naturally known conception of time, and the various conceptions of duration, which being objective knowledge, may differ with their 'objects.' While the concept of duration, he adds, presupposes created things, the concept of time presupposes both created things and thinking men [MT pp.95 and 129].

The presupposed thinking man is important because, when we contemplate the essential properties of objects we soon realise that we naturally have different conceptions of their durations. Obvious examples are a cyclical conception of the durations of the seasons of the year and of alternating days and nights, compared to the linear perception of a succession of sounds conceived as a melody, or the perception of successive phases in our child's development which we conceive as changes in one and the same person. But, according to Spinoza, having a formal, undefined concept of time is the condition for the very possibility of having any of these perceptions or conceptions of duration. Without it we would not even have memories of related events. Since the origin of this notion of time is in the human mind, it presupposes a thinking man. The presupposed thinking man is also important because we may err not only about our formal innate ideas, but also about our presupposed standard of truth. In the appendix to chapter I in Ethics, Spinoza explains how his contemporaries' tendency to create a unifying conception of Nature had led to such error. In other words, the assumed correctness of knowledge may change when one standard of truth is replaced by another.

A correct presupposed conception of Nature which serves as a standard of truth is essential for creating true science [C. VI]. Yet, we must realize that the natural forces which led his contemporaries to create their comprehensive view are as natural as his own. The only way to distinguish between them is to rely on a dialectical method, based on the clear assumption that the more we

understand the nature of our understanding, the better we can understand Nature, and the more we understand Nature, the better we shall understand ourselves. In this spirit, Spinoza listed the properties of our understanding, which he could consider essential by relying on his present knowledge [TCU XV].

The third item in this list says that having a conception of a 3-dimensional space must be a property of our understanding because, it cannot not only be derived by induction from known spatial relations, but every such relation must presuppose it. The fifth item is a generalization of the former: when ideas are formed by understanding, the mind regards all things under 'certain species of eternity,' without considering their duration or number. This is contrary to things imagined or perceived, where things always have a definite spatial extension, duration and number. Spinoza's phrase 'a certain species of eternity' can be understood as the notion of an independent variable as used in statistics: abstractly, we think of it independently of any other variable. What mathematics does is to correlate the ways they in fact interact. Time is such a variable.

According to Spinoza, we can discover these independent components of understanding by a method of conceptual reduction – by analysing each concept to its components until we reach those which cannot be further analysed. As the given examples of duration show, the fundamental concepts are not confined to any particular domain of knowledge. The concept of time must represent what is common to the duration of a season and a melody irrespective of other factors which determine their existence.

Although he deals with conceptual reduction, Spinoza insists that those concepts which enter scientific knowledge must represent real physical things [TCU XIV]. He explains that it is difficult to think of any abstract concept [like 'time'] as of a real physical thing because, being present everywhere, it is more easily conceived as a universal term – as nominalists say, as a name we give to all observed durations. In TCU XIII, Spinoza defines the conditions for considering such universal terms as real 'uncreated' properties of substance. 'Uncreated' means that, like substance itself, they have no cause outside themselves. These conditions are: I.No object outside it should be needed for explaining its definition. II.When the definition is given, no doubt should remain about whether or not it exists. III.It must contain no substantives which can be turned into adjectives. IV.All its properties should be concluded from its definition.

Since time is conceived independently of any other concept, condition I is satisfied. Similarly, condition II seems to be satisfied because some conception of time is always used in mathematical equations in physics, so we never doubt its existence. However, Spinoza repeatedly warns that we cannot deduce properties of reality from an understanding derived by reflection on their essence alone [C.IX]. He accepted Descartes' discovery that thinking is the essence of our being, in spite of its discovery by reflection alone, because, in this case, our awareness provides all the evidence we need and can have. But concerning knowledge of the world, he approved of the new scientists in England, who refused to deduce properties of the world from formal analysis, as Descartes did. This approval of empirical science is the meaning of Spinoza's comment after his statement of condition III, that it means the same as a warning that a thing ought not be explained by abstractions. Although today no scientist will derive a methodological rule from grammatical terms,

condition III suggests that from the fact that we need words [though, in this case, not adjectives] for judging whether an event occurs before, after or simultaneously with another event, we should not deduce that a noun derived from them necessarily names a unique physical entity.

Condition IV is most clearly concerned with scientific theory, rather than with the real world. Since the rule concerns the most general concepts, applicable to all theories, they must agree with the general view of reality which serves as the ultimate standard of truth. However, since this unity of science is a result of the natural function of reason to create it, these concepts might be what Spinoza calls instruments of our mind. How do we know whether the concept of time is not merely a useful construct of our minds, which might be either wrong or non-existent? According to Spinoza, we know that it must represent a real and unique physical entity only if we accept his conception of Nature. This follows from his definition of life, as "the force through which things persevere in their own being" [MT p.120], from which he derives his definition of the mind; the tendency to create a coherent system of knowledge, and the best method to do so [p.2].This method is based on the realization that the more we correlate true ideas to 'their objects' in reality, the more it becomes clear that things that are logically dependent (or independent) are also causally related (or unrelated) in reality; and conversely, the more we observe that things are causally related (or unrelated) in reality the more we understand that they must be logically related (or unrelated) in thought. Methodologically this means that the more we understand that the concept of time is a most general instrument of the mind necessary for creating a logically coherent science, the more we understand that it must be found in causal explanations of all conceptions of duration. And the opposite assertion means that this instrument of reason can be discovered by reflecting on what is logically common to all known causes of the durations of their various 'objects' [pp.2 and 3]. If a definition of time can be derived so that, as the fourth requirement says, all notions of duration follow from it, we have sufficient justification for considering it a true conception of a real component of the universe.

The crux of the matter is that all this is valid provided Spinoza's metaphysical conception of Nature is accepted. According to Spinoza, the more one interacts with one's environment the more true knowledge is necessary for one's survival, a thesis which, in agreement with his conception of the mind, he summarizes in the proposition that the more one interacts with one's environment the more mind one has [E. II, note to proposition xiii]. That this 'more mind' must provide true knowledge which we need for survival, follows from his conception of life [p.4]. Yet, there are many ways by which ideas are formed in the mind. The function of reason is to accept the true and reject the false ones. However, we would not have had concepts embedded in our minds had they not been modifications of a real property of substance [p.1]. This, of course, follows from his naturalistic metaphysics, which cannot be proved. But, as Spinoza claimed, no science is possible without presupposing a general view of nature, even if to the dismay of most modern scientists this means a metaphysical view.

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Perception of the World in the Contemporary Epoch: Time Experience

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As a characteristic feature of the present epoch mentality one can single out the inversion of meanings, the revision of values in the opposition 'acceleration– deceleration', which indicates its back and forth transition character. In the beginning speed appeared the principal value of the technogeneous civilization but gradually that unquestionable value became questionable. The pleasures of speed yield to fear of it, to realization of the danger coming from unlimited acceleration, from revolutionary upheavals. Alongside with the criticism of the civilization based on the admiration for speed the understanding of the importance of non-catastrophic development, stability, evolutionism and conservative values come.

Acceleration penetrating all spheres of life changes the notions of time and time relationships. The content of the present day experience is described by H. Lubbe as "acceleration experience" [4 pg. 101]. Acceleration becomes an end in itself turning thus into absurdity. Turning chaos and absurdity into aesthetic value becomes an integral part of postmodern culture.

The perception of time in the technogeneous civilization is technomorphous – it is the time of cars, plains, space ships, radio, television etc. While the symbol of the beginning of the century was the image of a rushing car and the image of speed, later it is substituted by the image of the rushing uncontrolled car, which becomes widely exploited in arts turning into the symbol of absurdity and danger of the accelerating world. The world of speed turns out to be the world of chaos and catastrophes, the risk zone. There is a constant lack of time in this world. Speed swallows up time. N.A.Byerdyayev was right when saying that "this acceleration, this extraordinary strive for the future are created by the machinery", this contradicts life because "life of an organism is slower, its speed is not so rash". As a result, "no split second of life, no single life experience have depth or become part of eternity. Any split second of life, any life experience are only a means for accelerating living processes striving for ill eternity ..." [1 pg.169].

Acceleration of the development dynamics brings, on the one hand, time gaining (in the form of speed perception), but, on the other hand, it brings time wasting, "reducing our existence in the present" (Lubbe), impossibility of becoming part of the eternity, and consequently – loss of being, for being, according to is time itself. It is not by chance that the lyrical epic work by Marcel Proust "In Search of Lost Time", written in the first quarter of the XX century, expressed in the title one of the characteristic features of the present time epoch and its perception of the world. There can be differentiated two stages in the process of losing the integrity of being:

the first is connected with the accent shifting to the reality of the present as an immediate moment, separate from the past and future;

the second one – with the following reduction of this "moment" up to its disappearing. The importance of short time periods increases, alongside with their perceptibility. The principle time categories are not even hours but minutes and seconds. The rhythm of machines penetrates

everyday life adjusting it to itself. Globalization turns to establishing time correlations of different social institutions and cultures. Time within the limits of the family, town, people, state is correlated correspondingly to the flow of time beyond the circle of the family, territorial, administrative, national or state borders. Time is perceived as a means of communication, as connection.

The perception of time and its symbols are inseparable from the epoch. Clocks and watches in any event symbolize the outlook of the epoch, their meaning and image change with the change of the content of time experience. The round clock dial symbolizes the presence of all time moments, their visibility, adjustability, the eternal return and recurrence. In the XX century the traditional dial is changed for quartz and electronic dials with digital panels, which symbolize a separate moment of time - "now", its being torn out of the general flow of time, its irreversibility. The clock hands as mediators and indicators are eliminated, and the man stays alone facing the running figures, the "tyranny of the moment" [6], he must "catch the moment". The display of such a digital panel on the TV screen symbolizes the modern longing for information and global communication, longing for the virtual experience. At the same time the abrupt acceleration of the quantity of information turns to its getting out of date and the necessity of its elective mastering. The impossibility to catch up with "now", to settle in "here and now" leads to the break-down of adaptation mechanisms, to the appearance of the marginal subtime.

In the information society, time is defined by the rhythms of TV broadcasting. Around-the-clock TV broadcasting appears in the role of time keeper. Simultaneously it appears both out of time and as substitute of time, because it has neither the beginning, nor the end, being available at day time and at night, "any time". The perception of the daily cycle is changing. The limits of day and night erode. Time does not stop at night, it can be full of events, it can be used and spent. The Internet also works non-stop. The real and virtual time intersect. Around-the-clock TV broadcasting paradoxically creates the feeling of "out-of-timeness" (the reiteration of news and live transmissions, changing of similar broadcastings, the obtrusive similarity of images and discourse) alongside with the feeling of transience and irrevocability (flashing of captions, the dynamics of news). On the one hand, the perception of value of time increases, the feeling that it flows irrevocably irrespective of presence or absence of any events. And this fact urges one to act. On the other hand, the mass media flow of events creates an illusion of being switched on, an illusion of spending time positively. As a result, there is no need in keeping time.

The total unreflective acceleration, which destroys the true existence, throws the cultural postmodern chronotope out of time. The former time and space orientations turn out to be destroyed and discredited, whereas the later ones are undefined. In the context of the total disabsolutization there occurs movement from the Time to the time. Tower clocks move over to a hand and turn into watches, symbolizing the private, individual,

incidental. On the one hand, it means multiplication of the absolute, and on the other, "dispersion" of time, its decentralization. Interruption, fragmentation of time context is outlined. The absolute, ruthless, linear time is contrasted to the relative, flexible and nonlinear one. In painting this new image of time is expressed by Salvador Dali's "soft" watch. Correlation of the time-clock with the instability of memory is one of the greatest ideas. It was suggested by Dali, and later it keeps on appearing in modern reflection of various sciences, from theory of information to neuro-physiology. The thesis seems to be obvious, though it has not been introduced for a long time. It is impossible to even talk about time without memory.

In science at the beginning of the 20th century there appear new metaphors of time (trains and maps), chosen by Einstein and Poincaré, which were not only mental experiments, but the reflections of modern world technologies. The relative time by Einstein and Poincaré expressed the collision of two chronometries of the European civilization.[2] But the science does not stop at it. In the 20th century there appears the "rediscovery of time" in the synergetic model of time in physics. Irreversibility was recognized as an essential characteristics of the world, there was the reorientation from "the world of trajectories" to "the world of processes", from existence to formation. [5] Instead of the purpose of existence and formation contraposition, there appears the aim at correlation of these two aspects of reality. Our epoch, the epoch of accelerating development, is pierced with the arrow of time. According to Prigogine "the arrow of time is associated with the transition from the present to the future; it is because of the present containing no future that we make this transition from the present into the future" [6.p.346]. Here it is necessary to mention that as there is always an essentially implied beginning and end of the transition, the transition itself is achieved at a certain period of time and is characterized by a certain state of transitivity; all that predetermines the existence of transitional time. Transitivity is ambiguous. On the one hand, the depth of the transition, according to Jaspers, "introduces the highest clarity of being and truth", that is why "the greatest spiritual works appear in transitional periods on the border of different epochs". But, on the other hand, "turning of the transition into a vivid stable duration eliminates perception sharpness alongside with time perception" [8. pp.251-252]. Annoying stability of transitivity expresses itself in the superficiality and unreality of being.

Let us consider the metaphor of an arrow. Two elements appear in the arrow. One element is the direction, expressed in two ends. These ends are precisely definite. There appear a point and the other end of the arrow, without their unity it is impossible to represent an arrow. Not getting deep into the essence of these interpretations, we shall only point out, that inside this metaphor there appears quite another sense of the physical understanding of time after Prigogine, or, to be more exact, after he changed the notion of cause. The arrow of time does not any longer show the direction between two past moments, as in classical knowledge. In order to create a simple transition of the process there, one had to establish its boundary conditions. To be more exact, one had to measure the process in **two** points of its history. It means that former points simply show the current of all. This is the position of Laplace. Nowadays we cannot say so. The lottery of bifurcational cases moves "the arrow" into the future. The point of the arrow is still indefinitely directed. The target is understood in another sense, not as a dot, but as an attractor. This is a great

revolution, the introduction of the heuristic status of the future.

As a result of the acceleration of social development dynamics there is an increase not only in the amount of innovations and time capacity but also in our existence in transitivity, instability, which intensifies our strive for stability, our conservative mood. Modern conservatism aims at compensating stability absence but not at hampering development. It is a way of thinking and behavior that emerges as a reaction to acceleration seizing all spheres of life and activity. It has a universal cultural and structural character, thus being different from the traditional social political conservatism. As "in the fast, constantly accelerating speed of the civilization there is no past and no future, no way to eternity" [1.pg.169], the necessity of the way to it causes structural conservatism which first of all becomes apparent in turning to classics [4.p.106]. Turning to classics as to the way of interpretation and realization of your time acquires greater importance in connection with the increasing gap between temporariness and timelessness. But only their unity gives man a chance to find his time and consequently his being. According to Gadamer "the task is to learn to percept this timelessness in connection with time, for they essentially interact" [2. p.167].

The idea of conservation at the end of the 20th century expresses the idea of stability, but not in the sense of stagnation, but mainly in the sense of conscious self-regulation, the realization of stability and instability. The indefinite future, aggravated by the acute ecological situation, makes one interpret the problem of mankind preservation in terms of self-restriction, self-catching, not in the meaning of asceticism or suspension of some parameters, for example, of population ("ecological pessimism"), but in the meaning of safe development precautions. In the 20th century there appears the understanding of stability as being fragile and precious, and there arises the problem of its acquisition in the changing world. Existentialism with its tragic realization of finiteness and fragility of existence in its essence contradicts the total unreflective acceleration, which destroys the true existence. The crisis of identity and instability, caused by the accelerating development, brings forth the reanimation and actualization of the "church time".

A dramatic coexistence of enthusiasm for speed (striving for the future) and fear of it, fear of the future, which is increased by the feeling of the loss of not only the past and present but also of the future swiftly turning into the past, determines the contradictory character of the perception of the world in the contemporary epoch. Nervousness, impassivity, dynamics go alongside with inner devastation, confusion and the feeling of being restless and abandoned. The problem of the way of finding your own time becomes one of the central problems of the present transitional epoch. It is transformed into the problem of historical self-identification, of finding your own time, which means finding your own being and your own God. That is why it is not by chance that there can be observed an intensification of reflectivity in the culture of the 20th century, which penetrates all its spheres. Hence turning to your past (comprehending the past) and the future (projecting the future) appears a condition for self-actualization, realization of the responsibility to the history for your time, and consequently it becomes a way of historic self-realization. Thus, gaining responsibility is the best condition for gaining your time.

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Kuhn und Wittgenstein: Paradigmen, Sprachspiele und Wissenschaftsgeschichte

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Dass zwischen Kuhn und Wittgenstein wesentliche Gemeinsamkeiten bestehen, ist seit längerer Zeit bekannt (vgl. vor allem Thurnher R. 1979, 218; Bayertz 1980, 135-6; Buzzoni 1986; Barker 1986). Die im vergangenen Jahrzehnt beträchtlich angewachsene Literatur um das Thema hat nur wenig Bedeutungsvolles hinzugefügt: vgl. z.B. Kindi 1995; Andersen *et al.* 1996; Andersen 2000; Lorenzano 2000; Read 2003; Soulez 2003). Hier soll jedoch nur die grundlegende Verwandtschaft erörtert werden, die die vorrangige theoretische Spannung ans Licht bringt, die bei Kuhn und Wittgenstein die Geschichtlichkeit der Wissenschaft betrifft und um den Begriff des Paradigmas kreist.

Bei seiner genaueren Definition des Wortes "Paradigma" schrieb Kuhn den "*exemplars*" – jenen konkreten Problemlösungen, die als frühere exemplarische Leistungen die Basis zur Lösung normalwissenschaftlicher Puzzles oder Rätsel bilden – eine besondere, ja tiefere Bedeutung zu (vgl. Kuhn 1970a, „Postscript – 1969“, 174-175). Es wurde mehrmals hervorgehoben, dass die Bedeutung der "*exemplars*" in engem Zusammenhang mit der Grundthese von Wittgensteins *Philosophischen Untersuchungen* steht, nach der der Sinn eines Wortes oder Satzes – zumindest „für eine große Klasse von Fällen“ – in Gebrauch, Aktivität oder Praxis innerhalb eines Sprachspiels besteht (vgl. L. Wittgenstein, *PU*, § 43; Hervorhebung im Original). Auch Kuhn zufolge werden wissenschaftliche Begriffe keinesfalls bei einer theoretischen, nur gedanklichen Auseinandersetzung erlernt, sondern erst dann, wenn man lernt, sie innerhalb einer sozialen Praxis auf konkrete Fälle anzuwenden. Laut Wittgenstein gehorcht darüber hinaus der Gebrauch, der die Bedeutung eines Wortes festsetzt, keiner unveränderlichen oder *a priori* Regel: "an jedem Punkt" wird „eine neue Entscheidung nötig“ (vgl. *PU*, § 186). Und auch für Kuhn kann wissenschaftliche Praxis nicht ein für allemal durch *a priori* und im Voraus bestimmte Kriterien geregelt werden: Ganz im Gegenteil, Regeln und Kriterien ergeben sich vielmehr aus der Anwendung des Paradigmas auf die Natur (vgl. Kuhn 1970a, Kap. 5; für einen ausführlicheren Vergleich s. Buzzoni 1986).

Nun stellt sich die Frage, ob sich ein Paradigma gemäß dieser Bedeutungstheorie nur gradweise oder – wie bei Kuhn (vgl. z.B. Kuhn 1970a, 150) – auf revolutionäre Art und Weise verändern kann. Laut Toulmin ist nur ersteres richtig: Kuhns Theorie der wissenschaftlichen Revolutionen sei „vollkommen unabhängig von der Theorie der Paradigmen“. Das ergebe sich insbesondere daraus, dass Toulmin selbst Wort und Begriff „Paradigma“ von Wittgenstein übernommen hat, ohne aber auf einen plötzlichen, revolutionären Wandel schießen zu müssen (Toulmin 1972, 106-107; vgl. auch MacIntyre 1977 und Soulez 2003, 433-434).

Es genügt jedoch ein auch nur flüchtiger Blick auf den Begriff „Paradigma“ bei Wittgenstein, um zu verstehen, wie voreilig diese Schlussfolgerung ist. Vor einiger Zeit leistete C.G. Luckhardt einen kurzen, aber prägnanten Beitrag zum Begriff „Paradigma“ bei Wittgenstein (vgl. Luckhardt 1978). Für jede der drei von ihm unterschiedenen Grundeigenschaften eines „Paradigma“

können wir eine selbstverständliche Entsprechung bei Kuhn finden:

1. Ein Paradigma ist nach Wittgenstein etwas, wodurch man im Bereich eines Sprachspiels „Vergleiche anstellt“, d.h. ein Modell, das gestattet, zwischen verschiedenartigen Dingen Beziehungen zu sehen; in diesem Sinne ist das Urmeter, dessen Prototyp in Sèvres bei Paris lagert, ein Paradigma (Luckhardt 1978, 241; vgl. auch L. Wittgenstein, *PU*, § 50). Offensichtlich hat Kuhn insbesondere in diesem Sinne von *exemplars* gesprochen.

2. Das Paradigma ist für Wittgenstein die notwendige Bedingung dafür, sich auf solche Aktivitäten einzulassen, die es erst möglich macht (vgl. auch Wittgenstein 1956, V-6). In diesem Sinne enthält nach Kuhn ein Paradigma eine „neue Reihe von Bindungen“, Verpflichtungen oder Überzeugungen (vgl. Kuhn 1970a, 6 u. 184).

3. Nach Wittgenstein liegen Paradigmen jenseits des Wahren und des Falschen: „man kann von *einem* Ding nicht aussagen, es sei 1 m lang, und das ist das Urmeter in Paris“ (*PU*, § 50). Weil das Paradigma Kriterium des Wahren, des Sicherens usw. ist, kann es selbst weder wahr (sicher) noch falsch (unsicher), sondern ausschließlich ein Modell dessen sein, was wir zur Beurteilung anderer Sätze voraussetzen oder glauben (vgl. Luckhardt 1978, 244). Und dies ist genau der Grund, warum das Kuhnsche Paradigma durch die Anomalien der Normalwissenschaft nicht getestet werden kann (vgl. Kuhn 1970a, 37-38 u. 144). Gerade deshalb ist Wahrheit für Kuhn ein innertheoretischer, nicht auf das Paradigma anwendbarer Begriff (vgl. Kuhn 1970b, 266). Und gerade aus diesem Grund sind noch ungelöste Rätsel eine Herausforderung nicht so sehr an das Paradigma, sondern ganz eigentlich an den ‚normalen‘ Wissenschaftler, dessen Lösungsgeschicklichkeit getestet wird (vgl. Kuhn 1970a, 36-37 u. 144-145).

Hier möchte ich mich darauf beschränken, die zwischen der ersten und der dritten Eigenschaft bestehende Spannung hervorzuheben. Im Unterschied zur ersten führt diese dritte Eigenschaft – d.h. jenseits alles Wahren und Falschen zu sein –, direkt sowohl zur These der Inkommensurabilität als auch zur plötzlichen Substitution eines Paradigmas durch ein anderes. Darin liegt ja gerade der wahre Kern des manchmal gegen Wittgenstein erhobenen Einwands, dass die Sprachspiele einen „Monadismus“ aufweisen (Pole 1958, 91-92), der „das eigentlich Geschichtliche des Verstehens, die Vermittlung zwischen den zerfallenden und entstehenden Sprachspielen [...] und wiederum die Vermittlung über die Zeiten hinweg nicht fassen kann“ (Apel 1976, 376). Toulmin zum Trotz enthält auch Wittgensteins Sprachphilosophie zwei unterschiedliche, ja entgegengesetzte und nicht auf kohärente Art und Weise zu befriedigende Ansprüche. Der eine führt zum graduellen, geschichtlich-hermeneutischen Evolutionsmodell Toulmins und MacIntyres, der andere hingegen zum revolutionären Modell Flecks und Kuhns.

Worin liegt nun die tiefste theoretische Wurzel der dritten Eigenschaft des Paradigmas bei Kuhn und

Wittgenstein? Obwohl beide nach einem neuen Rationalitätstypus suchten, der die Grenzen der logisch-formalen Vernunft überschreitet, tritt bei ihnen ein seit Kant – trotz gegenteiliger Behauptung – immer wiederkehrendes materiales, d.h. nicht rein funktionales Apriori, auf. Dieses Apriori wird zwar mit der Mannigfaltigkeit der Sprachspiele oder Paradigmen in Beziehung gesetzt und dadurch in seinem Wert eingeschränkt, aber schließlich bleibt es doch bestehen. Entgegen Kants Ahistorismus wird das materiale Apriori ‚relativiert‘, aber es lebt in jedem einzelnen Sprachspiel oder in jeder einzelnen Revolution als solches weiter. Aus diesem Rest des materialen Apriori bei beiden, Wittgenstein und Kuhn, folgt sowohl die Inkommensurabilitätsthese als auch die These einer plötzlichen Bekehrung zu einem neuen Paradigma. Genauso wie Wittgenstein lässt auch Kuhn besondere apriorische „Strukturen“ weiter bestehen, die *ihren eigenen Sinn, Erkenntnis- und Seinsgehalt haben und deshalb die Sicht der Wirklichkeit notwendigerweise verstellen*. Dadurch wird auch die Wirklichkeit zu einem amorphen und unbekannten „X“, das dem Kantischen *Ding an sich* sehr nahe steht. Unter empirisch „wirklichem Gegenstand“ darf nur die potentiell offene Gesamtheit der uns zugänglichen Eigenschaften verstanden werden, zu denen jeweils bestimmte, in technischen Apparaturen verkörperte Standpunkte Zugang verschaffen. Ihren Grundvoraussetzungen gemäß können dagegen Wittgenstein und Kuhn unter „wirklichem Gegenstand“ nur ein unbekanntes und amorphes „X“ verstehen, das aber *keineswegs imstande ist, die Kontroversen zwischen konkurrierenden Sprachspielen oder Paradigmen zu entscheiden, die ihrerseits entweder nur als Ganzes fortbestehen oder als Ganzes ersetzt werden können* (s. hierzu Buzzoni 1997).

Statt diesen Begriff eines, im Grunde genommen, materialen „Apriori“ infrage zu stellen, hat man nach Kuhn paradoxerweise immer wieder geglaubt, dies sei der einzig gangbare Weg, um die Inkommensurabilitätsthese zu überwinden, wie es z.B. bei Schefflers „schemes of reference“ (vgl. Scheffler 1967) oder Körners „categorical frameworks“ (vgl. Körner 1969) geschehen ist. Trotz Hoyningen-Huene (1989), Friedman (2002) und letztlich Kuhn selbst (vgl. z.B. 1991, 12 – wo er von „Darwinian Kantianism“ spricht –, und 1993, 331-332; vgl. auch Theodorou 2004) stellt das Auftreten dieses kantischen Leitmotivs bei Kuhn keinen Ausweg aus dem Relativismus dar, sondern führt unmittelbar dorthin. Kein materiales, d.h. nicht rein funktionales Apriori kann die kantische *quaestio juris* entscheiden, d.h. die Gültigkeit einer Schlussfolgerung oder die Wahrheit einer Behauptung rechtfertigen. Aus einer Vielfalt kategorialer Schemata kann nur ein Relativismus hervorgehen, der nicht einzelne Behauptungen, sondern eben Paradigmen oder kategoriale Apparate betrifft, aber für sich, im Vergleich zu anderen Formen des Relativismus, eine höhere Stellung allein in der Zeitskala beanspruchen darf. Jedes nur scheinbar formale, in Wirklichkeit aber noch materiale Apriori führt zu einer diskontinuierlichen und relativistischen Auffassung der Wissenschaftsgeschichte.

Zusammenfassend war die Spannung, die Kuhn zu unterschiedlichen, ja entgegengesetzten Behauptungen führte, implizite bereits bei Wittgenstein vorhanden. Einerseits steht die nach Kuhns Meinung wichtigste Bedeutung der Paradigmen als „exemplars“ mit seinem Geschichtlichkeitssinn völlig im Einklang. Andererseits führt jedoch eine weitere, auch bei Wittgenstein auftretende Eigenschaft des Paradigmas zur Theorie des revolutionären Wandels.

Hat sich diese Situation mit Kuhns letzten Arbeiten wesentlich verändert? Trotz aller Anstrengungen gelang es Kuhn nie, die Spannung zwischen der logischen Starrheit der Normalwissenschaft und der Kontinuität der Wissenschaftsgeschichte aufzulösen.

Mehreren Interpreten zufolge hat Kuhns Inkommensurabilitätsthese einen bedeutsamen Wandel durchgemacht (vgl. z.B. Hoyningen-Huene 1989; Maudlin 1996). Dabei ist diese These bedenklicher, als man auf den ersten Blick glauben möchte. Auch beim späten Kuhn gibt es viele Stellen, wo die auf „lokale“ oder „taxonomische“ Art und Weise interpretierte Inkommensurabilitätsthese immer noch die gleichen Folgen nach sich zieht, wie es schon die alte These tat: das Aneinander Vorbeireden und der Kommunikationszusammenbruch, noch zugespitzt durch die ontologische Metapher der verschiedenen Welten (Kuhn 1970a, 161 und 1993, 318-319); die Unmöglichkeit einer neutralen, *wie auch immer gearteten* Beobachtungssprache (Kuhn 1970a, 137-138 und 1993, pp. 330-331); die Verwerfung einer möglichen Annäherung an die Wahrheit durch Paradigmenwechsel und der Wahrheit selbst als Übereinstimmung mit dem, was wirklich ist (vgl. Kuhn 1970a, 170 und 1993, 330 und 337-338, und Kuhn 1991). An all diesen Punkten haben die an der Inkommensurabilität vorgenommenen Änderungen nur unwesentlich die relativistischen Konsequenzen des frühen Kuhns gemildert. Zwar findet man beim späten Kuhn mehrere Behauptungen, die mit diesem Relativismus im Widerspruch stehen, aber sie genügen nicht, um eine wesentliche Kontinuität in der Entwicklung seiner Wissenschaftstheorie zu bestreiten, denn auch die *Structure* schwankte zwischen realistischen und relativistischen Elementen (vgl. Scheffler 1967, 89; Meiland 1974, 183-184; Antiseri 1980, 65-80; Buzzoni 1986, 149-162; Mayo 1996).

Warum ist es der im „lokalen“ oder „taxonomischen“ Sinne gemilderten Variante der Inkommensurabilität nicht gelungen, die früheren relativistischen Konsequenzen zu unterbinden? Man muss zwar der überwiegenden Mehrzahl der Interpreten darin beipflichten, dass die wichtigste Änderung bei Kuhns letzten Arbeiten im Verzicht auf die These besteht, dass weder eine neue Sprache noch ein inkommensurables Paradigma erlernt werden können, ohne gleichzeitig die Fähigkeit einzubüßen, eine bereits erlernte Sprache oder ein schon beherrschtes Paradigma zu gebrauchen. Aber durch seine Metapher des Bilingualismus hat Kuhn versucht, an der Unübersetzbarkeit von einem Paradigma in das andere festzuhalten, und damit ein weiteres Mal die Existenz von Sprach- oder Erkenntnisstrukturen vorausgesetzt, die alle Kennzeichen eines materialen Apriori tragen:

Members of one community can acquire the taxonomy employed by members of another, as the historian does in learning to understand old texts. But the process which permits understanding produces bilinguals, not translators, and bilingualism has a cost, which will be particularly important to what follows. The bilingual must always remember within which community discourse is occurring. The use of one taxonomy to make statements to someone who uses the other places communication at risk. (Kuhn 1991, 5)

Dadurch weist Kuhn den Sprachen, zwischen denen der zweisprachige Mensch zu übersetzen versucht, Strukturen zu, denen gegenüber er machtlos ist, und zwar auf die gleiche Art, wie der einzelne Wissenschaftler in der ersten Auflage der *Structure* dem Paradigma gegenüber machtlos war. Wieder einmal vertritt Kuhn die These, nach der es Sprach- oder Erkenntnisstrukturen gebe, die der

prinzipiell unbegrenzten Kritikfähigkeit der Vernunft entzogen sind und deshalb ein unhintergebares materiales Apriori darstellen. Dass diese Übersetzungs-unmöglichkeit nur unter gewissen Bedingungen gilt, ändert nichts an der Sache, denn für diese Bedingungen wird nichts Rationales angegeben; sie sind von Kuhn streng genommen aprioristisch festgesetzt, und gerade deshalb ist es sehr leicht, Gegenbeispiele zu finden (vgl. Hacking 1993). Die daraus entstehende Inkommensurabilität führt erneut zu intersubjektiv nicht nachvollziehbaren Zäsuren in der Wissenschaftsgeschichte. Im Prinzip taucht also jene formalistische Denkweise wieder auf, die sich in einer der grundlegenden Eigenschaften der Paradigmen der ersten Auflage der *Structure* niedergeschlagen hatte.

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What is Physically Real? Schlick vs. Einstein

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Schlick defended a kind of critical realism, according to which the objects of science are no less real than the sensory data¹. His position is thus distinct from machian positivism as well as from the kantian realism implied by the kantian notion of the thing in itself. In a letter written to Schlick on May 21, 1917, Einstein criticises such an assimilation between the “physically real” and the “sensory real”:

It appears to me that the word “real” is taken in different senses, according to whether impressions or events, that is to say, states of affairs in the physical sense, are spoken of. [...] Now what we designate as “real” in physics is, no doubt, the “spatio-temporally arranged”, not the “immediately given”. The immediately given can be illusion, the spatio-temporally arranged can be a sterile concept that does not contribute to illuminating the connections between the immediately given. *I would like to recommend a clean conceptual distinction here.*” (EA 21-618, cited in Howard 1996).

This paper aims to bring some clarity about what exactly is involved in the outlined disagreement between Schlick and Einstein.

First of all it has to be emphasised that both of them agree that the objects of physics are not mere abstractions from the sensory data. Schlick thus affirms that “the quantities that appear in the precise formulas of the natural scientist never designate the immediately given or any changes in it; they always designate supplementary objects (*ergänzte Gegenstände*) that are connected to the given in a rather complicated manner”. (Schlick 1925, § 26). Physical laws primarily concern physical objects – events and magnitudes such as temperature for instance –, and only in a mediate and complicated way do they relate to sense experiences. Is this distinction between sense experiences and physical objects merely an epistemological one, or is it rather an ontological one, as Einstein’s quote seems to imply?

The conceptual distinction Einstein appeals to in the quote cited above is grounded on the respective role the sensory given and the physical events play in knowledge: the first can be illusion, the second can be sterile concepts. In both cases, the qualification concerns the status of these two types of objects towards the knowledge of nature we aim at in pursuing science. Thus the distinction between physical events and sensory elements appears at first sight as an ontological distinction but a closer look reveals it as being grounded on epistemological reasons. In a later paper, Einstein again makes the same distinction on epistemological grounds:

Da die Sinneswahrnehmungen jedoch nur indirekt Kunde von dieser Außenwelt bzw. vom „Physikalisch-Realen“ geben, so kann dieses nur auf spekulativem Weg von uns erfasst werden. (Einstein 1933)

Einstein clearly stresses here that the sensory given cannot give us a direct knowledge of nature; only concepts are able to. The question of the respective status of

sensory data and of the physical events resolves in the question of the role of experience on the one hand, and of concepts on the other, in yielding true knowledge of nature. Now since the only way we have to the physically real is through theoretical concepts, what we recognise as physically real depends on the theory by means of which we describe it. For instance, according to Newton, physical events are lawful movements of material points in space; whereas for Maxwell, the physically real is constituted of continuous fields which are not mechanistic (see Einstein 1931).

The theoretical concepts are furthermore arrived at on a purely conceptual way: they are free creations of the mind (Einstein 1933). Even if the scientist is somehow attentive to experiential facts when devising the fundamental concepts of a theory, he is in no way guided by them. As a consequence, the objects posited by the fundamental concepts of a theory cannot be described in directly testable statements. Only the logically derived statements are subject to such tests, and indeed they must correspond to the experimental facts if the system as a whole is to deliver genuine knowledge of nature. Since the determination of what is physically real is realised by means of the fundamental concepts, the physically real is thus far from being reducible to sensory elements.

The distinction between physical events on the one hand and sensory data on the other is then to be formulated in terms of the status they have in a scientific theory: physical events are conceptually *constituted*, sensory data are *given*, the interaction of both yielding knowledge of nature. But this epistemological distinction further implies an ontological one between two realms of objects: only the physical events are objectively real, the sensory data being only indirect signs of this reality.

What are Schlick’s arguments against the einsteinian distinction of two realms of objects? He emphasizes that the difference of access we have to physical events and to sensory data is not a sufficient ground for concluding that they exemplify different kinds of reality. One should not confuse the epistemological distinction between our being acquainted with an object (*kennen*) and our knowing it (*erkennen*) for being an ontological one: this cannot but lead to pseudo-questions such as whether the objects of conceptual knowledge are “more real” than the sensory data. And against the positivist conception Schlick argues that “every concept which can actually be used for the description of nature can likewise be regarded as the sign of something real” (Schlick (1917) 1979a (transl. modified)). The question of the reality of physical objects thus resolves itself in the question of the status of concepts in the scientific description of nature.

(Schlick 1925) distinguishes two stages of concept formation. The first one, corresponding to concrete definitions, consists in selecting a determinate group of relations out of the manifold of experience, and giving it a name. In doing this, we constitute a real object as something independent of its being perceived. The object thus designated is not merely a conceptual tool –against machian positivism–, but its being constituted doesn’t mean its being created: *constituting* simply means *selecting* a group of relations occurring in the world by

1. Against the view according to which Schlick abandoned his realism in favour of a positivistic conception of knowledge after arriving in Vienna, I would defend the idea that he remained a critical realist all along –but this would need another paper to demonstrate it.

means of conventions and *designating* it by a single name. At this first step of concept formation, the relation of concepts to experiences remains a close one: our definitions are tied to qualitative experiences and identifying an object designated by a concretely defined concept implies having recourse to specific sensory experiences.

The second step then consists in devising purely conceptual definitions. Concepts are defined solely by means of other concepts. As a consequence, the structure of knowledge consists in purely conceptual relations and is insofar freed from qualitative experience: it has a status of its own, essentially distinct from intuition. This idea of a breach between the formal and the experiential, meaning that the first doesn't enter in the determination of the second, is also to be found in Einstein's writings, as we have already seen. Thus both Schlick and Einstein agree that the conceptual system of knowledge has a specific status insofar as it is formal. This is a constant idea in Schlick's thinking, which remains primordial during his Viennese period: Einstein's later critics against Schlick's thinking having become too positivistic should be tempered by this fact.

The question of the determination of the system of knowledge and the one of its constitution should however be distinguished here. If Schlick and Einstein agree on its specific formal character, they disagree regarding the way we arrive at it and its relation to sensory data. We have outlined that Einstein sees the fundamental concepts of a theory as pure theoretical constructions, and that for him the question of the relation between experience and the theoretical system of science arises only after the latter has been fully developed. For Schlick on the contrary the purely formal system of knowledge is not something we begin with: it is rather the result of an evolution from a concretely defined system of concepts and it presupposes this former state. To be more precise the more advanced state of knowledge corresponds to theoretical physics, where physical magnitudes are conceptually defined without any recourse to qualitative experience (cf. Schlick 1925 as well as Schlick 1932).

Moreover Schlick maintains that even if the scientist seeks to define concepts by eliminating qualitative experience from his definitions, he nonetheless has in mind the idea of preserving the link between the formally determined system of science and experience. Theory, even if formal, is not developed at the purely abstract level of mathematics but at the level of theoretical *physics*, meaning that the physical concepts are always defined so as to designate objects in nature. Now it is a specific kind of experience which warrants that the concepts belonging to the system of knowledge actually designate real objects, it is namely the observation of spatio-temporal coincidences. Verifiable statements which predict the occurrence of measurable events must indeed be derivable from the formal definitions of physical concepts if they are to designate real objects. Every measurement finally ends up in the observation of the coincidence of two points: one on the measured body, the other on the measuring rod. Thus point-coincidences alone can warrant the link between the formal system of concepts and the real objects.

It must be noticed that the observed coincidences have nothing in common with the qualitative experiences delivered by one particular sense. Observation of coincidences exemplifies a kind of experience which retains nothing of the qualitative and subjective characteristics of ordinary sensory experience as defined by Schlick. This explains that the recourse to this kind of

experience doesn't threaten the objectivity of knowledge nor its specific status towards intuition.

The difference between Schlick and Einstein's conception of the status of physical concepts can be further exemplified by the way each of them conceive of the point-coincidence concept. As Einstein himself explains (see Einstein 1963 for instance) the defining of points of the space-time manifold as coincidences of world-lines is the result of a conceptual inquiry. Formulating the general covariant equations which form the general theory of relativity implied to redefine the concept of point in the space-time manifold so as to be able to individuate univocally the points of this manifold. In the special relativity, a point of the manifold is determined by his coordinates in a specific system of coordination. But under the general relativistic postulate, the system of coordination itself is not invariant under the class of general transformations: the determination of a point of the manifold in terms of its coordinates in a particular system is then not sufficient anymore to individuate it univocally. These formal considerations finally led Einstein to redefine the point of the manifold as the coincidence of two world lines. Only such a definition permits an invariant determination of a point under any general transformation. It is furthermore devised by purely conceptual means and without being primarily guided by the requirement of a possible experiential interpretation: it therefore designate specifically physical objects.

On the other hand Schlick takes the idea of *observed* coincidences as a fundamental one. After explaining in 1922 that space and time are not themselves objects of measurement but rather a schema we can set up and use to order physical objects, he locates the requirement of preserving the coincidences that we observe in every measurement at the very beginning of our building of the spatio-temporal schema in physics (see Schlick 1922, and also Schlick 1925, § 31). This doesn't prevent him from recognizing rightly the specificity of the physical definition of point-coincidences in terms of coincidences of world lines. But the physical objects thus defined are not different from what is observed when measuring: it is the same objects which are conceptually defined in physics and grasped through observation. Coincidences thus stand at the interface between the physical (conceptual) and the psychological (intuitive) apprehension of reality.

The identification of the physically defined point-coincidences and the coincidences apprehended by observation exemplifies a fundamental idea of Schlick's epistemology, namely that the way we relate to reality doesn't interfere in what reality is. Knowing by means of concepts and experiencing through intuition are two ways of relating to the same reality (see Schlick 1932 for a clear statement of this idea). Against Einstein, Schlick makes a clear distinction between reality itself and our knowledge of it by means of concepts.

Moreover, if the epistemological distinction between conceptually defined objects and the objects of sensory experience doesn't lead Schlick, as opposed to Einstein, to distinguish between two kinds of reality, it's finally thanks to his particular use of the coincidence concept which, lying at the interface between the physical and the psychological, warrants that both refer to the same reality. Coincidences are absolutely necessary to bridge the gap between the two kinds of access to reality that Schlick identifies. This doesn't mean that for him our knowledge of reality is entirely determined by real facts, since conventions also have a role to play in the formation of scientific systems; but this means that they do not play a constitutive role in the einsteinian sense of the word.

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The Transcendental Subject: Three Good Tractarian Reasons to Accept It

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The most common approach to the mystical doctrine of the *Tractatus* has been to trace it back to this or that author in the history of philosophy. Wittgenstein was certainly not the first philosopher to talk about the existence of a "transcendental subject". But this can be a good place to apply a mild version of the so-called "principle of charity". If strong evidences are not produced, we should not take Wittgenstein for a plagiarist. He probably did something more interesting at the final remarks of the *Tractatus* than just transcribing a curious piece of someone else's philosophy. It is just fine to look for similarities between *his* philosophy and any other, but first of all we must have good reasons to use the possessive pronoun in this context. That's what I will try to achieve in the minimalist way imposed by time constraints. I will try to show that, from the Tractarian viewpoint, the transcendental subject is a logical necessity. I think it is "transcendental" in the two philosophical acceptations of the term. It conditions the possibility of meaning, being outside the reach of it. Moreover, it has a kind of side-effect. Given its semantical functions, it must be the bearer of a non-psychological kind of will. Accordingly, it must be the subject of an absolute ethical stand. Let us see how.

The word "intentionality" does not appear in the *Tractatus*, but the idea is pervasive. Wittgenstein chose a somewhat misleading expression to nickname it – "abbildende Beziehung", or "depicting relation". This relation is formally defined as "the coordinations of the elements of the picture and the things" (2.1514), and more pictorially described as "the feelers of its elements with which the picture touches reality" (2.1515). We may think of it as the relation through which a logically proper name acquires its meaning by being assigned to a logically simple object.

The relation must be conceived as an asymmetrical one. The name must name the object, and not the opposite. The relation must "go" to the object, as the feeler of an insect goes to the things it tests by touch. But that is not enough. To qualify as an authentic naming relation, this feeler must be outside the world. Being a necessary condition of any description, it cannot be described. It must be what the *Tractatus* calls an "internal relation". For suppose that this object is taken as the name of that one. If you try to say that *this* names *that*, you will be forced to use the name you are trying to speak about, and your proposition will have to be true in order to have a meaning. But it is obvious that in the logical order of precedence meaning must come first. It is possible to say what colour an object has, but not which name was assigned to him. This is something that language cannot say, but only show. Strange as it may seem, the naming relation cannot have a name. It cannot be the object of a meaningful discourse.

But the most interesting mark of this relation is yet to be mentioned. Besides being asymmetrical and ineffable, it must be instituted, established. It is not "ready-made", it is not "engraved" in the objects forming the facts we use as pictures of other facts. Nothing is by its own nature the name of anything. It becomes so. It must be made so. For imagine that *a* and *b* are two objects belonging to the

same logical category. Would language lose something if we exchanged their names throughout? Is it not possible to use another tool taken from the same categorial box? The relation between name and object is internal, as we saw some moments ago. But at the same time it must be *established*. It is not "resident" in the object that is being used as a name. The relation must be established, so to speak, from outside on. Differently said, no object has a projective relation inscribed in it. No object is a logical feeler "by its own nature". It must be taken as a name, associated to an object, projected onto reality. It has an internal relation to an object, it is true, but this relation is supervenient. Not supervenient in time, for sure, since what must "happen" cannot be a fact – it cannot have any place inside the world probed by the feelers of our thought.

This is the "mystery of meaning". Naming is akin to transubstantialization. When the object becomes a name of something, it does not suffer any change in its "external properties", but acquires a new internal one. An action is wanted here. An ineffable action performed outside the bounds of sense – a transcendental intervention of a transcendental subject. When he introduced this element at the end of the *Tractatus*, Wittgenstein was not mesmerized by this or that chapter of the history of philosophy. Without the transcendental subject, the whole logical engine of the *Tractatus* simply does not work.

But naming is not the only place where the services of this subject are needed. Logical operations want it as well. According to the *Tractatus*, language needs two kinds of logical operations at work. Each of them will give us a new reason to postulate a transcendental subject acting outside the world. First of all, we have the truth-operations used to build new propositions out of simpler ones. He takes simultaneous negation as a paradigm, but a closer look at simple negation will be enough to make my point. According to Wittgenstein, an operation is "that which must happen [*geschehen*] to a proposition in order to make another out of it" (5.23). In order to be logical, an operation must be grounded on a formal relation between basis and result. There must be a definite logical relation between the sense of the proposition used as a basis, and the sense of the proposition obtained as a result. In writing "*p*" or "*not-p*", our hand is dealing with signs, with marks of ink. This action can be perfectly described in our language. But negating a proposition is not simply drawing graphic patterns on a sheet of paper. We only deny a proposition by reversing its sense – that is what negation "does". And the reversal of sense is not a fact at all. It is not comparable to turning my socks inside out. Again, it is something that must be done, but that cannot be done inside the logical walls of the world. It must be performed by a transcendental agent dwelling into the bounds of sense.

There is another kind of logical operation which is not used to build, but to select. Direct enumeration is the simplest selection method. We use it, for instance, when we want to construct a logical conjunction. Once more, what is "given" as an input to the conjunction is not a pair of graphic entities, but two logically determined senses. What must be "gathered" cannot be described, since it is an internal property of a pair of symbols. Accordingly, we

do not have here a factual "gathering", but a transcendental one.

The same is true of more complex gatherings, involving not two, but an infinite number of propositional senses. Quantification is the first and more salient example. In order to say that there is someone in this room, for instance, I have to consider all statements having the form "x is not a person in this room", and negate them all. What was true of two propositions keeps being true of this infinite set captured by a propositional function. What is captured is neither an infinity of real scribbles, nor an infinity of possible ones. We must gather an infinity of logically related senses, and that is something that an empirical subject could never do, even if he had an infinite span of time.

Finally, we have the formal series, where numbers make their entrance. I can say that there is an infinite number of persons in this room by denying that there is no one, that there is exactly one, exactly two, three, four, and so on, to infinity. The *Tractatus* has no problem at all with infinities, provided they are formally determined. From Wittgenstein's point of view, the problem with the axiom of infinity is not the infinite, but the attempt to give the number of objects in a proposition, instead of showing it as the end result of logical analysis. By the same token, the problem with the axiom of choice would not be the mention of an object selected within an infinite set, but the arbitrariness of the selection, the fact that it is not governed by a logical rule. For Wittgenstein, logic does not play with dice. Anyway, who makes the selection, be it a finite or an infinite one, is always a subject which cannot be identified with my body, my bodily motions, mental states, bodily or mental dispositions, and what not. There is an "I" behind the sense, but it can never be identical with anything which is true about myself.

So the transcendental subject has a logical reason to exist. More exactly, there are at least three good logical reasons for it to be postulated. Without counting with such a subject, Wittgenstein could never have spoken of names, logical operations and logical selections the way he did. In all these cases a metaphysical agent must be presupposed behind the logical tasks which must be performed. Although Wittgenstein does not speak in these terms, it is quite appropriate to think of this subject as a pure intentionality projecting names into the world, reversing the intention of propositions, and directing a non-empirical attention to certain formally defined groups of propositional sense. In more abstract terms, it is a non-empirical will – a will to mean. It is a will directed not to facts, as empirical will, but to the a-temporal world of objects. It is not a will of some contingent fact, of something that may happen or not. It is a will of what necessarily *is* – the a-temporal order of objects and possible states of affairs.

This mystical contact with eternity is inevitably present where any meaning or understanding is involved, but only in a sort of "instrumental" way. When we speak we have to direct our transcendental intentionality to the realm of objects for the sake of producing propositional senses. I think Wittgenstein envisaged another possibility at this point. The Tractarian doctrine of sense leaves open the possibility for this transcendental subject to project its intentional feelers onto eternity, not for the sake of speaking meaningfully, but for its own sake. When we speak, we say *how* we think the world is – which objects are combined in which way. In order to form propositions, we have to project names over the realm of objects. Objects carry with them their combinatorial possibilities. To intend objects is to intend all the net of logical possibilities

inscribed in the "logical space". So there is no talk about *how* the world is without a passage through the sempiternal order of the logical space. That is the very *locus* of sense. We can choose between an instrumental passage at the service of a chattering distracted reason, and the direct intuition promised by the mystical tradition. The old mystical rule of silence finds in the *Tractatus* its most perfect completion. The Tractarian silence is an immediate and non-instrumental contact with the a-temporal order from which every sense must come from.

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Konkrete Geometrie. Eine modale Raum-Zeit-Theorie vor einem ‚finitistischen‘ Hintergrund

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Im Umfeld formal-philosophischer Raum-Zeit-Theorien werden zurzeit vor allem drei Ansätze diskutiert: (1) Theorien die auf klassischen euklidischen und nichteuklidischen Konstruktionen beruhen (Minkowski-Geometrien, etc.); (2) Theorien, die auf topologischen und mereologischen Konstruktionen beruhen (topologische Räume, Mereologie, Mereotopologie); (3) *diskrete* Theorien, die entweder schlicht auf einer *Rasterung* kontinuierlicher Hintergrundräume basieren oder aber auf dem Konzept der *Adjazenz* von Objekten (diskrete Räume als Graphen, diskrete Geometrie und Topologie).

Als Alternative zu diesen Varianten soll hier ein Ansatz präsentiert werden, der, so könnte man sagen, anstelle von raumzeitlichen Objekten als Punkte oder Punktmengen, raumzeitliche Objekte als *konkrete Massekörper* ansetzt. Eine solche Konzeption soll *konkrete Geometrie* genannt werden.

Im Folgenden wird zunächst (Abschnitte 1 und 2) ein formales Rahmenwerk präsentiert, das im angedeuteten Sinn ‚finitistisch‘ funktioniert und mit folgenden unten zu erläuternden Leistungsmerkmalen ausgestattet ist:

- Mehrsortigkeit
- Mereologie
- Free logic
- Flache Semantik

In den Abschnitten 3 und 4 werden zeitliche und räumliche Aspekte vor dem Hintergrund dieses Rahmenwerkes diskutiert.

1. Die ‚finitistische‘ Grundsprache FIN_s

Konkrete Geometrien legen den Ansatz einer Rahmensprache nahe, die auf *starrer Referenz* (rigid designation) beruht, in der Annahme, dass jeder *Name* einer Sprache ein konkretes *räumliches Objekt*, bzw. ein konkretes *Merkmal* eines räumlichen Objektes bezeichnet. Wir konstruieren eine derartige Sprache als *mehrsortige* Sprache über einer endlichen Menge von paarweise disjunkten endlichen Mengen S . (Die einzelnen Mengen aus S könnten solche Dinge repräsentieren wie Massekörper, Formen, Farben, u.dgl.) (In gewisser Weise ist eine so konstruierte Sprache eine *Verallgemeinerung* des Konzeptes einer Prädikatenlogik, über mehrstufige und typenlogische Konstruktionen hinaus, die zugleich die *Nachteile* von Konstruktionen *über* der ersten Stufe vermeidet. – Die ‚finitistische‘ Konstruktion ermöglicht die Darstellung einer solchen Sprache quasi als eine ‚Logik nullter Stufe‘. – Wir können hier aus Platzgründen jedoch nicht näher auf diese Gesichtspunkte eingehen.)

Die Mengen aus S haben sowohl die Funktion eine *Signatur* für die Sprache anzugeben – sie sind solche Objekte, die oft durch *Prädikatenkonstanten* repräsentiert werden –, als auch die Funktion, eine *Domäne* für die Sprache zu liefern – sie sind solche Objekte, die man in einer Prädikatenlogik oft als Elemente der Domänen von Strukturen angibt. Soll heißen: man kann in einer ‚finitistisch‘ konstruierten Sprache schlicht und einfach nicht zwischen Domäne und Signatur *unterscheiden* (es ist eine Frage der Interpretation). Konsequentermaßen nennen wir die

fundamentale semantische Konstruktion der Sprache eine *Domänensignatur* $D = (S, P)$. Hier ist S eine *Sortenmenge* im oben spezifizierten Sinn.

Wir statten die Sprache FIN_s mit zwei ‚Sonderfunktionen‘ aus: *Mereologie* und *free logic*. Die mereologische Strukturierung kommt dadurch zustande, dass wir aus der Menge S die Sortenmenge S' bilden, durch folgende Definition:

- (1) jede Sorte aus S ist eine Sorte in S' ,
- (2) ist s eine Sorte in S' , so auch deren Potenzmenge $\wp(s)$.

Mit N bezeichnen wir die Menge aller Folgen von Elementen aus S' – grob gesprochen: die Menge der Signaturen aller möglichen *diskreten Räume* über S' . Die Menge

$$P \subseteq N$$

ist dann nichts anderes als eine *endliche Teilmenge* von N , die anschaulich *alle sinnvollen Kombinationen* von Mengen aus S herauspickt.

Wir definieren Terme als Konstanten und Variablen: Jedes Element jeder Menge aus S' ist als Konstante der Sprache definiert, für jede Menge aus S' setzen wir außerdem abzählbar viele Variablen fest. Die Funktion Δ ordnet jedem Term τ seine Sorte $\Delta(\tau) \in S'$ zu.

Eine *Struktur* A ist dann definiert als eine Abbildung, die zunächst jedem $s \in S'$ eine Teilmenge $A(s)$ zuordnet, sodass folgendes Axiom gilt, für alle $s_1, s_2 \in S'$:

$$s_2 = \wp(s_1) \rightarrow A(s_2) = \wp(A(s_1))$$

Dieses Axiom garantiert so etwas wie die *mereologische Konsistenz* der Sprachkonstruktion. Die Auswahl einer Menge von Teilmengen der Sorten aus S' führt ihrerseits dazu, dass die Sprache eine *free logic* darstellt: A bestimmt Mengen von *existierenden Entitäten*.

Zweitens ordnet A jedem $p \in P$ mit $p = s_1, \dots, s_i$ eine Menge

$$A(p) \subseteq A(s_1) \times \dots \times A(s_i)$$

zu. Mit A bezeichnen wir die Menge aller Strukturen über einer Domänensignatur, die, wie man leicht sieht, stets endlich ist.

Für jedes $p \in P$ mit $p = s_1, \dots, s_i$ ist genau jede Folge von Termen $(\tau_1, \dots, \tau_i)$ mit $\Delta(\tau_j) = s_j$, für alle j , als *atomare Formel* der Sprache FIN_s definiert. Wir setzen $\Delta(\tau_1, \dots, \tau_i) := p$. Die *Syntax* der Sprache ist festgelegt durch:

$$\phi ::= \phi_{at} \mid \forall x \phi \mid \neg \phi \mid \phi \wedge \phi,$$

wobei ϕ_{at} für atomare Formeln steht. Wir definieren die Erfülltheitsrelation $*_s$, für alle Strukturen A , alle konstantenbelegten atomaren Formeln ϕ_c , alle Variablen x und alle Formeln ϕ, ψ :

$$A *_s \neg \phi \text{ gdw nicht } A *_s \phi$$

$$A *_s \phi \wedge \psi \text{ gdw } A *_s \phi \text{ und } A *_s \psi$$

$$A *_s \phi_c \text{ gdw } \phi_c \in A(\Delta(p_c))$$

$$A *_s \forall x \phi \text{ gdw für alle } \Delta(x)\text{-Konstanten } c \text{ gilt } A *_s \phi \left[\frac{c}{x} \right].$$

Die so definierte Sprache hat ausgesprochen angenehme modelltheoretische Eigenschaften. Erfülltheit $A *_s \phi$ ist stets entscheidbar, was sich leicht zeigen lässt, indem man die Sprache als Aussagenlogik über der Menge AT aller konstantenbelegten atomaren Formeln darstellt. Da die Menge aller Strukturen $\mathbf{A}$ endlich ist, ist somit auch *Gültigkeit* als Erfülltheit in allen Strukturen entscheidbar.

2. Modalität: Quantifizieren über die Grundsprache in der ‚flachen Semantik‘ $FLAT_s$

Die Sachlage, dass einerseits die Sprachkonstruktion von FIN_s von vornherein mehrsortig ist und dass andererseits die Menge $\mathbf{A}$ aller FIN_s -Strukturen endlich ist, legt eine simple *Erweiterung* der Sprache FIN_s nahe, zu einer modalen Sprache, in der dann quasi *zusätzlich* über die Menge $\mathbf{A}$ quantifiziert werden kann.

Zur Realisierung dieses Ansatzes müssen wir lediglich drei Dinge festsetzen: (1) müssen wir eine FIN_s – Domänensignatur D angeben, (2) müssen wir eine Menge P^* von *modalen* Prädikaten festsetzen und (3) müssen wir eine entsprechende *modale Struktur* M festsetzen, die, grob gesprochen, angibt, welche ‚möglichen Welten‘ vergleichbar sind, etc. Ein derartiges Tripel $O=(D, P^*, M)$ nennen wir eine *Ontologie* der Sprache $FLAT_s$.

Im Detail: mit S^* bezeichnen wir diejenige Menge in der alle Sorten aus S und die Menge $\mathbf{A}$ enthalten sind, sowie erneut für jede Sorte s auch deren Potenzmenge $\wp(S)$. Mit N^* bezeichnen wir die Menge aller endlichen Folgen von Elementen von S^* . Dann muss

$$P^* \subseteq N^*$$

definiert sein, als endliche Teilmenge von N^* , sodass zusätzlich gilt:

$$P^* \cap P = \emptyset.$$

Diese Forderung ist wichtig, da sonst durch die Domänensignatur D und die modale Struktur M sozusagen ‚konkurrierende Werte‘ vergeben werden könnten.

Die *modale Struktur* M ist dann definiert als Abbildung, die jedem $p \in P^*$ mit $p = s_1, \dots, s_i$ eine Menge $M(p) \subseteq s_1 \times \dots \times s_i$ zuordnet. (Aus naheliegenden Gründen wir die Erweiterung $FLAT_s$ nicht als *free logic* definiert.) Wie oben sind Terme definiert und die Abbildung Δ , sowie atomare Formeln, für alle Elemente von P und P^* . Es existiert außerdem eine zusätzliche arbiträre $\mathbf{A}$ -Konstante $SELF$. Wir definieren für jede Struktur A und jede $\mathbf{A}$ -Konstante $a \neq SELF$:

$$A(a) := a$$

$$A(SELF) := A.$$

Die *Syntax* der Sprache ist dann folgendermaßen definiert:

$$\phi ::= \phi_{at} \mid \forall x \phi \mid \neg \phi \mid \phi \wedge \phi \mid \tau_a * \phi.$$

Hier steht ϕ_{at} für atomare Formeln, τ_a für $\mathbf{A}$ -Terme und

$*$ ist ein arbiträres Symbol, das die sogenannte *flache Modellbeziehung* der Sprache repräsentiert.

Da in einer Ontologie stets eine bestimmte modale Struktur festgesetzt ist, können wir Erfülltheit erneut als Relation $A *_f \phi$ definieren, zwischen Strukturen A und

Formeln ϕ und relativ zu der fixen modalen Struktur M . Wir definieren, für alle konstantenbelegten atomaren P -Formeln ϕ_c und alle konstantenbelegten atomaren P^* -Formeln ϕ_c^* , alle $\mathbf{A}$ -Konstanten a , alle Strukturen A , alle

Variablen x und alle Formeln ϕ, ψ :

$$A *_f \neg \phi \text{ gdw nicht } A *_f \phi$$

$$A *_f \phi \wedge \psi \text{ gdw } A *_f \phi \text{ und } A *_f \psi$$

$$A *_f \phi_c \text{ gdw } \phi_c \in A(\Delta(\phi_c))$$

$$A *_f \phi_c^* \text{ gdw } \phi_c^* \in M(\Delta(\phi_c^*))$$

$$A *_f \forall x \phi \text{ gdw für alle } \Delta(x)\text{-Konstanten } c \text{ gilt } A *_f \phi \left[\frac{c}{x} \right]$$

$$A *_f a * \phi \text{ gdw } A(a) *_f \phi.$$

Durch die flache Modellbeziehung $*$ und die Konstante $SELF$ ist Quantifizieren über Strukturen möglich und somit die Definition beliebiger modaler Operatoren. Beispiel:

$$N\phi \text{ gdw } \forall x_a : R(x_a, SELF) \rightarrow x_a * \phi.$$

Hier ist x_a eine $\mathbf{A}$ -Variable und R eine passende ‚Erreichbarkeitsrelation‘.

3. Zeitliche Gesichtspunkte

Gegeben eine Ontologie O für die Sprache $FLAT_s$ können einzelne Strukturen als *Zustandsbeschreibungen* eines zugrundeliegenden Universums interpretiert werden. Es resultiert ein *diskreter Zeitbegriff*: das Universum U ist durch eine Struktur z charakterisiert, so lange bis irgendeine Veränderung in U eintritt und somit das z durch ein passendes z' ersetzt werden muss. Im Unterschied zu gewöhnlichen Zeitmodellen, die auf einer Menge von ‚Zeitpunkten‘ (etwa einem reellen oder ganzzahligen Intervall) aufbauen, wird hier direkt die Menge $\mathbf{A}$ aller Strukturen zeitlich ‚bewertet‘.

Eine *zeitliche Struktur* $Z = (\zeta, <)$ ist definiert als eine Menge von Strukturen $\zeta \subseteq \mathbf{A}$ und eine darüber definierte Relation $<$. Setzt man beispielsweise diese Relation als *lineare Ordnung* an, so können in der üblichen Weise zeitliche Standardoperatoren definiert werden:

$$F\phi \text{ gdw } \exists z : z < SELF \wedge z * \phi$$

$$G\phi \text{ gdw } \neg F\neg \phi$$

$$U(\phi, \psi) \text{ gdw}$$

$$\exists z : z < SELF \wedge z * \phi \wedge \forall z' : SELF < z' < z \rightarrow z' * \psi$$

usw.

Analoge Definitionen können entwickelt werden für Fälle wo $<$ eine andere Art von *partieller Ordnung* darstellt. Wir wollen hier jedoch nicht näher darauf eingehen und nehmen für die folgenden Überlegungen lediglich an, dass $<$ ‚zumindest‘ eine partielle Ordnung über ζ bildet.

4. Konkrete Geometrie

Ein *konkreter Raum* sei definiert als eine Menge R , die, gegeben eine fundamentale endliche Menge M von *Monaden*, deren Potenzmenge $R := \wp(M)$ repräsentiert.

Monaden sind die kleinsten Einheiten, von denen in dem konkreten Raum die Rede sein soll. Dies können, je nach intendierter Anwendung, Quarks sein, Atome, Moleküle, Häuser oder Galaxienhaufen.

Ein Zustand eines Universums soll in einer konkreten Geometrie stets durch eine Teilmenge M_z der Monadenmenge charakterisiert sein und die entsprechende Menge $R_z = \wp(M_z)$. Mit $\triangleleft$ bezeichnen wir die als Teilmengenrelation definierte Verbandsordnung über R bzw. den einzelnen R_z . Diese Ordnung $\triangleleft$ spiegelt exakt die Ansprüche einer *Mereologie* wieder, da sie nicht nur eine partielle Ordnung darstellt, sondern auch solche Dinge wie mereologische Summe (=Supremum) und Produkt (=Infimum), sowie Disjunktheit von Entitäten eindeutig definiert sind.

Für die folgenden Überlegungen sei gegeben eine zeitliche Struktur $Z = (\zeta, <)$. Wir nennen zwei z, z'

benachbart und schreiben $z \prec z'$, wenn folgendes gilt:

$$\forall z'' : z < z'' < z' \rightarrow z'' = z \vee z'' = z'.$$

Als *Graphen* $G(Z)$ bezeichnen wir den gerichteten Graphen über ζ , der genau dann einen Knoten (z, z') enthält, wenn $z \prec z'$ gilt.

Für die Konstruktion einer konkreten Geometrie ist die Annahme grundlegend, dass die Elemente der Monadenmenge M bestimmte *substanzielle* Grundmerkmale besitzen. Dies hat zur Folge, dass, falls ein Objekt substanzielle Merkmale dieser Art verliert, dieses Objekt durch ein anderes Objekt, bestehend aus anderen Monaden *ersetzt* werden muss. Beispielsweise könnte ein Blatt Papier aus ‚Papier-Monaden‘ bestehen. Verbrennen wir das Blatt, so verliert es die Papier-Eigenschaft und die Papier-Monaden müssten durch so etwas wie ‚Asche-Monaden‘ ersetzt werden. Auf die so entstehende fundamentale Instabilität reagieren wir mit der folgenden formalen Konstruktion:

Eine *diskrete Raum-Zeit-Struktur* $R_z = (\zeta, <, M, \rho)$ ist definiert als zeitliche Struktur $Z = (\zeta, <)$ plus eine Monadenmenge M , die als Sorte der Grundsprache FLAT_z definiert ist, ebenso wie der darüber definierte konkrete Raum $R = \wp(M)$ mit der mereologischen Relation $\triangleleft$.

Für je zwei benachbarte $z, z' \in \zeta$ mit $z \prec z'$ oder $z' \prec z$ definiert ρ eine *bijektive Abbildung* zwischen den durch z und z' definierten Mengen $R_z(z)$ und $R_z(z')$. Für das derart jedem $b \in R_z(z)$ in $R_z(z')$ zugeordnete Element schreiben wir $\rho(b, z, z')$, bzw. $\rho(b, z', z)$.

Durch die Abbildung ρ erhält jedes Element irgend-eines $R_z(z)$ ein eindeutiges Gegenstück in jedem anderen $z' \in \zeta$. Die Idee ist, dass Entitäten zwar ihre Erscheinungsform, ihre substanziellen Merkmale verändern können, aber stets gewissermaßen einen einheitlichen ‚substanziellen Kanal‘, bzw. eine Art von ‚Weltlinie‘ repräsentieren. Wir definieren:

Gegeben sei der Graph $G(R_z)$ mit der Knotenmenge $V = R \times \zeta$, der für je zwei benachbarte z, z' und jedes $b \in R_z(z)$ und das entsprechende $b' = \rho(b, z, z')$ die Kante $\{(b, z), (b', z')\}$ enthält. Wir definieren $L(R_z)$ als die Menge aller größtmöglichen zusammenhängenden Teilgraphen von $G(R_z)$. Jedes $l \in L$ nennen wir eine *diskrete Weltlinie* in R_z .

Der Vorteil dieser formalen Konstruktion besteht darin, dass man diskrete Weltlinien sofort als *Terme* in die Grundsprache einführen kann, da es für jeden Zustand z und jede Weltlinie l eine eindeutige Repräsentation dieses l in z gibt (von dem ‚Randproblem‘ jener Strukturen, die nicht in ζ enthalten sind, sehen wir hier ab).

Folgendes sind plausible Konsistenz-Forderungen an diskrete Raum-Zeit-Strukturen: eine diskrete Raum-Zeit-Struktur heißt *regulär*, wenn folgendes gilt:

- (i) **Eindeutigkeit:** Jedes $b \in R$ ist in genau einem $l \in L$ in irgendeinem Knoten enthalten.
- (ii) **Ordnungserhaltung:** Für alle benachbarten z, z' und alle $b, b' \in R_z(z)$ gilt:

$$b \triangleleft b' \rightarrow \rho(b, z, z') \triangleleft \rho(b', z, z').$$

Gegeben die Definition der L -Relation $\propto$ als:

$$l \propto l' \text{ gdw } \exists z : z * l \triangleleft l'$$

bildet $(L, \propto)$, wie man leicht sieht, einen vollständigen Verband.

Die skizzierte Konstruktion liefert ein Rahmenwerk für eine diskrete Raum-Zeit-Theorie. Der Vorteil dieses Ansatzes besteht darin, dass einzelne Objekte hier konkrete Dinge sein können, wie Moleküle, Sessel, Menschen oder Berge. (Solche Dinge müssen nicht indirekt als Punktmengen o.dgl. eingeführt werden.)

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Conservativism or Progressivism - Is It a Yes/No Question?

Wittgenstein's and Rorty's Pragmatic Account of Historical Progress

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The main reasons why Rorty thinks that Wittgenstein is a pragmatist are Wittgenstein's linguistic instrumentalism (Rorty 1988) and antiessentialism (Rorty 1991). Below I will make some depth to these claims.

Wittgenstein can easily be understood as an instrumentalist. He saw linguistic expressions as tools rather than as mirrored pictures of objects. In his *Tractatus*, he still had held the view of a one-to-one relation between linguistic and non-linguistic affairs but in terms of fact-statement relation (as opposed to object-word relation). Later, while his conception of language as games has gradually got into shape in 1930s, he has completely left Relation Theories of Knowledge (below *RTK*) behind him. What makes our statements significant, according to him from the middle of 1930s at the latest, is their usage - i.e., not their meaning (as a special relation to abstract entities of Plato or Frege) nor their truth (as a special relation to particular entities of reality). Most radically, from 1937 he thought that even mathematical statements should preferably be understood as applicable rather than true (MS 117, 4; TS 221, 140; TS 222, 6). Our statements have got their significance from the role which they play in certain language games; i.e., they are so significant as applicable in context-dependent situations. Neither words, nor sentences must correspond to some components of the world; it is quite enough if we can cooperate via communication with each other within that very world. Language is therefore an instrument (or, preferably, a set of instruments) for him.

Wittgenstein's antiessentialism is even more obvious. It is enough to remember to his famous account of what the essence of a game is in §. 66. of his *Philosophical Investigations* (TS 227a, 56). Wittgenstein showed here that the claim that there must be something common in things labelled by the same general word is a supposition which is *unproven*. What can be seen is just nets of resemblances; where there are some knots we suppose to be essences - there isn't, however, a certain knot which screws up every single use of the word.

A common ground of the two above-mentioned theses is, I claim, a rejection of theories of knowledge which I called *RTK*. According to *RTK*, knowledge is a special relation between two kinds of entities: a relation between subject and object, mind and matter, phenomenal and physical, beliefs and facts, language and world, abstract and concrete, eternal and temporal, unity and plurality, etc. As opposed to this view, a pragmatist idea of how knowledge works is an instrumental and anti-essentialist point according to which knowledge is primarily practical (non-theoretical), active (non-contemplative), communal-communicative (non-individual), processual (non-static, non-dispositional), and applicative (non-relational). Knowledge is just a way of presenting some advice which can help in coping with others and within the world.

RTK are affected by, according to the Rortyan therapy, the vision of 'the Eye of the Mind' (Rorty 1979), or, according to Havelock's view (Havelock 1963), by the

impact of literacy to the way of communication, and, hence, thinking. The metaphor of understanding our mind as an eye has come into existence, according to Havelock, as an effect of *looking at* words (seemed to be the primary source of knowledge); until words were just *said* and *heard* we had no reason to think that there were mysterious meanings or references behind them. If words were not separated clearly from each other (as they weren't in oral communication), we would have no reason to think that the explanation why our language is meaningful has to be started with the explanation how words (rather than sentences, language games, or communication as a whole) can have their meanings.

As Kristóf Nyíri illustrates in several of his papers, Wittgenstein is well fit into a picture of a more or less unconscious prophet of divergencies between literal-written and oral communication (esp. Nyíri 1995). His point is but mainly grounded in a reading of Wittgenstein as a conservative thinker (e.g. Nyíri 1975). A conservative attitude, which is partly built on a non-progressive idea of history (Garver 2004, 152), seems but not a useful tool for Rorty's further purposes - on the contrary, it seems to give some quite strong arguments against them.

Even if we accept that Wittgenstein was a pragmatist in the broad sense that he preferred practice-oriented explanations to theory-based ones, he would surely disagree with Rorty that the warranty of why our statements are reliable is a hope in a better future. Wittgenstein would have rejected that with respect to the fact that those statements are embedded in our tradition and hence have their force from our inherited knowledge. He was at least sceptical with historical progress. He wrote of it in quite a few of his notes, and even if he mentioned he regarded it as a pure hypothesis (e.g. MS 109, 68; MS 110, 257; TS 221, 321-2). In June 1931 he claimed, most notably, that

Die historische Erklärung, die Erklärung als eine Hypothese der Entwicklung ist nur eine Art der Zusammenfassung der Daten — ihrer Synopsis. Es ist ebensoviel möglich die Daten in ihrer Beziehung zu einander zu sehen und in ein allgemeines Bild zusammenzufassen ohne es in Form einer Hypothese über die zeitliche Entwicklung zu machen (MS 110, 125).

Seeing history as a progression is closely related to the Platonic distinction between belief and knowledge. Awareness of historical existence is an impact of literacy. Written words allowed us to make a "differentiation of legend and fact, myth and knowledge, and the beginning of a feeling for history and for historical *distance*" (Nyíri 1992, 77). Awareness of history is, however, also delimited by literacy. Abstract concepts and static theoretical ideas (generated by written words) caused a kind of inflexibility in seeing the structure of temporality and history (metaphysics is *per definitionem* the doctrine of the eternal, not of the historical). The Written, fixed once and for all, suggested that history still had been written before it could be done. The Scriptures and, afterwards, the scientific

writings had previously fixed the structure of reality (including our present and the future); historical existence is, since Plato, only an illusion. One of the main reasons why we supposed for ages that history has an end of it was that some of our beliefs are proven to be illusory, and since we had a strong rationalist belief (*unproven not* to be illusory) that reality is reasonable, we *needed* to think that passing time is a process which has an end in which we can reach the eternal structure of 'real' reality.

That static framework which teleologically determines contingencies had therefore been self-explained by *RTK* which was precisely the central target of Wittgenstein's pragmatic arguments. The idea of progression is, as it is known, a belief strongly accused by rationalist suppositions of the Enlightenment (Bloor 2004). Most importantly, a rationalist wants to feel herself in safety just alone (i.e., without God and/or society). Since she knows that the frame of her knowledge does not exactly fit into the structure of the world, she hopes that in the future the former will converge to the latter. From this hope, moreover, she *misimplies* that the *only* possible way of thinking about reality is a view that our knowledge *in fact* converges to reality. It is not the problem with progressivist accounts that they were false; the problem is that they are claimed to be the *only* possible explanations by rationalists. If we give up, however, *RTK*, we don't need, and have no more reasons for, the supposition that history should have any direction fixed once and for all.

Rorty is of course aware of a possible description of his view as a Neoromantic attack against scientism of the Enlightenment, with an unreasonable nostalgia toward progressivism of it. He sees but his hope for a better future as a central thesis of his pragmatism (esp. Rorty 1994). This hope, after leaving behind realization of *RTK* as a purpose, is directed to a *social* goal in terms of *solidarity* (as opposed to an epistemic goal in terms of knowledge).

If the above-mentioned are right, Wittgenstein's main reason against seeing history as a progress was its exclusive strategy, strongly affected by *RTK*. If it is allowed that there is more than just one way of describing the world which can be (almost) equally applicable for some purposes, it is evident that we lose not only the reasonableness of *RTK*, but also the reasonableness of the supposition that history has a certain goal fixed once and for all.

Seeing the distinctive features of a conservative reading of Wittgenstein, Rorty's progressivism is, surprisingly, in an accordance with it point by point. A conservative Wittgensteinian thinks that concrete is prior to abstract, history to reason, practice to theory, norms or customs to rules, and life to thought (Bloor 2004, 113). I hope it is clearly unwanted to argue that these are exactly the features which are attributed by Rorty to good Deweyan comrades. If this is so, maybe the above-mentioned are features which does not necessarily commit us either to conservatism or to progressivism, since they are just some marks of rejection of a *fixed goal* of history, i.e., rejection of the view that the world has come into existence just for the purpose that we could have got a complete account of it via *RTK*.

As I mentioned, Wittgenstein did not directly argue for or against the idea of progression but regarded it as a hypothesis which can be either followed or abandoned without proofs (i.e., blindly). Hypotheses of progression (e.g. Evolution Theories) are parts of our natural history (Schulte 2004, 183-7) and natural history is a practical explanatory strategy which should be followed (or

abandoned) without any proofs - since proofs are distinctively theoretical explanatory strategies (Garver 2004, 141). Natural history is rather like a *Genrebild* than a story of series of events with temporal extension - but also without an explicit rejection of it. This also means that explaining the relations among particular events does not have a unique historical or temporal structure. What can be seen from the past can only be seen as it appears now for us; what appears to be thus and so from this aspect, can also be seen from another aspect otherwise. Hence, the only way to reflect history of past time and of future as well, is to understand *how it is involved in the present*.

Reading Wittgenstein in such a way, it is more obvious why he did not work out any complete history of philosophy - since it can only be found in the practice of the present language games. In this case, the only significant difference between conservatism and progressivism is, nevertheless, just the *emphasis*: a conservativist says that knowledge is practically-socially *inherited* rather than written and proven once and for all, whereas a progressivist says that knowledge practically-socially *will be created* rather than written and proven once and for all. From a perspective of a complex account of where our knowledge comes from, it seems that there is no contradiction: for coming into existence, an inherited piece of knowledge *has to be created* socially (since it is not fixed once and for all) and for being kept up, a created piece of knowledge *has to be inherited* socially (for the very same reason).

A conservative account of the present in terms of the past seems therefore not to contradict a progressivist account of the present in the terms of the future. On the contrary, they do have a similar explanatory structure in which our present stage must be seen as a *contingent episode in the flow of time*. On the other hand, a historical account in terms of the present, either a progressivist one of the past, or a conservative one of the future, is essentially mistaken since it is accused with the bad presupposition of *RTK* that what is written now can be seen as eternally true. It is but evidently a supposition of *RTK* that the best way to understand how the world is, is to apply overgeneralized theories to issues for which they are unapplicable. A pragmatic, i.e., practice-oriented instrumentalist presupposition can dissolve the yes/no question if we apply explanatory strategies to the appropriate explanatory targets and we will remain conservatives with respect to the socially inherited knowledge of the past, and will become progressivists with respect to a hope that social problems which actually exist can be once solved by our social knowledge which is inherited and is going to be hopefully improved, or, on the grounds of inherited knowledge, is going to be hopefully extended, in the future.

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Empirical Equivalence, Scientific Realism and String Theory

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1. Introduction

The claim that our observable world does not uniquely determine the choice of the scientific scheme plays an important role in the scientific realism debate. The underdetermination of scientific theory by all possible data was formulated classically in (Quine 1975) and deployed e.g. in (van Fraassen 1980) as a central argument against the use of the concept of truth in statements about scientific objects. Its validity, however, still remains doubtful. (Wilson 1980), (Laudan & Leplin 1991) In particular, as pointed out by Quine himself and recently emphasised e.g. in (Lyre & Eynck 2003), it is not easy to find convincing examples of Quinean underdetermination¹ among actual scientific theories.

In this paper I want to present an example of Quinean underdetermination that is based on the concept of string duality. Irrespectively of the question of the validity of string theory, the presented example can provide a case study of a scientific scheme where underdetermination can be clearly shown to arise. Under the condition that string theory is a viable physical theory, the phenomenon of string dualities could lead to a new understanding of the actual role of underdetermination in modern high energy physics. After a short introduction of the conception of string duality in section two, section three will address the question of underdetermination. Section four, finally, will discuss the implications for scientific realism.

2. String Duality

The basic idea of string theory is to replace point-like elementary particles by extended objects.² This seemingly simple step leads to the development of a highly complex theoretical scheme that aims at providing a joint description of gravitation and microphysical interactions. One property of this scheme is of particular interest for the present paper: the string world shows a remarkable tendency to link seemingly quite different string scenarios by so-called duality relations. Dual theories are exactly equivalent in their observational implications, though they are quite differently constructed and may involve different types of elementary objects and different topological scenarios.

The phenomenon can be introduced best by the example of T-duality, which involves less interpretational complications than other instantiations of the duality principle. Superstring theory (The kind of string theory able to describe both bosonic and fermionic fields) can only be quantized consistently in 10 spacetime dimensions. Those 6 dimensions which are not visible to our eyes are taken to be compactified: they have the topological shape of a cylinder surface, where, after some very small translation in the 'compactified' direction, one ends up again at the point of departure. Closed strings (which have the topo-

logical structure of a rubber band) can be wrapped around compactified dimensions or just move along a compactified dimension. Since momenta along closed dimensions can only assume certain quantized eigenvalues, two basic discrete numbers characterise the state of a closed string in a compactified dimension: the number of times the string is wrapped around this dimension and the number of its momentum state in that very same dimension.³

T-duality asserts that a state where a string with characteristic length⁴ l is wrapped n times around a dimension with radius R and has momentum level m is dual to a state where a string is wrapped m times around a dimension with radius R/R and has momentum level n . The two descriptions give identical physics. The phenomenon is not a case of quantum indeterminacy concerning two states of the system. We rather face two theoretical formulations which describe the same physical situation so that they cannot be interpreted as referring to two different states at all. Nevertheless, the two formulations differ in characteristics which lie at the core of any meaningful ontology of an external world. They differ in the shape of space-time and they differ in form and topological position of their elementary objects.

T-duality is not the only duality relation encountered in string theory. It turns out that the existence of dualities is one of string theory's most characteristic features. Duality relations play the crucial role of connecting all different types of superstring theory. Before 1995 physicists knew 5 different 'superstring theories'⁵. Then it turned out that these 5 theories and a 6th by then unknown theory named 'M-theory' are all interconnected by duality relations. This web of dualities connects theories whose elementary objects have different symmetry structure and different dimensionality. (Each string theory needs a well-defined set of higher dimensional so called d-branes to be consistent.) M-theory even has a different number of spatial dimensions than its co-theories. Duality nevertheless implies that M-theory and the 5 possible superstring theories only represent different formulations of one single fundamental theory. In recent years, string-theoretical analysis has discovered even more surprising duality relations. For example, there exists a duality relation between certain theories that include gravitation and certain pure gauge theories without gravitation in a space reduced by one spatial dimension. More discoveries of duality relations might well follow in the future.

3. Underdetermination

The fact that different string theories with different elementary ontologies are empirically equivalent constitutes an example of Quinean underdetermination. Remarkably, two important problems which have marred previous exemplifications of underdetermination are softened in the context of dual string theories.

¹ In this paper I will use the term 'underdetermination' mostly in the Quinean sense of 'underdetermination of the theoretical scheme by all possible empirical data'. It should be emphasised at this point that there exist other forms of underdetermination whose analysis had to be based on entirely different considerations. (See e.g. the concept of 'scientific underdetermination' discussed in (Dawid 2004).)

² Standard Textbooks on String Theory are (Polchinski 1998) and (Green, Schwarz & Witten 1987). A popular introduction is (Greene 1999).

³ The two numbers are called winding number respectively Kaluza-Klein level.

⁴ The characteristic string length denotes its length when no energy is being invested to stretch it.

⁵ String theorists use the word 'string theory' for the general theoretical scheme as well as for the specific realisations of that general scheme which are based on specific choices of internal symmetry structures.

First, there is the question how to distinguish reconstructions of predicates from other empirically equivalent theories. The claim of underdetermination would be of little interest for the philosopher of science if it merely held that there are different ways to tell the same story. Such simple 'reconstructions of predicates' usually are distinguished from substantially different scientific concepts by introducing an ontology of the scientific objects. 'Ontologically charged' or reified objects are taken to be the essential elements of the theory, whose existence and whose observable properties cannot be changed without creating a new theory. The simple renaming of these objects, which does not alter their properties (e.g. calling the electron proton and vice versa), or the redefinition of parts of the theory that are not reified (e.g. the change of coordinate systems) do not create a new theory. In this sense, Quine's 'logically incompatible theories' actually represent 'ontologically incompatible theories'. Unfortunately, it is not always clear which parts of a theory precisely should be reified. To give one example, Poincaré's reformulation of classical mechanics in infinite flat space as a theory with altered physical laws in a finite space (Poincaré 1902) may look like a genuinely new theory if one reifies infinite flat space. Still, the conception is often understood as a mere reparameterisation of classical mechanics and therefore as an example of a reconstruction of predicates.

Of course, the fundamental question whether it makes sense at all to distinguish between reconstructions of predicates and empirically equivalent but ontologically incompatible theories remains unchanged in the context of string dualities. However, if one decides to posit such a distinction at all, dual string theories can be viewed as particularly clear examples of incompatible ontologies. The dimensionality and the topological shape of elementary objects seem to be essential characteristics of any meaningful external ontology. To deny ontological quality to these characteristics would mean withdrawing into an entirely abstract regime where an ontology cannot any more be understood in terms of a characterisation of the external world. The existence of dual theories thus proves highly problematic for an ontologically realist interpretation of scientific theories. Section four will return to this point.

The case of string dualities is also better suited than other examples of Quinean underdetermination to deal with the problem of the preliminary status of scientific theories. Quine asserts that the totality of all possible empirical evidence underdetermines the choice of a scientific scheme. Attempts to find scientific theories which can serve as examples of underdetermination usually fall short of exemplifying Quine's assertion for a simple reason: Scientific theories in general cannot be expected to fit all possible empirical evidence. The specific status of string theory changes this situation in two respects. First, string theory offers a number of reasons for being called a final theory. (see e.g. (Witten 1996), (Dawid 2004).) Therefore, the assertion that string theory, if fully understood, could fit all possible empirical evidence, has a certain degree of plausibility. Second, in the context of string theory the claim of Quinean underdetermination is not based on the accidental occurrence of several empirically equivalent theoretical schemes but on a physical principle, the principle of duality, which represents a deep characteristic of the involved theories and may be expected to be a stable feature of future fundamental physics. It seems plausible to assume that the duality principle will continue to play an important role even if string theory changed substantially in the course of future research.

4. Scientific Realism

The question of underdetermination exerts considerable influence on the scientific realism debate. It is clear that the plausibility of an attribution of reality to scientific objects must suffer from any indication that more than one set of scientific objects is compatible with our observable world. If one ontological interpretation of the scientific description were enforced uniquely by the totality of all possible empirical data, a scientific realist interpretation of that description would seem natural at least in principle.⁶ If several or many possible ontological interpretations of the observable world existed, however, the scientific realist, who wants to establish her realist interpretation of microphysics based on abductive inference, would have to find good arguments why she rejects one ontological interpretation and endorses another. Still, underdetermination cannot strictly refute realism. The metaphysical realist may insist that, even if the selection of one set of ontological objects cannot be decided upon on empirical or rational grounds, there is, after all, a true choice.⁷

A comparison between the empirical equivalence due to string dualities and other examples of ontological underdetermination indicates that the former might carry particular force in the realism debate. Classically, two types of assertions about empirically equivalent scientific ontologies can be distinguished. On the one hand, one theoretical scheme can allow various ontological interpretations. Quantum field theory, to give an example, might allow to attribute the status of elementary objects either to particles or to fields. The variety of ontological interpretations in this case exists at the level of the philosophical interpretation of one specific physical theory. On the other hand, there may exist different mathematical schemes which describe the same observational world. Examples are the different empirically equivalent ways to formulate a gravitational theory. (See e.g. (Lyre & Eynck 2003).) String theory does not quite fit into any of these groups. It offers a variety of ontologically incompatible but empirically equivalent physical descriptions which are integrated in one scientific theory. The occurrence of ontological underdetermination thus does no longer look accidental but is turned into a core physical statement. This can be understood as a genuinely physical argument against one 'real' scientific ontology. The method of abductive reasoning, to which the scientific realist wishes to resort, in this case suggests the abandonment of ontological realism. The die-hard metaphysical realist can resist this argument but, by doing so, puts herself at variance with a core principle of scientific realism, the principle of abduction.

There exists an additional aspect of duality that underlines the conception's anti-ontological character. Duality does not just spell destruction for the notion of the ontological scientific object but in a sense offers a replacement as well. As it was described above, by identifying theories with different sets of elementary objects, string dualities reduce the number of independent possible string theories down to one. While the uniqueness of the elementary objects is lost, duality thus introduces a different quality of uniqueness, the uniqueness of the string theoretical structure implied by the basic postulates

⁶ The question whether the limited scientific theories available to us can identify this real ontology would remain, of course.

⁷ Philosophers like Dummett actually define realism as a position that allows this kind of statement (Dummett 1991).

of the theory.⁸ Given that the uniqueness of the real constitutes a pivotal element of any realist conception, the replacement of ontological by structural uniqueness seems to suggest to the realist a structural realist approach. (Dawid 2003)

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⁸ The significance of structural uniqueness of string theory is further enhanced by the fact that string theory does not have any free parameters, i. e. there are no numbers in the theory that can be varied to fit phenomenology. The basic postulates of string theory thus enforce one unique entirely rigid structure.

On Persistence Through Time

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In recent years there has been much discussion about persistence (identity) through time, and antithetically about change. Since the literature is too vast, we decided to focus on a particular problem.

We assume that there is a class T of *time items*. Whether or not there are atomic time items we need not decide. Nor do we need to know the possible ordering of the time items, nor the (cause or reason for the) direction of time. Nevertheless, it will be no loss of generality and will enhance the intuitive access to what we have to say, if one imagines that T is the set (or an interval) of real numbers under their usual ordering.

By TH we denote the class of all *things* such that $TH \cap T = \emptyset$. We need no categorization of the class TH into subclasses; however, we want to remark that the class TH may contain numbers, sets, motions, colours, properties, accidents, water drops, fallings of waterdrops, states of affairs, thoughts, substances, ghosts, gods, their wives, and so on. But TH contains no pure places, only impure ones, e.g. whole cities like Berlin or Kirchberg.

Let now $A \in TH$, and $t \in T$. Then we assume that the statement

A exists at t
is either true or false, although we may not be able to know it. *A fortiori*, we assume that the statement *A exists at t* makes sense. If this assumption is erroneous, then our whole analysis is futile, and has to be replaced by a better one.

For example, if ω is the set of natural numbers, then ω exists at t seems to be true for all $t \in T$, i.e. ω is an eternal entity. But one may also assume that ω exists at t is false for all $t \in T$. Nothing interesting will follow from either choice. On the other hand, *Pegasus exists at t* is definitely false for all $t \in T$, provided *Pegasus* $\in TH$.

If A exists at t , then this does not mean that A or a part of A has an existence whose temporal extension is included in t or coincides with t . We think that such an interpretation is certainly incorrect if t is an atomic time item. Rather, that A exists at t means that t is an element (or a part) of the lifetime of the thing A . As a slogan: *The things are not in time, but time is in the things*.

For $A \in TH$ we define $E.T.(A) := \{t \in T : A \text{ exists at } t\}$. We call the set $E.T.(A)$ the *Existence Time* of the thing A , which is just another term for *Lifetime* if A is a living creature.

We say that A persists throughout (the time) T_0 , if $T_0 \subseteq E.T.(A)$. If T_0 consists of (say) 234 time points, then it sounds somewhat odd to say that A persists through the set of these 234 (possibly very unconnected) time points. Nevertheless, we want to use this expression; persistence in our sense is not necessarily continuous or connected persistence; it may be an *intermittant* persistence. Of course, you may define persistence as continuous persistence provided you give a reasonable definition of *continuous* in this context.

Main Theorem. If $E.T.(A) \neq E.T.(B)$, then $A \neq B$.

Proof. If $A = B$, then $E.T.(A) = E.T.(B)$, by pure logic. QED

The Main Theorem is trivial, but in an important sense. It solves many so-called puzzles of so-called persistence without any effort. For instance, if the (whole) existence time of A is different from that of B , then A and B cannot be identical. There may subsist uncountably many relations between A and B , which "glue" A and B together until they begin to boil: if $E.T.(A) \neq E.T.(B)$, then necessarily $A \neq B$.

To re-iterate: the Main Theorem is an important triviality. Unfortunately, it is often overlooked in the discussion of problems concerning persistence. So let us give some detailed illustrations of the usual mistakes committed if the Main Theorem is overlooked.

(I) Let $Y.J.$ be yesterday's John, and let $T.J.$ be today's John, provided there are really such things, that is to say: if we have the necessary comprehension principles available (see below presently). Then $E.T.(Y.J.) =$ the whole of yesterday, i.e. the set of time items at which $Y.J.$ exists covers all of yesterday time. And $E.T.(T.J.)$ is defined analogously. Then by necessity, $Y.J. \neq T.J.$ In other words, yesterday's John cannot persist to become today's John, in no way, not even by a miracle.

There is a subtle point to comment upon here, namely the assumption that those two Johns really exist! And this has to do with comprehension principles. What do we mean by a *comprehension principle* (in the present context)?

For $S \subseteq T$ we denote by $TH[S]$ the class of all things A such that $E.T.(A) = S$. Then a comprehension principle w.r.t. S describes the class $TH[S]$ as precisely as possible, e.g. it states its cardinality, and states which its elements are. For instance, if S are some 234 time points, then it may well be that $TH[S] = \emptyset$. However, there may be a superset or subset S' of S with $TH[S'] \neq \emptyset$. Therefore, it is not certain whether or not our two Johns $Y.J.$ and $T.J.$ do exist at all. Perhaps there may be a last-week-John, or a this-hour-John, and no other John at all.

The observation just made is a crucial one. For, if one asks whether such and such a temporally determined or delineated thing persists through some given time, then we have first to settle the question if such a thing exists at all. And if there is a thing D such that $E.T.(D) = S$, then (by definition) D persists through every (nonempty) subset of S .

(II) Can yesterday's John change and remain, nevertheless, identical with himself? Of course he can. In the morning he may be tired, in the afternoon he may be not tired, in the morning he may read a book, in the afternoon he may walk through the park, without reading anything. In this way, yesterday's John changes. There is no contradiction whatsoever in all this. We need not assume a morning-John, nor an afternoon-John in order to dissolve the alleged contradiction; moreover, such Johns may not exist at all since there may be no comprehension

principles for them! Let now M be yesterday's John's morning tiredness, and let it belong to the class TH of things. Then we have $E.T.(M) \subset E.T.(Y.J.)$. That's all.

(III) Let now *John* be the whole or maximum John, provided such a thing exists (nobody knows). Then $E.T.(John)$ will be a time interval (perhaps with gaps) starting with John's birth and ending with his clinical exitus. This John exists at t , iff $t \in E.T.(John)$. And this John persists through all times $S \subseteq E.T.(John)$, but of course not beyond.

(IV) *Which comprehension principles really hold, Philosophy by Herself cannot know.* For instance, Philosophy does not know whether there is a Gaius Julius Caesar, GJC, such that $E.T.(GJC) \supseteq$ *the first of March of 44 B.C.* If there is such a GJC, then he persisted through the whole first of March of 44 B.C. If not, then not.

(V) In the discussion of persistence there sometimes crops up the notion of a *temporal part*, with the suggestion that only so-called processes can have temporal parts. My comments about this are the following. Take our whole or maximum *John*, and his head H , which is surely a part of him. Then $E.T.(H)$ seems to be a nonempty subset of $E.T.(John)$, or rather, these two sets seem to be equal if we disregard the times where *John* did lose his head. Then the (proper) part H of *John* has the same temporal extension as *John* himself has. In this sense *John's* head is a temporal part, viz. a temporally extended part of the temporally extended *John*, although neither *John* nor H is a process, in the ordinary sense of the word. And we need not consider *John* as process in order to ascribe to him a temporal extension, i.e. $E.T.(John)$.

(VI) There is another kind of consideration into which the notion of part enters. Let us give the following definition.

Superpersistence. Let A and B be things. Then we say that B *superpersists over* A if $E.T.(A)$ is a nonempty proper subset of $E.T.(B)$, and if B is a proper part of A .

Let us explain the notion of superpersistence by means of two examples. Let B be our whole or maximum *John* with a lifetime of 70 years, and let A be a car accident of 10 seconds in which John is involved, i.e. *John* is a proper part of A , among other parts of A , e.g. the car and pieces of the road. Then all the conditions for superpersistence are satisfied. One says that *John survives* the car accident. Or if A is a state of illness (a kind of individual *sachverhalt*) in which *John* is involved, then we will say that John survives this illness if A terminates before John's death.

This notion of superpersistence is very common, and therefore very confused. Strictly speaking, the whole *John* with his 70 years of lifetime cannot be part of a 10-second car accident. Only a suitably restricted John can. Although I cannot rigorously prove that the notion of superpersistence is empty or spurious, i.e. without instances, *I think that it is in fact empty and spurious.*

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Wittgenstein on the Possibility of Philosophy: The Importance of an Intercultural Approach

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1. The Entanglement of Philosophy with Mythology and Language

Wittgenstein (1993) writes in his *Remarks on Frazer's Golden Bough* (RFGB):

An entire mythology is stored within our language. (RFGB, p. 133)

In his *Golden Bough*, Frazer's (1922) interprets the customs of all cultures as applications of more or less sophisticated hypotheses about the world as if all human behavior was either magic, or religion, or science and the latter two were merely primitive forms of science. Wittgenstein regards this interpretation as unsuitable for capturing the diverse meanings of the very different myths and customs. Moreover, he takes Frazer's approach to explanation itself to be completely misled. The harsh rejection of Frazer's method in the RFGB casts doubts on Wittgenstein's expectation to learn anything new about the myths of other cultures from reading Frazer. However, he surely expected - among other issues one of which I will consider soon - to learn something about myths. Not about the myths of other people, but about the myths stored in the English language. Although Frazer did not intend to give evidence for them, he revealingly makes use of terms like »ghost«, »shade«, »soul« and »spirit«. Wittgenstein thinks that these terms derive their meaning from the mythology stored in language and that »much too little« is made from the fact that we count these words »as part of our educated vocabulary« (RFGB, p. 133).

The use of these words can not only lead to misinterpretations of unknown customs, but also create an incorrect understanding of philosophical problems. For a crucial concern for the possibility of philosophy is how we can prevent being led astray by the myths stored within our language. Wittgenstein does not believe that in philosophy we can simply eliminate all critical terms, replace them by neutral ones, or make use of a »clean« non-ordinary language. Even in the attempt to free language from myths, we have to use non-neutral, potentially myth-laden terms. How can we prevent being caught in the same myths we try to free ourselves from?

Furthermore there is the problem that - following Wittgenstein - grammar itself suggests certain views on philosophical problems and thereby might tempt us to pursue wrong views. Since in philosophy we have to use language, we cannot pursue a view independent from its »temptations«. We are always in danger of inventing some »myth« (Wittgenstein 1963 (PI), §138) because we follow the suggestions of grammar. Thus, how can we find an approach to philosophical problems that goes beyond the entanglements of our language and does not lead us on the tracks of philosophical myths?

Wittgenstein explored the possibility of such an approach precisely in his remarks on Frazer's *Golden Bough* - this is the other reason considered here for his occupation with Frazer's work for many years. Frazer's failure in ethnology can teach us something for philosophy since Wittgenstein believes there is a close commonality

between the approaches of both. In *Culture and Value* he writes:

If we use the ethnological approach does that mean we are saying philosophy is ethnology? No, it only means we are taking up our position far outside, in order to see the things *more objectively*. (Wittgenstein 1998, p. 45e)

Wittgenstein underlined the article within his expression »the things« by a wavy line to express his doubts on the correctness of this word. He does not intend to say that there is a given set of objects (»the things«) independently of our recognizing them. For the same reason he does not speak of »seeing things objectively«, but of seeing them »*more objectively*«. In the German original, this is expressed by only one word (»objektiver«). If Wittgenstein had written in English, he might as well have written »*more objectively*« to emphasize there is not one single objective approach (compare e.g. §133 of the PI) but nevertheless there is a *more* objective approach. This *more* objective approach is what Wittgenstein calls »the ethnological approach«. In the next section I will explore why culture is important for this approach and in section three why it is an intercultural approach.

2. The Role of Cultures and Forms of Life for Philosophy

Wittgenstein does not propose to replace philosophy by ethnology. But there are parallels in the approaches both can take. A first parallel should be clear from the remarks above: Both have to treat myths: Ethnology, because it explores the myths of other people. Philosophy, because it has to disengage from (pre-)philosophical myths. Both have to go beyond the entanglements of the own language but at the same time use it.

This is related to a very particular kinship between ethnology and philosophy: For both, culture is a special concern. By »culture« I mean the ways of doing things we find in one, several, or all human communities. Wittgenstein very rarely used the term »culture«, since at his time it was not commonly used to describe the ordinary ways of acting. In general, Wittgenstein was very careful in using words that might be interpreted as technical terms. But in some cases, he famously did use the term »form of life« which stands for an intimately related concept. As Glock (1996, p. 125) points out:

»To imagine a language means to imagine a form of life« (PI §§7, 19). In *Blue and Brown Books* 134, to imagine a language is equated with imagining a »culture«. Accordingly, a form of life is a culture or social formation, the totality of communal activities into which language-games are embedded.

From the experienced actuality of different cultures it is obvious that more than only one culture is imaginable. The parallel use of »form of life« suggests that we can imagine more than but one human form of life. Many philosophers do not like to admit to this because it thwarts their attempts to find an unmovable foundation for meaning. I do not intend to argue here against this position since I did so in a

recent publication (Durt, forthcoming). There, I explained how Wittgenstein avoids strong forms of relativism by searching for overlapping commonalities which enable intercultural understanding. Here, I merely presuppose that it is possible to *imagine* different cultures and forms of life. Since for Wittgenstein meaning is founded on cultural forms of behavior, different languages go along with different forms of cultural behavior. This allows for understanding how seemingly incomprehensible concepts are possible: they are used in different forms of life or cultures. Imagining different cultures enables us to imagine essentially different concepts. This way, we might be able to imagine other concepts of »soul« and »spirit«, or essentially different forms of counting that might lead to a different mathematics. This would not mean to imagine an arbitrary mathematics; the imagined concepts are not all a matter of convention. The very fact that they are rooted in a culture shows they have to »fit« in it and should not evoke too many contradictions with other concepts; this would disturb the interplay. On the other hand, they don't belong to an eternal third world of ideas completely independent of human activities. This holds for imagining a different culture as much as for the related case of imagining a different education, for which Wittgenstein writes in his *Zettel*:

387. I want to say: an education quite different from ours might also be the foundation for quite different concepts.

388. For here life would run on differently. - What interests us would not interest *them*. Here different concepts would no longer be unimaginable. In fact, this is the only way in which *essentially* different concepts are imaginable. (Wittgenstein 1967b, p. 69e)

3. Wittgenstein's Intercultural Approach to Philosophy

But is Wittgenstein in the above citation not committing a self-refuting *contradictio in adjecto*? Are *essentially* different concepts not that different that they are other concepts? Why should we call an *essentially* different »mathematics« still »mathematics« and not seize it under a different concept? With »*essentially* different«, Wittgenstein could not mean »completely different«. But how can we understand the essentially different concepts as connected to the concepts familiar to us? To understand the essentially different language games with our language games, there must be a connecting link between our concepts and those being essentially different. Wittgenstein thinks that we can find such connecting links or intermediate cases (*Zwischenglieder*) and use them for a description he calls *Übersichtliche Darstellung* (perspicuous representation):

The concept of perspicuous representation is of fundamental importance for us. It denotes the form of our representation, the way we see things. (A kind of »World-view« as it is apparently typical of our time. Spengler.)

This perspicuous representation brings about the understanding which consists precisely in the fact that we »see the connections«. Hence the importance of finding *connecting links*. (*RFGB*, p. 133)

In the German original:

Der Begriff der übersichtlichen Darstellung ist für uns von grundlegender Bedeutung. Er bezeichnet unsere Darstellungsform, die Art, wie wir die Dinge sehen. (Eine

Art der »Weltanschauung« wie sie scheinbar für unsere Zeit typisch ist. Spengler.)

Diese übersichtliche Darstellung vermittelt das Verständnis, welches eben darin besteht, daß wir die »Zusammenhänge sehen«. Daher die Wichtigkeit des Findens von *Zwischengliedern*. (*RFGB*, p. 132)

It does not matter if the *Zwischenglieder* are found or invented. Contrary to Frazer's attempt to explain the historical origin of strange customs, Wittgenstein wants to give a description that reveals the resemblance of facts. His interest is not to provide scientific explanations by putting forward hypotheses of how the custom developed. Instead, he wants to describe it in a way that makes it comprehensible to people of our culture. Merely to use the concepts of our culture would not capture the strange concepts. If we want to comprehend them, we have to relate them to our concepts.

Finding and inventing connecting links allows grasping essentially different concepts. This is important for Wittgenstein's conception of philosophy in general. In the *PI*, Wittgenstein uses a formulation nearly identical to the above citation from the *RFGB*:

[...] A perspicuous representation produces just that understanding which consists in »seeing connexions«. Hence the importance of finding and inventing *intermediate cases*.

The concept of a perspicuous representation is of fundamental significance for us. It earmarks the form of account we give, the way we look at things. (Is this a »Weltanschauung«?) (*PI*, §122)

In the German original:

[...] Die übersichtliche Darstellung vermittelt das Verständnis, welches eben darin besteht, daß wir die »Zusammenhänge sehen«. Daher die Wichtigkeit des Findens und des Erfindens von *Zwischengliedern*.

Der Begriff der übersichtlichen Darstellung ist für uns von grundlegender Bedeutung. Er bezeichnet unsere Darstellungsform, die Art, wie wir die Dinge sehen. (Ist dies eine »Weltanschauung«?) (*PI*, §122)

In the German original the citations are even more similar. The only major differences are that the order of the sentences was reversed and the reference to Spengler in the *RFGB* was replaced with a question in the *PI*. Most significantly, in his *RFGB* Wittgenstein does not speak of invention of *Zwischenglieder*. However, in the following sentences of the *RFGB*, he gives the example of gradually converting an ellipse into a circle as a »hypothetical« *Zwischenglied* which can be just as well found as invented. We can assume that already in the *RFGB* Wittgenstein thought about *Zwischenglieder* in this way.

But why are Wittgenstein's attempts to present perspicuous presentations of different concepts an intercultural approach? The word parts »über« and »sicht« (english: »over« and »view«, together: »survey«) in Wittgenstein's term »Übersichtliche Darstellung« might suggest he meant a view from above and not between cultures. Accordingly, in the English version of the *Philosophical Remarks*, »Übersichtliche Darstellung« was translated with »bird's eye view« (Wittgenstein 1975, I §1).

But the *Übersichtliche Darstellung* is not an objective explanation. Rather, it is a description coming from *our* language and culture and therefore not free of its myths and temptations. However, it is more objective than

the view from merely one culture since it embraces the viewpoints of different cultures. The *Zwischenglieder* help to link the viewpoints of different cultures and to comprehend the connections between essentially different concepts. They are not located merely on the side of either the one or the other culture, but stand between them.

In his attempt to give an *Übersichtliche Darstellung*, Wittgenstein does not try to find a position above the different cultures. Instead, his approach takes a course between cultures, it is an intercultural approach. Wittgenstein used it in his numerous examples of different cultures in the *PI*, the *Remarks on the Foundations of Mathematics*, and other works. He does not think that in philosophy we can put ourselves into a position free of the temptations of myth and grammar. We cannot simply leave behind ordinary language and its cultural foundations. But his philosophical method shows how to untangle from some of the temptations: By taking the intercultural approach.

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Bye, Bye Time?

Über die nicht endenwollende Abschaffung der Zeit

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Alles steht

Immortality is here. Our task is to recognize it. Some Nows are thrilling and beautiful beyond description. Being in them is the supreme gift. (Barbour 1999)

Die letzte Entscheidung für oder gegen eine statische Welt fußt auf ästhetischen Gründen. Der angebliche Konflikt zwischen Parmenides und Heraklit setzt sich bis in die Verästelungen der gegenwärtigen Naturwissenschaften fort. Julian Barbour ist Erbe der Eleaten. Er folgt aber auch den Spuren von Leibniz und Mach, was absolute und relative Bewegung bzw. Position betrifft. Dieser Weg führte ihn fast zwangsläufig zum Standpunkt universeller Stasis.

...time is an illusion. The phenomena from which we deduce its existence are real, but we interpret them wrongly. (Barbour 1999)

Allerdings trägt er auch die ewige Last Eleas: den zeitlichen Schein mit dem unveränderlichen Sein in Einklang zu bringen, die *Doxa* von der *Aletheia* her zu verstehen. Das zu vollbringen erforderte aber nicht nur die „revolution in our understanding of the universe“ (so der Klappentext von Barbours „*The End of Time*“, sondern eine ungleich tiefgründigere Umwälzung in unserem Verständnis von Logik und Ontologie.

Platonica forever

Barbour beginnt als strikter und stringenter Relationist im Gefolge von Leibniz. Bauen wir das Universum der Einfachheit halber aus einer Mannigfaltigkeit von nur 3 Massenpunkten auf, so zählen lediglich deren relative Positionen zueinander. Der Begriff des ‚absoluten Ortes‘ ist sinnlos.

Normalerweise, in ‚absolutistischer‘ Sichtweise, gestaltet sich die Zuordnung dreier Punkte zu einem aufwendig: Je einem Dreieck bestimmter Position, Gestalt bzw. Größe entspricht genau ein Punkt im 9-dimensionalen Konfigurationsraum – und vice versa. Letzteres macht die Sache nicht gerade spannend, denn dieser ‚Raum‘ ist bis auf den letzten Punkt ‚besetzt‘, viel mehr läßt sich über ihn nicht sagen.

Ganz anders, wenn wir nur die relative Position dreier Punkte in Betracht ziehen. Dann charakterisieren 3 Angaben (3 Seiten, 2 Seiten/1 Winkel, 1 Seite 2 Winkel) das Dreieck vollständig, in diesem Fall genügt also ein 3-dimensionaler Konfigurationsraum, wir sparen 6 Dimensionen ein! Darüber hinaus kommt Leben in die Sparvariante: Wenn die 3 orthogonalen Achsen des Konfigurationsraumes x,y,z die 3 Seiten eines Dreiecks a,b,c paarweise abbilden, so ist jetzt sofort einzusehen, daß bestimmte Areale im Raum ausgespart bleiben, weil im Dreieck eine Seite die Summe beider ändern nicht übertreffen darf. Statt des ‚Einerlei, randvoll bis zum letzten Punkt‘ zeigt sich uns eine *Gestalt*, deren Eigenschaften wir nun untersuchen können – alles, weil wir uns auf die *relative* Lage dreier Punkte zueinander beschränken.

Es liegt auf der Hand, daß die Gestaltendfülle sozusagen überproportional wächst, je mehr Punkte ins Spiel kommen. Barbour nennt das unvorstellbar komplexe Gebilde sämtlicher Massenpunktkonfigurationen im Universum *Platonica*; ein einleuchtend gewählter Name, denn da hier sämtliche Möglichkeiten relativer Anordnung koexistieren, könnte sich auf einer hinzugefügten Zeitachse nichts mehr tun. (Ebensogut hätte er die zeithobene, apriorische Kristall-Landschaft *Zenonia* taufen können.)

In der grenzenlosen Weite von *Platonica* zeichnen sich bereits einige höchst interessante, aber rare, Regionen ab. Julian Barbour nennt sie *time capsules* (Zeitkapseln). Es handelt sich um – immer noch statische – Situationen welche auf andere Situationen verweisen. Wir müssen dabei bedenken, daß hier eine ‚Situation‘ dem entspricht, was wir als Universum zu einem bestimmten Zeitpunkt realisieren.

Zeitkapseln stellen auch nichts anderes dar, als Punkte im ‚platonianischen‘, relationalen Konfigurationsraum; Punkte, welche es allerdings im wahrsten Sinne des Wortes in *sich* haben.

Das *time capsule* – Konzept mutet ähnlich an, wie die Behauptung des tapferen Pioniers des Kreationismus und der Aquaristik, Philip Henry Gosse: Gott habe vor 6000 Jahren die Erde samt aller Fossilien fertig geschaffen; habe gleichsam zeitliche Wegweiser aufgestellt, die ins Leere zeigen. (Nebenbei: Ein Aquarium simuliert eine von seinem Schöpfer inszenierte Vergangenheit; vielleicht rührt von da Gosses Inspiration.)

Barbour strapaziert dieses Szenario bis zum Anschlag. Die momentane Welt – ein Zeitkapsel-Punkt in *Platonica* – strotzt vor sozusagen objektiv unerfüllten Intentionen. Nicht nur Bibliotheken und Fossilien oder Jahresringe von Bäumen, auch die persönlichen Gedächtnisinhalte erinnerungsfähiger Individuen stellen Bot-schaften ohne Absender dar.

Quantenträume

Zeitkapseln sind Mangelware in *Platonica*. Warum befinde ich mich an einer der ganz seltenen Positionen, welche ‚Vergangenes‘ inkorporiert haben? Ja, nicht irgendein ‚Vergangenes‘, sondern eines, das wiederum als Zeitkapsel imponiert, mit eigenen retrospektiven Wegweisern... Ein Prinzip wie bei den russischen Babuschka-Puppen.

Hier, scheint es, ist die ganze Betrachtung in einer Sackgasse angelangt. Rekursive Zeitkapseln, sporadisch über den eingefrorenen Konfigurationsraum verteilt, können unser Bewußtsein von Zusammenhang und Fluß nicht erklären.

Barbour allerdings denkt nicht daran, seine unbewegte Welt durch Beifügung einer dynamischen Zutat zu beleben. Im Gegenteil: Er konfrontiert die Stasis von *Platonica* mit einer weiteren zeitlosen Entität, um daraus die Illusion des Geschehens abzuleiten. Die fehlende Ingredienz holt er sich aus der Quantentheorie.

Die Wheeler-DeWitt-Gleichung hält mittlerweile eine Menge Chat-Stuben im Internet auf Trab. Viele Physiker und in ihrem Troß Philosophen sind mit ihr indes nicht glücklich, denn die sogenannte ‚Wellenfunktion des Universums‘ (besser, aber auch falsch: der Universen) kommt ohne Zeitparameter aus. Erinnern wir uns daran, daß die Amplitude (bzw. deren Absolutquadrat) der Wellenfunktion in der Quantenmechanik für die Wahrscheinlichkeit, daß ein Ereignis eintreten wird, steht, dann ergibt sich die Notwendigkeit, unseren Begriff von ‚Wahrscheinlichkeit‘ zu überdenken.

Nun handelt die *damned equation* (wie sie DeWitt schimpfte) von kosmischen Zuständen auf der ganz großen Skala. Barbour läßt sich aber – mit guten Gründen – von dieser Allerwelts Gleichung inspirieren. Er postuliert, daß eine ähnliche, detailgerechte, Formel jeden Punkt in *Platonía* überlagert und dessen Wahrscheinlichkeit zu ‚sein‘ determiniert – und Zeitkapseln bevorzugt. Daraus sollen sich Trajektorien ergeben, welche einen Ablauf suggerieren. Hier zeigen sich allerdings auch zwei Schwachstellen der Argumentation:

Die Vorliebe der Gleichung für ‚intentionale‘ Situationen wird sozusagen von Hand eingeführt, aber nicht begründet.

My conjecture is this. The Wheeler DeWitt equation of our universe concentrates any of its well-behaved solutions on time capsules. ... I could fill up pages with hand-waving arguments for why this should be so, but they would baffle the non-specialist and offend the specialist. (Barbour 1999)

Darüber hinaus versäumt Barbour die Gelegenheit, die Amplitude (samt Phase) der Wellenfunktion direkt physikalisch zu interpretieren, offenbar aus Scheu vor komplexen Zahlen. Er beschwört die plastische Vorstellung von *red mist* (die Amplitude) und *green mist* (deren Konjugat), aber Bedeutung hat für ihn nur der ‚blaue Quantennebel‘ – die Wahrscheinlichkeit in Form des Absolutquadrats – welcher über dem gesamten Konfigurationsraum lagert. Hier wartet noch eine Menge Arbeit am Begriff. Denn ‚Wahrscheinlichkeit‘ hat in Verbindung mit *Platonía* – wo Voraussagen a priori ausgeschlossen bleiben – ebensowenig unmittelbaren Sinn wie etwa in der Anwendung auf einen Zweig in Everetts Multiversum.

Hinter diesem Manko bleiben andere zurück, wie die Preisgabe kraftvoller Symmetrien. Daß ein universelles *Now* gegen den Geist der Speziellen Relativität verstößt, ist klar, hat aber mittlerweile Bürgerrecht in der Physik. Für die Bevorzugung des Ortes gegenüber dem Impuls – gar nicht zu reden von ‚diagonalen‘ Größen – hat schon Bell plausible Argumente eingebracht. Aber eine konsequente statische Welt-Deutung verlangt, vermute ich, direkte Interpretation der Quantenamplitude. Dann könnte sich eine Erklärung finden, warum die Wellenfunktion Zeitkapseln ‚liebt‘.

Quasi nebenbei findet Barbour übrigens auch eine Erklärung für den ‚Zeitpfeil‘: *Platonía* ist von Natur aus asymmetrisch, das Zeitkapsel-Bevorzugungs-Prinzip fordert die ‚Erinnerung‘ spezieller Konfigurationen. Der Urknall ergibt sich zwangsläufig in Form der – verzeitkapselten – Koinzidenz sämtlicher Massenzentren.

Ausblick auf Durchblick

Barbours Standpunkt ermöglicht einerseits eine frische, faszinierende Sicht auf psychophysische Zusammenhänge – die Seele-Leib bzw. Bewußtsein-Nervensystem-

Problematik; auf der anderen Seite ergeben sich gravierende Probleme mit dem Sprachgebrauch, in den unsere Begriffe für ‚Subjektives‘ eingebettet sind.

Zuerst die positive Perspektive: Die Existenz von lebenden Systemen verstärkt den Zeitkapsel-Charakter eines Punktes in *Platonía* ungemein. Maturana & Varela definieren Lebewesen als *Autopoietische Maschinen*:

...eine Maschine, die als ein Netzwerk von Prozessen der Produktion (Transformation und Destruktion) von Bestandteilen organisiert (als Einheit definiert) ist, das die Bestandteile erzeugt, welche 1. aufgrund ihrer Interaktionen und Transformationen kontinuierlich eben dieses Netzwerk an Prozessen (Relationen), das sie erzeugte, neu generieren und verwirklichen, und die 2. dieses Netzwerk (die Maschine) als eine konkrete Einheit in dem Raum, in dem diese Bestandteile existieren, konstituieren, indem sie den topologischen Bereich seiner Verwirklichung als Netzwerk bestimmen. (Maturana 1985)

Überschaubar formuliert, handelt es sich bei autopoietischen Systemen um Homöostaten, welche eine ganz spezifische Variable konstant halten: ihre eigene Organisation.

Es wäre kein geringes Unterfangen, die Trajektorie einer autopoietischen Entität im relationalen Konfigurationsraum näher zu bestimmen. Hier genügt aber ein Charakteristikum: Lebewesen sind ihre eigenen ‚unendlich‘ rekursiven Zeitkapseln. Wie Barbour offenbar selber noch nicht bemerkt hat, übertrifft ein Punkt in *Platonía*, der lebende Systeme enthält, alle unbelebten bei weitem an Wahrscheinlichkeit.

A fortiori gilt dies, wenn Kognition aufgrund der Existenz neuronaler Strukturen explizit ins Spiel kommt. Da verdichtet sich die Selbstreferenz – die ‚Eigen-Zeitkapsel-Anmutung‘ – wahrhaft zu unabsehbarer Rekursionstiefe. In den notgedrungen redundanten Wendungen Maturanas:

...there are organisms that include as a subset of their possible interactions, interactions with their own internal states... as if they were independent entities, generating the apparent paradox of including their cognitive domain within their cognitive domain. (Maturana 1980)

Wenn die Vermutung zutrifft, daß die universelle Wellenfunktion nach Punkten in *Platonía* hungert, die auf mehr als sich selbst verweisen, dann bedeuten Gehirne in Aktion für sie ein ‚gefundenes Fressen‘, welches sie mit einer von 1 nicht mehr unterscheidbaren Wahrscheinlichkeit beschenkt. Das in der Kosmologie kontrovers diskutierte *Anthropische Prinzip* – daß nämlich der Kosmos so haargenau auf bewußte Beobachter zugeschnitten scheint – findet seine Erklärung.

Ja, es liegt nahe, Bewußtsein überhaupt mit dem Maximum der (Barbour'schen Idealvorstellung von) Wellenfunktion hypothetisch in Verbindung zu sehen.

Jetzt die schlechtere Nachricht: Das Konzept *Platonía*+Universelle Wellenfunktion läßt keinen Platz für irgendeine realistische Wahl in puncto psychophysische Relationen. Ein blitzartiges Erfassen des jeweiligen ‚Nun‘ läßt sich vielleicht noch mehr oder weniger plausibel machen, zumindest rhetorisch. Aber für das Entstehen der Illusion von Zeit wie auch zum Durchschauen ihres illusionären Charakters bleibt einfach – zuwenig Zeit.

Wie momentan nämlich immer eine Täuschung sich vollziehen mag, sie braucht so etwas wie einen zeitlichen

Vorhof und einen Abgang. Auch die Illusion der Zeit bleibt Temporalgestalt.

Was wir also innerhalb der jeweiligen Zeitkapsel ‚erleben‘ (auch dieser Begriff paßt nicht in ein atemporales Ambiente), wäre eher die Illusion einer Illusion. Es warten hier auf uns grundsätzlich andere Aufgaben als etwa im Falle der Relativitätstheorie mit ihrer ‚Blockzeit‘. Was den Begriff der Zeit angeht, hat McTaggerts A-Reihe (vergangen – gegenwärtig – zukünftig) in Einsteins Weltgefüge ausgedient. Das unterstreicht der vemächtnishafte Satz:

Für uns gläubige Physiker hat der Unterschied von Vergangenheit, Gegenwart und Zukunft nur den Charakter einer, wenngleich hartnäckigen, Illusion. (zit. Aus Weizsäcker 1992)

Auf der anderen Seite beschäftigte Einstein der Umstand, daß das ‚Jetzt‘ in der Physik keinen Eingang findet, nachhaltig. Es scheint sogar vielen Quantendeutern annehmbarer, dem ‚Ich‘ Einlaß in die Physik zu gewähren, als dem ‚Jetzt‘. (vgl. Edelbauer 1999)

Im Gegensatz zur physikalischen Orthodoxie destruiert Barbour aber die (McTaggart'sche) B-Reihe ‚früher – später‘. Seine Now's bleiben selbstgenügsam, als temporale Monaden in sich verschlossen.

Schließlich stellt sich die Frage, ob nicht die These ‚Zeit existiert nicht‘ Unsinn bleiben muß. Zweifel am temporalen Konnex bezieht ja seine Bedeutung aus einem Benehmen, das selbst Zeit erheischt. Descartes hätte ebensogut sagen können: Dubito ergo duro. Sonst würde der große Zweifel sich selbst verschlingen, wie der Staubsauger in *Yellow Submarine*, ein Thema für Zen-Buddhisten, aber nicht für Philosophen. Variieren wir das Thema in der Manier Wittgensteins:

Denk dir, du kämst zu einem Volksstamm, bei dem Erinnerungen so behandelt werden, wie bei uns Träume. Man sagt etwa: „Stell dir vor, gerade hab ich mich erinnert, du hättest...“. Und lacht manchmal gemeinsam darüber oder zieht zur Deutung einen Analytiker, manchmal auch ein ‚Erinnerungsbuch‘, zu Rate, um die Symbolik zu deuten. Da käme alles darauf an, wo die Grenze zwischen ‚Erinnern‘ und ‚sich beziehen‘ in einem Gespräch gezogen wird. Wird der Radius des Ernstnehmens zu kurz, bricht das ganze Sprachspiel zusammen.

Was unterscheidet diese Menschen von einer Versammlung von Korsakow-Kranken mit einer Neigung zum Konfabulieren? Den Zweifel aber am Vergehen, dem Gleiten der Zeit, können wir überhaupt nicht in ein Beispiel kleiden.

Welche Lehren sollen sich also aus dem absoluten *nunc* jedes Weltmoments ziehen lassen? Falls alle Abfolgen, einschließlich Gedankenprozesse, sich als illusionär erweisen, können wir nur noch frei nach Wittgenstein abhaken:

Wenn mein Bewußtsein momentan und unverbunden statthat, dann denke und rede ich jetzt nicht wirklich. Ich kann nicht im Ernst annehmen, daß ein plötzlicher Gedankenblitz ohne Bezug zum Gedankenfluß mir die täuschende Natur des Denkprozesses selbst offenbart. Wer träumend sagt ‚Ich träume‘ hat weder Recht noch Unrecht. (vgl. Wittgenstein 1970)

Oder wir hören Niels Bohr, der, geweckt von der Frage, ob eine adäquate Sprache denkbar sei, in welcher sich alle Aporien der Physik auflösen, sponan reagierte: „Ja, vielleicht träumen wir das alles nur...“.

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The Origins of the So-Called 'Rule-Following Paradox'

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The notion of 'rule-following' is already important in the *Tractatus*. There it characterizes 'thought' as the activity of following rules of projection. In MS 109-110 (1930-31), especially, Wittgenstein goes back to the discussion of the nature of Satz and thought. Its result is a version of some aspects of the so-called 'rule-following paradox' as presented in the *Philosophical Investigations* (PI). In those manuscripts, there is neither a solution for the 'paradox', nor a clear answer to the question of how the problem arises. Nevertheless, there are important indications of what could count as such an answer for Wittgenstein in line with the new method that he seems to be developing there.

1. Background: The *Tractatus*

What is a thought? In 3.5 Wittgenstein says that "a propositional sign, applied and thought out, is the thought". So the applied sign explains what a thought is. In order, then, to explain what a thought is, we need to be clear about what it means to apply signs. In 3.11 Wittgenstein gives us a further hint concerning the activity of applying signs:

We use the perceptible sign of a proposition (spoken or written, etc.) as a projection of a possible situation. The method of projection is to think of the sense of the proposition.

If the thought is the used propositional sign and to think is the method of projection, to get clear about what thinking is for Wittgenstein in the *Tractatus*, we need to understand in what projecting signs consists. The simplest case of projection is the projection of an image of a plane figure onto a parallel plane (projection plane) at an incidence of 90 degrees. Those are the *rules* of this projection. As a result, the ratios of the figure to be projected are preserved in the projection plane and the figures are similar. With such rules, we can easily recognize what the original figure is by means of the result of the projection. We can, nevertheless, change those rules and create different kinds of projection. If we change the incidence angle or do not require the parallel planes, the result of the projection will be figures that differ from the figures that we start with. With an incidence angle of 110 degrees, for instance, we would not know immediately which are the figures that were used as the starting point. We could only tell what the figures were if we knew the rules of projection used.

Different from the depiction of a real landscape, which presents the elements as they appear in the combination seen in the landscape, the projected signs of a proposition don't look like the described situation and its elements. But if we know the rules used to describe the situation, we can recognize how the propositional signs depict what is described. Thus the notion of thought explains how the proposition is a picture of what it describes by means of the notion of projection.

In 4.0141, Wittgenstein gives an example of a projection:

There is a general rule by means of which the musician can obtain the symphony from the score, and which makes it possible to derive the symphony from the groove on the gramophone record, and, using the first

rule, to derive the score again... And that rule is the law of projection which projects the symphony into the language of musical notation. It is the rule for translating this language into the language of gramophone records.

To project a propositional sign – to think the sense of a proposition – we need general rules of projection: rules that interpret the signs and relate them in a certain way. What are those rules? We need two kinds of rules to represent facts by means of signs: a general rule of correlation and a general rule of articulation. We can think, for instance, that a match on a box of matches represents the fact that Jack is at home. In this case, we could say that the match would designate Jack while the box would designate Jack's home (here we have a correlation rule) – see 4.0312. But since any object or word can stand for any object (as long as we use the given object or word in such a function), we need more to make clear what we are representing. We can also say that names don't have an autonomous meaning, for they have meaning only once a rule of articulation is in place (see context principle in 3.3). We need a rule that articulates the objects used as signs in a way that is similar to the articulation of objects in the situation that we want to project. We can say, for instance, that a rule prescribes that the position of the signs expresses the relation between the objects that we want to represent.

Thus, rules of projection express under which conditions a proposition is true; they determine, therefore, the sense of a proposition. To think the sense of a proposition is, therefore, to apply rules of projection. Thus, following rules of projection is what essentially characterizes thinking given that a "thought is a proposition with sense" (*Tractatus* 4).

2. MS 109-110

In MS 109-110, Wittgenstein systematically goes back to the question of thought and rules. But now he investigates some difficulties involving those notions¹: "Does the depiction (*das Abbilden*) consist in acting according to a rule? But how is this rule given? – How am I conscious of the rule? What is its expression?" (MS 109, p. 71 – all translations of MS are mine).

Those questions point to what one may take as an important problem. The question "What is the expression of the rule?" has a simple answer: the action of depicting or of following the rule of depiction is the expression of the rule. This seems to imply that the depiction consists in acting according to a rule. But to act according to a rule, then, we need a formulation of the rule as a standard for our action. In other words, the rule seems to be given to us when we act.

1 The major difficulty that underlies Wittgenstein's thoughts is the characterization of the relation among different kinds of Sätze (commands, expressions of desire, expectation, etc.), their rules of projection and facts (facts that make Sätze true, correspond to expectations, satisfy the expression of desire, etc.). I think that Wittgenstein's interest in these difficulties is connected with his reading and dislike of Russell's *Analysis of Mind*. In the manuscripts between 1929-32 there are several references to the "causal theory of meaning" of that book (for instance MS 107, p. 107, MS108, p.180 & 254, MS 109 74 & 198) as well as criticisms of Russell's explanation of the nature of desire (see especially MS107, p. 290 & MS 109, p. 28).

Suppose that a general rule is given. One can, nonetheless, apply the rule only if he understands its application. Suppose, for instance, that someone should translate a sentence from one language into another. He is given the set of sentences to be translated and a dictionary, which is the set of rules of translation: One could say then: But it is not enough to give him both things; you have also to tell him how to use them as well. But in this way a new plan would be created, which would need an explanation as much as the first one. (MS 109, p. 82).

The rules of translation, as it were, cannot do the work by themselves, for they also need to be explained. But once the rules in the dictionary are explained, the words used to explain the rules may also need an explanation. As if any interpretation hanged "in the air along with what it interprets" (PI §198). This would, then, imply an infinite regress.

Wittgenstein's conclusion is not, nevertheless, that this shows that we cannot follow rules. On the contrary, for him, there must be something wrong going on:

...I don't need another model that shows me how /the depiction goes and, therefore/ how the first model has to be used, for otherwise I would need a model to show me the use/application of the second and so on ad infinitum. That is, another model is of no use for me, I have to act at some point without a model. (MS 109, p. 86)

This certainly doesn't explain why we don't need a different interpretation to follow the rule or how to stop the presumed regress. It simply suggests that the need of a new model will not arise. As a matter of fact, we act without interpreting at some point. Immediately after the passage quoted above, Wittgenstein introduces the seeds of what could be thought as a new paradoxical situation:

One could also say this: a drawing is not a plan because someone once – *accidentally* – walked in such a way that his path corresponded to the plan, but rather because he followed the plan according to a definite rule. Incidentally, otherwise each path would correspond to the plan (according to some rule) (MS 109, p. 86-7; see also p. 281 for a similar situation involving rules of grammar).

This is similar to what Wittgenstein says in PI §198: "whatever I do is, in some interpretation, in accord with the rule". Something is needed, so it seems, to fix the rule, i.e., to determine which is the rule that is followed. If something does not fix the rule that expresses the correspondence of plan and action, we cannot be sure if someone is not simply accidentally in accord with a rule instead of following it. Now, the danger is the complete trivialization of rules, for each action is in accord with some rule.

Is Wittgenstein discovering the 'paradox' of PI §201 in MS 109? Wittgenstein, I take it, is rehearsing thoughts concerning the nature of thought and rules, which have their ancestor in the remarks on thought and projection of the *Tractatus*. I think that the only discovery that he makes is the discovery that one can come to believe that there is a problem concerning rules. The discovery that Wittgenstein wants to make (and this is why he rehearses thoughts on rule-following) is the one concerning how one could be led into thinking that rules cannot be followed; for instance, why one requires that to follow a command he needs always to interpret the signs used in the command (which can lead to an infinite regress).

This kind of discovery is, actually, the point of his investigation. In a remark that immediately precedes the

ones I cited above, he says: "(The method of philosophizing is to make yourself crazy, and to cure the craziness again)" (MS 109, p. 84). "To make yourself crazy" is to get into philosophical thinking. Wittgenstein rehearses philosophical thoughts in order to see when things go wrong. Those thoughts are "good only because they show the illness of the conception" (MS 110, p. 248) and bring into light how to solve (or dissolve) philosophical confusions: "the cure is the pointing out of the misleading picture..." (MS 110, p. 248).

In the manuscripts of 1930-31, Wittgenstein sees that what he has to locate are false analogies that lead to philosophical puzzlement. To be led by false analogies into mistakes and being unable to get rid of its predicaments is, for Wittgenstein, "the morbus philosophicus" (MS110, p.87). As the following passage shows, Wittgenstein is himself not clear about the misleading analogies and still in the middle of a predicament concerning rule-following at the time he writes MS109-10:

But what we certainly want is to make clear the grammar of the expression 'the command is followed'. Well, then how do I know that I followed the command? (I cannot find the central grammatical mistake on which all those problems rest). (MS 110, p. 95).

It is very important to see that Wittgenstein is not clear about *how* to explain the mistake in those trains of thought, or how to make clear how the sources of mistake work in the train of thought. He points to some of those sources in the manuscripts. He mentions, for instance, the following misleading ideas: that the meaning of a word is a representation in MS110, p. 230, that thoughts accompany sentences on p. 231 and that understanding is a state on p. 236. So we have already in MS110 some of the themes discussed in PI. Nevertheless, they are not treated systematically yet. On the other hand, Wittgenstein is sure about *where* he has to find a solution for the problems, namely, in mistakes underlying their formulation. It is the very train of thought that leads to the problem and seems to support it where things go wrong. Therefore:

One of the most important tasks is to express all false trains of thought in such a characteristic way that the reader says 'yes, I meant it in exactly this way'. To portray the physiognomy of each error (MS 110, p.230).

'To portray the physiognomy' of an error means thinking the thoughts that lead to the error and finding the source of the train of thoughts that leads us to the formulation of the problem (see PI §§39 and 40). Wittgenstein rehearses philosophical reasoning to find where it goes wrong and for himself to see where his philosophical inclinations lead him. After his own exercise, he wants to present this process with its errors in front of the reader in order for the reader to see himself, as it were, in a mirror. In PI those rehearsals come back in the voice of interlocutors who express philosophical inclinations. (The reason, then, why those voices seem so convincing is that the author of the book went through them himself -- as if through the "morbus philosophicus" --, but came back to tell the story).

Thus, even in its early version, the rule-following remarks are not intended as a paradox at all. So it speaks against Kripke's reading (Kripke 1982). Also, manuscripts 109-10 develop a method of philosophizing that consists in tracking philosophical problems to their origin in order for the reader to see his own mistakes. This method is invented, so it seems, in MS 109-10 and it will be constantly present in Wittgenstein's later philosophy. Another point to be mentioned is that discussions on the

'rule-following paradox' are present in Wittgenstein's work before his work on PI around 1944; i.e., when Wittgenstein introduces the sequence on the 'paradox' in the rule-following sections of PI around 1944, he is simply bringing it back to where it belongs.

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Der Philosoph als Schatzgräber. Moritz Schlick und das „Weltbild“ der Relativitätstheorie Einsteins

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1. Im Juni 1911 hielt der noch nicht dreißigjährige Moritz Schlick seine Antrittsrede als Privatdozent an der Universität Rostock. Indem er *Die Aufgabe der Philosophie in der Gegenwart* darstellte, betonte er insbesondere, daß die Philosophie das „Material“ zu behandeln habe, welches nicht in der „Vorstellungswelt des naiven Menschen“ vorzufinden sei, sondern in der „von den Wissenschaften erarbeitete[n] Kenntnis der Zusammenhänge der Erscheinungen“. Dabei spielt die Erkenntnistheorie in der Sicht Schlicks eine zentrale Rolle, denn mit ihr beschäftigen sich nicht nur die „Fachphilosophen“, „sondern auch viele Vertreter der Einzelwissenschaften“. Besteht das Hauptziel der Philosophie darin, eine Welt- und Lebensanschauung aufzubauen und kritisch zu überprüfen, so läßt sich dies nur in dem Sinne verstehen, daß die „wissenschaftliche[n] Fundamente“ eines solchen gedanklichen Unternehmens immer wieder zu vergegenwärtigen sind (Schlick Nachlaß, Inv. Nr. 1, A2a, Bl. 5-6, 16).

Schon am Anfang seiner philosophischen Tätigkeit war sich Schlick also dessen bewußt, daß die Philosophie und die grundlegende philosophische Disziplin, nämlich die Erkenntnistheorie, in einem fruchtbaren und wechselseitigen Gespräch mit den Wissenschaften, besonders mit den Naturwissenschaften, stehen sollten. Wie Schlick kurz danach in seinem ersten Aufsatz zum Relativitätsprinzip behauptet, besteht die Methode der theoretischen Philosophie darin, eine „kritische Erforschung der letzten Prinzipien der Einzelwissenschaften“ zu entwickeln, so daß das eigentliche „Kriterium für die Tüchtigkeit einer Philosophie“ in der Art und Weise ihres Verhaltens „zu neu entdeckten Prinzipien“ liegt (Schlick 1915: 129-130). In diesem Sinne kommt der Philosophie die Aufgabe zu, das fragliche Prinzip bzw. die fraglichen Prinzipien „restlos“ und unzweideutig zu verstehen; aber die Naturwissenschaft kann ihrerseits nicht umhin, die Philosophie als eine unverzichtbare Partnerin im erkenntniskritischen Diskurs zu betrachten. Für die Wissenschaften bedeute damit die Philosophie nichts Fremdes oder Verschiedenes, sondern „etwas in ihnen“. „Jede Wissenschaft birgt wohl das Philosophische in sich als eigentliches Lebensprinzip, der Philosoph aber ist der Schatzgräber, der es ans Tageslicht bringt und läutert“ (ebd., 131, 148). Auch in der *Allgemeinen Erkenntnislehre* heißt es übrigens, daß die Philosophie keine selbständige Wissenschaft sei, „die den Einzeldisziplinen nebenzuordnen oder überzuordnen wäre“, denn die Philosophie stecke vielmehr „in allen Wissenschaften als deren wahre Seele“ (Schlick 1918: 7). Und das Vorbild eines solchen Philosophieverständnisses ist für Schlick, wie er an anderer Stelle verdeutlicht, Hermann von Helmholtz, der die erkenntnistheoretische Arbeit als kritische Überprüfung der letzten Prinzipien des wissenschaftlichen Denkens nie „aus dem Auge verlor“ (Schlick 1922a: 29-31).

In der früheren Phase seines Denkens hatte Schlick es für plausibel gehalten, die Philosophie als eine allgemeine Weltanschauungslehre zu konzipieren, die sich jedoch ausschließlich auf der Grundlage des Weltbildes der Naturwissenschaften aufbauen läßt. Schlick hat später diese Auffassung in dem Sinne modifiziert, daß es ihm in der goldenen Ära des Wiener Kreises darum geht, die

spezifische Arbeitsweise der Philosophie als diejenige gedankliche Tätigkeit bzw. sprach-logische Analyse zu begreifen, die Ludwig Wittgenstein in seinem *Tractatus logico-philosophicus* angekündigt hatte. Diese „Wende der Philosophie“ hat Schlick sich unzweideutig angeeignet und in verschiedenen Beiträgen weiterentwickelt, um die These zu vertreten, daß die „Philosophie überhaupt nichts anderes sein kann als die Tätigkeit“, durch welche „der Sinn aller zur Erkenntnis nötigen Begriffe erklärt wird“ (Schlick 1929: 307; Schlick 1934: 383). Jedoch impliziert dieses Plädoyer für die Philosophieauffassung Wittgensteins keine Verabschiedung von Schlicks früherer Konzeption bezüglich der Philosophie in ihrem Zusammenhang mit der Naturwissenschaften. Besteht nämlich die philosophische Tätigkeit in der Klärung des Sinnes sprachlicher Sätze bzw. Begriffe, so wird damit in keiner Weise die Rolle der Naturwissenschaften als ständiger Beziehungspunkt der Philosophie demontiert. Die Philosophie zielt immer noch darauf hin, „von der exakten Erkenntnis vollständig Rechenschaft zu geben“ und das Kriterium der philosophischen Wahrheit liegt nach wie vor darin, „sich im Fortschritt der philosophischen Forschung“ zu bewähren (Schlick 1929: 307-308). Aber die Grundkonzeption, nach der die Philosophie als Erkenntnistheorie die Prinzipien der Naturwissenschaften und das naturwissenschaftliche Weltbild zum Gegenstand ihrer verstehenden und erklärenden Tätigkeit macht, hatte Schlick – lange vor seiner Begegnung mit Wittgenstein – am Prüfstein der Relativitätstheorie Einsteins erfolgreich erprobt.

2. Max von Laue, der zusammen mit Schlick bei Planck studiert und kurz vorher das erste Lehrbuch zum Relativitätsprinzip veröffentlicht hatte, schrieb in den letzten Tagen des Jahres 1911 seinem alten Kommilitonen, daß „bei den Physikern [...] große Sehnsucht nach einer philosophischen Behandlung“ der Relativitätstheorie herrsche (Schlicks Nachlaß Inv. Nr. 108). Wie aus einem anderen Brief von Laues vom 5. Januar 1912 ersichtlich wird, war Schlick vermutlich nicht davon überzeugt, „daß die Philosophie über das Relativitätsprinzip wesentlich mehr herausbringen könnte“. Diese skeptische Haltung läßt sich möglicherweise durch die an Kant orientierte philosophische Stellungnahme von Laue erklären (von Laue 1961, Bd. III: XVI), die er auch in seinem Brief an Schlick betonte; Schlick war aber diesbezüglich anderer Meinung und hatte im selben Jahr 1911 das Buch des Neukantianers Paul Natorp *Die logischen Grundlagen der exakten Wissenschaften* kritisch besprochen und darauf aufmerksam gemacht, daß seine Darstellung des Einsteinschen Relativitätsprinzips „einen etwas unsicheren Eindruck“ erwecke (Schlick 1911a: 260).

In diesem Zusammenhang ist es nicht möglich, näher auf die Frage einzugehen, ob und inwieweit Schlick sich schon in seiner frühen Zürcher Zeit mit Einsteins physikalischer Umwälzung auseinandergesetzt hat. Aus einigen Aufzeichnungen zu erkenntnistheoretischen Problemen, die in die Zürcher Zeit fallen und die zwischen 1908 und spätestens 1910 zu datieren sind, geht hervor, daß Schlick die Frage nach der „Sonderstellung“ der Zeit

und explizit die vierte Dimension der Zeit (nicht auszuschließen ist hier ein Einfluss von Minkowskis berühmtem Vortrag zu Raum und Zeit) bzw. das Relativitätsprinzip schon vor Augen hatte (Nachlass Schlick, Inv. Nr. 150, A 91, Bl. 5, 75). Tatsache ist jedenfalls, daß Schlick – nicht zuletzt als Schüler des „enthusiastischen Relativisten“ Max Planck – teils durch den Ansporn Max von Laues, teils aber auch aufgrund der zunehmenden Intensität der erkenntnistheoretischen Debatte über die Relativitätstheorie in den darauffolgenden Jahren, eine Reihe von Aufsätzen, Studien und Stellungnahmen zum Einsteinschen physikalischen „Weltbild“ publizierte, die seinen Ruhm als prominenten Erkenntnistheoretiker und sogar als „Evangelisten“ der Relativitätstheorie (Einstein 1998: 448) innerhalb der deutschen Philosophie maßgeblich mitbestimmen sollten.

Der am Anfang dieser Publikationsreihe stehende Aufsatz *Die philosophische Bedeutung des Relativitätsprinzips* (1915) zeigt tatsächlich die außerordentliche „Doppelkompetenz“ des Verfassers, der einerseits (wie Einstein bemerkt) „den Gegenstand materiell vollkommen“ beherrscht und andererseits auf seine philosophischen Folgen eingeht, insbesondere bezüglich der von Paul Natorp und Richard Höningwald vorgelegten neukantianischen Interpretationen des Relativitätsprinzips, die Schlick in Frage stellt, indem er – laut Einstein – „das Vertrauen auf die ‚apodiktische Gewissheit‘ der ‚synthetischen Urteile a priori‘“ schwer erschüttert (ebd.). Aber die Tragweite des Beitrages von Schlick geht über die Auseinandersetzung mit zeitgenössischen Auslegungen hinaus. Er stellt zugleich die gravierende Frage nach dem Verhältnis der physikalischen Theorie zur Erfahrung und versucht, das Kriterium herauszustellen, aufgrund dessen die Wahl zwischen zwei Theorien, die das gleiche leisten, nämlich die Lorentzsche und die Einsteinsche Theorie, getroffen werden kann. Dieses Kriterium, so Schlick, liegt darin, daß die Relativitätstheorie Einsteins einfacher erscheint, indem sie „nur ein einziges Erklärungsprinzip“ benutzt, während die andere „einer Reihe eigentümlicher Hypothesen bedarf“ (Schlick 1915: 141). Es ist für Schlick das Verdienst Einsteins, gezeigt zu haben, daß die Formulierung der speziellen Relativitätstheorie keiner neuen physikalischen Hypothese bedarf, sondern dazu führt, die Voraussetzungen zu revidieren, auf denen die bisherigen physikalischen Theorien beruhen, nämlich die Voraussetzung des absoluten Charakters der Zeitmessung (ebd., 140). Dies ist nach Schlick auch in dem Sinne zu deuten, daß Einstein das Relativitätsprinzip als experimentell festgestelltes Gesetz zum Rang einer eigentlichen Theorie erhoben habe (ebd., 142), nämlich zum Rang – könnte man hinzufügen – jener „Prinzipientheorien“, deren Vorzug für Einstein darin besteht, „logische Vollkommenheit und Sicherheit der Grundlage“ zu garantieren (Einstein 1991: 211). Diese ganz neue Einstellung hat es Einstein ermöglicht, denselben Tatbestand theoretisch neu zu beschreiben: Anders gesagt, das Vorhandensein mehrerer Theorien ist nach Schlick nicht widersprüchlich, denn die Naturwissenschaft besteht aus nichts als „Zeichensystemen“, die den Tatsachen der Wirklichkeit eindeutig zugeordnet werden; und die Wahl zwischen zwei konkurrierenden Theorien bzw. „Forschungsprogrammen“ hängt davon ab, nicht welche die ‚wahrere‘, sondern welche die *einfachere* ist, d.h. man muß die Theorie wählen, die „mit einem Minimum willkürlicher Annahmen“ ausgestattet ist und damit eine „beträchtliche Vereinfachung des Weltbildes“ ermöglicht (Schlick 1915: 144, 149, 154-155). Eben dies sei bei der Einsteinschen Konzeption der Fall, da diese durch den Vorteil gekennzeichnet sei, wenige willkürliche Elemente

vorauszusetzen und insbesondere ohne die Ätherhypothese auszukommen, was die Erklärung des Tatbestandes aufgrund „eines einzigen kühnen erkenntnistheoretischen Gedankens“ ermögliche (ebd., 141). Es wird nämlich von einer geringeren Anzahl von Hypothesen bzw. Annahmen Gebrauch gemacht; und dies bedeutet zugleich, daß die Rolle der Konventionen, die Henri Poincaré „mit überzeugender Klarheit dargetan hat“ (ebd., 150), immer noch in dem Sinne beschränkt werden muß, daß die Konventionen keineswegs als „völlig“ frei aufzufassen sind, sondern gemäß dem Prinzip der Einfachheit und Bequemlichkeit eingeführt werden sollen (ebd., 152). In diesem Sinne vertritt Schlick die quasi holistische These, nach der der Erfahrung nicht das letzte Wort bezüglich der Entscheidung zwischen mathematisch gleichen Theorien (wie der Lorentzschen und der Einsteinschen) zukommen darf. Die Frage sei „physikalisch nicht entscheidbar“ und solle erst auf der Ebene der Grundvoraussetzungen der Theorie getroffen werden: Eben darin bestehe die „grandiose philosophische Interpretation“ der Relativitätstheorie (ebd., 145; Schlick 1923: 61). Diese Einschätzung wird offensichtlich gemäss dem Status der Relativitätstheorie um 1915 zum Ausdruck gebracht, und Schlick ist in diesem Zusammenhang der Meinung, daß auch die Verallgemeinerung der Relativitätstheorie sich „schwer an der Erfahrung“ prüfen ließe (Schlick 1915: 169). Die darauffolgende Formulierung der allgemeinen Relativitätstheorie sollte aber diese Problematik verändern, und es war übrigens Einstein selbst, der schon in einem Brief vom 14. Dezember 1915 die skeptische Haltung Schlicks bezüglich der „empirischen Kontrollierbarkeit der Theorie“ in Frage stellte. Doch ist zu bemerken, daß Einstein seinerseits sich für die konventionalistischen Züge der Auffassung Schlicks bezüglich der wissenschaftlichen Theorien als Zeichensysteme besonders sensibel erwies (Einstein 1998: 221). In diesem Zusammenhng läßt sich damit auch die Vermutung aufstellen, daß Einsteins Erkenntnis- und Wissenschaftstheorie seit 1915–1917 erheblich durch Schlick beeinflusst wurde und im ständigen Gespräch mit dessen erkenntnistheoretischen Ansichten neue Konturen annehmen sollte.

Schon in dem ersten Aufsatz zur Relativitätstheorie ist für Schlick also klar, daß die physikalische Theorie Einsteins eine philosophisch-erkenntnistheoretische Voraussetzung impliziert. Darauf hat Schlick, gemäß seiner eigenen Konzeption der Philosophie als „Seele“ der Naturwissenschaften, immer wieder bestanden. „Die Relativitätstheorie – schreibt er z.B. im Jahre 1923 – ist in erster Linie eine physikalische Theorie. Wer aber deswegen den philosophischen Charakter und die philosophische Tragweite der Theorie leugnen will (wie man es gelegentlich getan hat), der verkennt, daß die physikalische und die philosophische Betrachtungsweise sich überhaupt nicht immer streng voneinander sondern lassen, daß vielmehr beide ineinander übergehen, sobald sie sich der Bearbeitung der höchsten, allgemeinsten Grundbegriffe der Physik zuwenden“ (Schlick 1923: 58). Und in eben diesem Sinne kann Schlick berechtigterweise behaupten, daß „Einstein die Physik wieder philosophisch gemacht“ hat (ebd., 60).

3. An der philosophischen Relevanz der allgemeinen Relativitätstheorie als „Allgemeingut menschlich-wissenschaftlicher Weltanschauung“ hat Schlick keinen Zweifel (Schlick 1919: III). Die „erlösende Kraft der Relativitätstheorie“ besteht für ihn darin, daß sie „dem menschlichen Geist eine Freiheit und ein Kraftbewußtsein schenkt, wie kaum eine andere wissenschaftliche Tat sie je zu geben

vermochte“ (Schlick 1922: 89). Und in diesem Zusammenhang bildet die Einsteinsche Leistung „für unsere physikalische Weltanschauung eine Umwälzung ohnegleichen, einen Fortschritt, für den alle, die überhaupt nach Weltanschauung streben, Verständnis suchen müssen“ (Schlick 1920:106). Es ist kaum zu betonen, daß Schlick bei der Thematisierung des „Weltbild[es] der modernen Wissenschaft“ (so lautet der Titel einer dreimal in Rostock gehaltenen Vorlesung) den ‚philosophischen‘ Bemühungen seines Lehrers Max Planck und dessen Schüler um ein einheitliches physikalisches Weltbild sehr nahe stand (vgl. z.B. von Laue 1961, Bd. I: 272). Um die philosophische Tragweite der Relativitätstheorie angemessen einschätzen zu können, bedarf es von Seiten der Erkenntnistheorie aber einer eingehenden Überprüfung der Grundbegriffe (Raum, Zeit, Kausalität, Substanz), die durch Einstein eine tiefgreifende Umgestaltung erfahren haben. In diesem Sinne zwingt uns die Relativitätstheorie, „aus einem kleinen dogmatischen Schlummer aufzuwachen“ (Schlick 1915: 153), und zwar aus dem Schlummer, den insbesondere die von Kantianismus und Positivismus tradierten Auffassungen begünstigt haben. Deswegen setzt sich Schlick schon 1915 nicht nur mit Mach und Petzold, sondern auch mit den Neukantianern Natorp und Hönigswald auseinander, auch wenn er noch davon überzeugt ist, dass die Raum-Zeit-Lehre Kants nicht einfach aufzuheben, sondern „in wesentlichen Stücken zu modifizieren“ sei (ebd., 163). Diese notwendige Modifikation bedeutet aber keineswegs, daß Schlick der These Natorps und Hönigswald zustimmen würde, nach welcher Raum und Zeit immer noch als die apriorischen, transzendentalen Bedingungen der Zeit- und Raummessung zu deuten sind. Dass der Messung der Zeit und des Raumes ideeller Charakter zugeschrieben werden muß, will Schlick nicht leugnen: Was Schlick aber nicht einräumt, ist die Umdeutung dieser Idealität zugunsten einer apriorischen Voraussetzung. „Physikalische Zeit ist immer gemessene, und damit mathematische, eine Idee. Den Gegensatz zu ihr bildet nun die wahrhaft anschauliche, die psychologische Zeit“ (ebd., 159). Und dieser qualitativen Zeitlichkeit bzw. Räumlichkeit kommt der Rolle zu, eben zwischen Raumordnung und Zeitordnung zu unterscheiden, ohne jedoch den Fehler Kants zu wiederholen, die anschaulichen Formen mit dem Raum und der Zeit der Newtonschen Physik in eins zu setzen (ebd.160-163).

In der Tat hatte Schlick großes Interesse für die erkenntnistheoretische Bedeutung von Raum und Zeit schon lange vor seiner Beschäftigung mit der Theorie Einsteins gezeigt, wie man z.B. aufgrund eines Manuskripts vom Sommer 1909 belegen kann, in dem Schlick sich mit der Kantischen Raumlehre auseinandersetzt (Schlick Nachlaß, Inv. Nr. 1, A 1). Dort kann man schon *in nuce* die Grundthese aufspüren, die Schlick später in der *Allgemeinen Erkenntnislehre* entwickelt, nämlich die These, nach der dem geometrischen Raum eine begriffliche Konstruktion zugrundeliegt, die sich „gar nicht“ auf die subjektive, psychologisch-erlebte Raumschauung reduzieren läßt und keineswegs durch die synthetische Leistung der apriorischen Form begründet wird (Schlick 1918: 301-303). Nun ist aber besonders hervorzuheben, daß diese Ansicht in der Meinung Schlicks ihre eindrucksvollste Bestätigung durch die Formulierung der allgemeinen Relativitätstheorie erhält. Schlick betont diesbezüglich, daß das Resultat der psychologisch-erkenntnistheoretischen Analyse des Raum- und Zeitbegriffs gerade auf die Bedeutung von Raum und Zeit stoße, die die physikalische Theorie Einsteins an volles Licht bringt. „So reichen sich hier physikalische Theorie und Erkenntnistheorie – kommentiert Schlick – zu einem schönen Bündnis die Hände“ (Schlick 1917a: 58).

Ist dank der Gravitationstheorie Einsteins „die Alleinherrschaft der euklidischen Geometrie in der Physik zu Ende“ (Schlick 1918: 302), so kann man sagen, daß die Erfahrung uns keineswegs zwingt, die Euklidische Geometrie bei der physikalischen Naturbetrachtung zu benutzen, sondern „sie lehrt uns nur, welche Geometrie wir verwenden müssen, wenn wir zu den einfachsten Formeln für die Naturgesetze gelangen wollen“ (Schlick 1917: 166). Daß die Riemannsche Geometrie zu diesem Zweck die angemessenere ist, beweist also, „daß der Raum für sich auf keinen Fall irgendeine Struktur besitzt“ (ebd., 167). Das erkenntnistheoretische Ergebnis ist damit für Schlick unzweideutig: Der physikalische Raum ist nur „eine *begriffliche Konstruktion*“, die einerseits nichts mit der vermutlichen Notwendigkeit einer apriorischen Form zu tun hat und andererseits auf der sogenannten Methode der Koinzidenzen beruht. Dank dieser konstruktiven Methode werden diejenigen objektiven, räumlichen (und zeitlichen) Koinzidenzen „in dem transzendenten Raum-Zeit-Schema“ bestimmt, die als solche nicht direkt erlebt, doch ausgehend vom Bereich der Erlebnisse „erschlossen oder konstruiert“ werden können (Schlick 1922: 92-93, 96-97; Schlick 1918: 234-237; Schlick 1925: 308).

Nun ist insbesondere darauf aufmerksam zu machen, daß Schlick die noch in dem Aufsatz vom 1915 angekündigten „Modifikationen“ der Kantischen Lehre zwar aufrechterhält, doch sie am klarsten in der vierten Auflage von *Raum und Zeit in der gegenwärtigen Physik* in dem Sinne einer Aufhebung der Position Kants versteht. Zwar habe Kant darin recht, daß Zeit und Raum als psychologische Formen subjektiv seien (und dies bilde den „richtigen Kern“ der Kantischen Lehre [Schlick 1922: 94]), doch unhaltbar sei es, den physikalischen Raum von einer psychologisch-subjektiven Eigenschaft, oder sogar von einer anschaulichen Evidenz der euklidischen Geometrie abhängig machen zu wollen. Die begrifflichen Konstruktionen, auf denen die Relativitätstheorie beruhe, seien hingegen Konventionen und somit keine synthetisch-apriorischen (d.h. allgemein und notwendig gültigen) Prinzipien, sodaß nur „der Poincarésche Satz wahr [bleibt], daß wir ohne jede Konvention nicht zur Aufstellung von Naturgesetzen gelangen“ (ebd., 105).

Diese Behauptung läßt sich vor dem Hintergrund von Schlicks Kritik an den neukantianischen Interpretationen verstehen, die „vergeblich“ versuchen, die Relativitätstheorie mit dem transzendentalen Idealismus zu versöhnen. Diese Stellungnahme taucht in voller Klarheit aus der Polemik mit Ernst Cassirer auf, als Schlick die Legitimität eines „dritten Weges“ zwischen Kantischem Apriorismus und Positivismus bzw. Sensualismus Machscher Prägung vindiziert und darauf besteht, daß kein Neukantianer vermag, die „Wunde“ zu heilen, die in der Kantischen Konzeption mit dem „Umsturz der Euklidischen Physik“ entstanden sei (Schlick 1921: 99, 103). Der neue Held dieser begrifflichen Konstellation ist übrigens nicht nur Poincaré, sondern auch Hermann von Helmholtz, dessen Werk als Erkenntnistheoretiker durch die Relativitätstheorie „zu einem neuen Leben“ erwacht sei und unzweideutige „Berührungspunkte mit Gegenwartsfragen“ aufweise (Hertz-Schlick 1921: VI, VIII). Helmholtz gilt hier als der Naturforscher und der Erkenntnistheoretiker, der sich allmählich von der Kantischen Philosophie verabschiedet und immer mehr seine Verwandtschaft zu Hume zeigt. Aber Helmholtz sei vor allem darum zu preisen, weil seine Auffassung der geometrischen Erkenntnis, d.h. „seine größte erkenntnistheoretische Leistung“ durch die gegenwärtige Physik als „ganz gewiß wahr“ bewiesen worden ist (Schlick 1922a: 29, 37-38). So wird es auch daraus klar, in welchem Sinne Schlick die oben

erwähnte Maxime der philosophischen Forschung umgesetzt hat, nach welcher die Philosophie, als „Seele“ der Naturwissenschaften, sich immer wieder mit den Prinzipien der Naturforschung auseinandersetzen muß, um auf diesem Wege neu entdeckte Prinzipien kritisch zu überprüfen und davon ausgehend ihr eigenes Instrumentarium zu verändern bzw. in Frage zu stellen. Es ist ein wichtiger Punkt nicht nur für das Verständnis der intellektuellen Biographie Schlicks, sondern auch für die Profilierung des Wiener Kreises am Anfang der 20er Jahre, daß diese Konzeption der Philosophie als Tätigkeit von begrifflicher Erklärung aufgrund der erkenntnis-kritischen Auslegung der Einsteinschen Relativitätstheorie lange vor der durch Wittgenstein angespornten „Wende der Philosophie“ ausgearbeitet wurde. Der Philosoph ist tatsächlich ein „Schatzgräber“ und „kann zur Weltanschauung nicht anders gelangen, als vom Weltbilde der Naturwissenschaften aus“ (Schlick 1934: 396).

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The Philosopher's Garden Revisited: Truth and Objectivity in the Later Philosophy of Wittgenstein

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I am sitting with a philosopher in the garden; he says again and again "I know that that's a tree", pointing to a tree that is near us. Someone else arrives and hears this, and I tell him: "This fellow isn't insane. We are only doing philosophy." *On Certainty* §467

Despite his best efforts towards a new 'therapy,' Wittgenstein's writings continue to infect generations of philosophers with the desire to reflect upon the very sort of philosophic questions that he himself wished to dispose of (*On Certainty* §31). Undoubtedly, one of the reasons for the continued fascination with Wittgenstein's work is his beguiling tendency to contradict himself from passage to passage, and his subsequent refusal to be easily systematized according to the unusual categories of the tradition. Is Wittgenstein a realist? Yes and no. Is he a relativist? Yes and no. He certainly exhibits moments of both. But how are we to make sense of this? Focusing on the pivotal notions of 'form of life' and 'natural history,' I will explore the tension between Wittgenstein's realism and his relativism as it plays out in terms of the debate on truth and objectivity. This question will turn equally around the explicit content of Wittgenstein's philosophy (as it concerns his attack on scepticism and the encountering of the so-called 'strange tribes') as well as his methodology (in terms of the contribution these notions make towards realizing Wittgenstein's philosophical agenda). I focus on these twin aspects of Wittgenstein's work so that, if we cannot resolve this tension between Wittgenstein's realism and relativism completely, at least we may gain a more complete picture of what is at stake in this debate.

At the outset, let us consider Wittgenstein's 'strange tribes.' How is it possible, Wittgenstein asks, that we may encounter those with radically different (even contradictory) conceptual schemas from our own, and hold that neither them nor we are wrong? Though he rarely does so explicitly, Wittgenstein himself is inclined to make such contentions. From §106 of *On Certainty*, for example, Wittgenstein writes,

"But is there no objective truth? Is it true, or false, that someone has been on the moon?" If we are thinking within our system [c. 1950], then it is certain that no one has ever been on the moon... For this demands answers to the questions: "How could he overcome the force of gravity?" "How could he live without atmosphere?" and a thousand others which could not be answered. But suppose that instead of all these answers we met the reply: "We don't know *how* one gets to the moon, but those who get there know at once that they are there; and even you can't explain everything." We should feel ourselves very intellectually distant from someone who said this.

It is a deceptively simple question: "Is it true, or false, that someone has been on the moon?" In response, however, Wittgenstein does not respond with the equally simple, and perfectly justified 'Of course!' but resorts to a seemingly relativistic, 'if we are thinking in our system, then certainly not.' Notice that Wittgenstein does not answer the question directly here: he neither puts forward the obvious answer, nor denies it. This 'certainly not' is still present, however, but its use has been circumscribed and limited to those of

our system. And for those who reside outside this system? Well, 'we should feel ourselves very intellectually distant' from someone like this.

May we ever say anything more than this?

Most of us are certain that in the year 1950 no one had yet been to the moon. And if someone were to claim otherwise, we would naturally claim that this man was mistaken, or that some madness had overcome him. But what if he was just one of many people who believed this, should we call them all insane? It would seem that in this case we could call them neither, even though their view contradicts our own. For as Wittgenstein remarks, our beliefs 'form a great system of mutual support' (OC §142), propositions such as these have a place only within that system, and at a certain distance outside of that system we no longer have an adequate measure for truth.

For Wittgenstein, genuine truth-claim comparison becomes possible only from within *sufficiently similar* forms of life, via sufficiently similar language games; however, there seems to be some confusion regarding the boundaries of these, for what would count as a test whether someone operates sufficiently within our system? There must be some common measure for determining just how intellectually distant our form of life is from another. For this measure, Wittgenstein seems to put forward the idea of action. As he writes in *On Certainty*, the foundations of a form of life do not rest upon propositional knowledge, a part of language itself requiring grounding, but upon an "ungrounded way of acting" (OC §110). In this way we may perhaps have a common denominator against which different conceptual schemes may be compared, for the primacy of action is fundamental to them all.

We see such realism at work in Wittgenstein's attack of the sceptic. For example, Wittgenstein is fond of characterizing our foundations as 'bedrock.' Our most fundamental source of action is fossilized within that bedrock; it is the ground from which our form of life springs. These bedrock 'beliefs' that inform our actions are so basic that they cannot be adequately expressed through language, and as such, neither can they be genuinely questioned. They can only be lived, and thus lived, they are lived with complete certainty; as Wittgenstein writes in §334 of *On Certainty*, "My life consists in my being content to accept many things." The idea being that the sceptic thus betrays himself. Every time the sceptic sits down, eats lunch, or addresses another person, he betrays his certainty that the chair exists, that food nourishes, and that his friend is not truly a mindless automaton whose bodily actions are governed by an evil genius bent on deceiving him. Wittgenstein wants us to ask: How genuine is a doubt that *cannot* be upheld? Language can lie, it can be manipulated; actions, of the fundamental sort Wittgenstein discusses here, cannot.

However, this critique only works for the traditional, philosophical sceptic; that is, the one that we have already determined shares a sufficiently similar form of life with our own. Can Wittgenstein extend these grounds to deny the possibility of an extremely foreign form of life beyond the reach of commensurability?

In his *Remarks on Frazer's Golden Bough*, Wittgenstein advances beyond the 'strange tribe' thought-experiments into the realm of proper ethnology. Throughout these remarks, Wittgenstein strongly critiques Frazer's notion of commensurability (whereby the magic and superstitions of the natives in question are either primitive or simply erroneous), but nevertheless, he does not simply resort to the relativism of 'intellectual distance' we saw above either. Instead, Wittgenstein reflects upon the same 'common form of life argument' he used against the sceptic, but with a slightly different twist. Here the same argument results in a surprising anti-realism.

Consider the following passage,

The nonsense here is that Frazer represents these people as if they had a completely false (even insane) idea of the course of nature, whereas they only possess a peculiar interpretation of the phenomena. That is, if they write it down, their knowledge of nature would not differ *fundamentally* from ours. Only their *magic* is different.

(*Philosophical Occasions* [PO] pg 141)

We see here that Wittgenstein replaces Frazer's notion of scientific objectivity with a deeper commensurability based not on explicit thematic knowledge, but upon natural history and form of life. Thus, with these strange tribal magicians (as with the sceptic), we do indeed share a common form of life. As Wittgenstein writes in the *Remarks* (PO pg 125),

The same savage, who stabs the picture of his enemy apparently in order to kill him, really builds his hut out of wood and carves his arrows skillfully and not in effigy.

No matter how erroneous these people may seem to Frazer, their practices cannot simply be explained away as such, for our intellectual sympathy is betrayed in our common basic actions in the world, such as building houses, carving wood, etc., and even we occasionally perform bizarre ceremonial practices around these phenomena, such as kissing the picture of a beloved [PO pg 123]. Wittgenstein suggests that we share more in common with these tribes than it may at first seem regarding magic and superstition; *it is only that their magic is different*.

Now, if we take a closer look at these examples, we have group 1) those who directly occupy our form of life, and with whom we may thus speak of wrong opinions and misguided beliefs, and 2) those with whom we occupy enough of a form of life to respect the rationality behind their beliefs, but not enough to directly contradict them. But here we arrive at a strange picture of Wittgenstein's position on the commensurability of truth; for once again, *what we are missing is the common measure for deciding who belongs where*. Action can no longer serve this function, as Wittgenstein seems to suggest, for on these grounds we may establish a common form of life, certainly, but nothing inherently determines whether this community may serve to contradict or respect the other's practices and beliefs.

Wittgenstein would have it that the sceptic belongs to the first group, and the tribal magicians to the second, where Frazer would clearly have the tribal magicians among the first as well. In the case of the magicians, Wittgenstein wants to claim (contra Frazer), "Here one can only *describe* and say: this is what human life is like." (PO pg 121) But what is it about the sceptic that allows one to say so much more? Is this not how a portion of our population, perhaps a small portion, goes about life? And

what is it about the strange tribes that make it impossible to challenge their equally strange practices? After all, they do behave as we do in the most fundamental ways. Under what rubric can Wittgenstein admit such a distinction between the two, which would allow him to advance all manner of criticisms towards the practice of philosophy, but respect the bizarre practices of these strange tribes?

One thing is certain, what Wittgenstein tells us the aim of his philosophy is, and what he shows us, are two different things. When we have everything 'lain open to view,' we see that ultimately Wittgenstein can deny neither of these extreme possibilities: 1) that each language and subsequent dialect may very well represent a sufficiently foreign and incommensurable form of life and thus place itself beyond the judgments of the next, nor 2) that all forms of life may be reducible to a single human form that would leave each completely open to the evaluative judgment of the other.

But this is perhaps where Wittgenstein's genius lies: he does not have to. As Wittgenstein writes in §374, "The great difficulty here is to represent the matter as if there were something one *couldn't* do. As if there really were an object, from which I derive its description, but I were unable to show it to anyone. – And the best I can propose is that we should yield to the temptation to use this picture, but then investigate how the *application* of the picture goes." There is a practical side to Wittgenstein's investigation into the application of both pictures, which, like his philosophy, has reason and consequence, and thus, in a manner of speaking, is justified despite these apparent contradictions. Certainly, the question remains: Which of these pictures is the true one? But again, from *On Certainty* §199, Wittgenstein avoids the answer – *for that is not really his question*:

The reason why the use of the expression "true or false" has something misleading about it is that it is like saying "it either tallies with the facts or it doesn't", and the very thing that is in question is what "tallying" is here.

Though there still remain many unanswered questions concerning how Wittgenstein actually does what he does methodologically, one thing at least is certain: Wittgenstein often has a strange way of affecting his readers. His philosophy is an attempt to 'bring the reader around'; it is an attempt to establish not an absolute foundation, but a common ground. Consider his remark on the conversions of natives in §612 of *On Certainty*,

I said I would 'combat the other man – but wouldn't I give him *reasons*? Certainly; but how far do they go? At the end of reasons comes *persuasion*. (Think of what happens when missionaries convert natives.)

Remarks such as these naturally lead one to wonder how much of Wittgenstein's own influence is, in fact, persuasion. Indeed, at times it seems as if Wittgenstein does not so much *convince* his readers as *convert* them. Though all in all, this 'persuasive' aspect of Wittgenstein's philosophy should not surprise us. If he truly wishes to abandon a universal ground from which we may depart (OC §166), he cannot argue his position, but truly only present it. As he writes in §415 of the *Philosophical Investigations*,

What we are supplying are really remarks on the natural history of human beings... observations which no one has doubted, but have escaped remark only because they were before our eyes.

Fair enough, it just so happens however that Wittgenstein does so in a very persuasive manner. Think here of all those metaphors (like 'intellectual distance') and snappy slogans ('Only their magic is different.'). This is no accident; these devices play an integral role not only in the content of Wittgenstein's philosophy, but in his method and aim of philosophizing as well. It is through such slogans that Wittgenstein generates the momentum it takes not only to describe the workings of a language, but also to change them. Wittgenstein wants us to change the way we do philosophy, and he wants to do so by changing the way we use language in philosophy, by changing the way we approach the facts. Is this then what it means for the facts to tally?

If Wittgenstein truly wants to dissolve the traditional problems of philosophical discourse, 'place everything before us' (PI §126), as it were, then the question remains: at what cost? What would we be consenting to if we were to adopt Wittgenstein's attitude to philosophical investigation? Are these really objective remarks that he is supplying on the true 'natural history of human beings,' or rather the capricious coercion of those who would probe these ancient philosophical questions by those, like Wittgenstein himself, who find such questions disagreeable? Though the first aim seems worthy of philosophic integrity, and the second a bit shameful, Wittgenstein demonstrates that the two in fact, for better or for worse, go hand-in-hand.

In the great twenty-five hundred year history of philosophy, Wittgenstein surely occupies a strange place. On the one hand, Wittgenstein maintains a realism that deflates the traditional philosophic motivation, claiming our confused philosophic concerns are impossible to uphold, and thus without meaning, but on the other hand, he presents an unmistakable relativism in his approach to radically foreign truth-claims that continues to sow the seed of philosophic speculation about the nature of truth and objectivity. Though amazingly, even these contradictory tendencies of Wittgenstein's are placed within a community of practitioners, and thus, to some extent are justified. Wittgenstein not only describes the machinery of truth in our form of life, but also demonstrates its working in the very reception and interpretation of his own writings. Should we be suspicious of this? It is difficult to say. Perhaps, with questions of truth and objectivity, the best we can do is to yield to the temptation to use this picture that Wittgenstein presents us, but we must not forget to investigate how the application of this picture goes.

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Who's Afraid of Special Relativity?

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1. Special Relativity

It is not easy to state special relativity without begging various questions of interpretation. The following is my attempt to do so. First I say a statement is *physically necessary* if it is entailed by the correct statements of laws of nature together with any metaphysically necessary truths. Next I assume that there are many ways of assigning coordinates $\langle t, x, y, z \rangle$ to events. Then by a *relativistic transformation* of coordinates, I mean one that preserves the quasi-metric:

$$-(t_1 - t_2)^2 + (x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2.$$

Then special relativity tells us that if S is any physically necessary statement then so is S' the result of systematically replacing t, x, y, z by t', x', y', z' .

2. The Space-Time Interpretation

The Space-Time interpretation, as Craig (2001) calls it, states that Space-Time has a Minkowskian geometric structure and the laws of nature are stateable in terms of this structure without use of coordinates. Hence a physically necessary truth S transforms into a physically necessary truth S' because the relativistic transformations are precisely those from one to another system of coordinates representing the Minkowskian geometric structure. This interpretation, or some variant on it, may be defended as the best explanation for the success of special relativity, and be suitably modified in the case of general relativity.

The significance of the Space-Time interpretation is that the success of the explanation requires there is no geometric structure in addition to the Minkowskian, except perhaps an orientation of Space-Time so we may distinguish past from future and clockwise from anti-clockwise. For any further additions would restrict the coordinate systems that faithfully represent the structure. Hence we could no longer explain relativistic invariance.

3. The Rate of Flow of Time

It is widely thought that on any dynamic theory of Time, the rate of flow of Time is inevitably a second per second, and hence it flows uniformly as on the Newtonian conception. I claim, however, that the "second per second" answer is misleading. Time flows because it has two aspects: the succession of presents, and duration. Without the former Time would be as the block theorists assert; without the latter Time would be *aeviternity*, namely a sequence of presents but without any passage

We may describe the rate of the flow of time by considering those hypersurfaces in Space-Time, each of which now is or was once the present. Call these the *p-hypersurfaces*. We may use a parameter s to label the *p-hypersurfaces*, with higher values of s corresponding to later *p-hypersurfaces*. We may then consider the rate at which Time flows, relative to a parameterisation. At any given point X on a *p-hypersurface* let Δt be the duration from X to another *p-hypersurface* with parameter $s + \Delta s$. Then $\Delta t/\Delta s$ is an approximate rate of passage of time. (The duration in question is the square root of minus the quasi-metric.)

Time flows uniformly provided for any *p-hypersurface* Z the quantity Δt is the same for all points X on Z . In that case we may re-parameterise so that the *p-hypersurfaces* are hypersurfaces of constant s .

Warning: For the next few sections I shall ignore the Many Worlds interpretation and argue within the scope of the supposition that Space-Time is a single hyperspace with three spatial and one temporal dimension.

4. Newtonian Time

Newtonian time is a system of uniformly separated *p-hypersurfaces*. I conjecture that the friends and the foes of dynamic theories of Time, such as Presentism and the Growing Block theory, have assumed this Newtonian conception of Space as having three dimensions and of Time as flowing uniformly. If it does flow uniformly this is contingent and, moreover, a staggering coincidence. It may well be that the Universe is expanding *almost* uniformly and that Time likewise flows *almost* uniformly but we have no good reason to hold that there is *exact* uniformity.

Remarkably the Newtonian conception of Time is consistent with special relativity. For it states that necessarily there is some system of uniformly separated *p-hyperspaces*. That statement is relativistically invariant. What is inconsistent with special relativity is that there is some physically necessary system of uniformly separated *p-hyperspaces*.

There are nonetheless two serious threats to the Newtonian time. The first is that if the uniformly separated *p-hypersurfaces* are part of the *geometry* of Space-Time then we obtain an inconsistency with the Space-Time interpretation, which itself is the best explanation of special relativity. The second is that regardless of the interpretation there is something odd about it being physically necessary that there be some system of uniformly separated *p-hypersurfaces* without there being one that is physically necessary, which was inconsistent with special relativity. For how does it get determined just which one it is? By means of some event early in the universe's history? That would be ad hoc.

Instead I propose that time flows in a non-uniform manner. Hence it is not surprising that the system of *p-hypersurfaces*, are a contingent feature of Space-Time. I call this the hypothesis of the lumpy bumpy present.

5. The Completeness Objection

Simon Saunders objects to Presentism thus: "It ... implies that special relativity is badly deficient as a fundamental theory of the world" (Saunders 2002: 279). He attributes to Hilary Putnam (1967) a similar argument, criticised by Howard Stein (1968). This is only an objection to the thesis that the way Time flows is non-contingent. It is no objection to the lumpy bumpy, present. For that is, as it were, the geography of Time, not part of what special relativity aims to describe. If a physicist told you the shape of the mean sea level surface this is not refuted by the way westerly winds pile the sea up a metre or so on the coast of Chile.

6. The Lumpy Bumpy Present

I have argued that special relativity is a serious threat to the Newtonian conception of Time. How might this argument be generalised so as to criticise dynamic theories generally? When the topic of Space and Time were being discussed David Stove once quipped, "Two more necessary things I never hope to see". The p-hypersurfaces could not form part of the necessary structure of Time and Space without violating special relativity. Indeed unless they are flat and parallel there are real numbers a, b, c, d such that the change of coordinates in which $\langle t, x, y, z \rangle$ is replaced by $\langle t - a, x - b, y - c, z - d \rangle$ alters the description of the system of p-hypersurfaces.

This objection fails if the flow of Time is not necessarily uniform. And here, I say, we have found why special relativity is widely taken to be a problem for dynamic theories of Time. There is an unstated premise, shared by friends and foes alike, that if Time flows then the way it flows is non-contingent. General Relativity has, however, set a contrary precedent: features of the universe that were once thought of as necessary or uniform are now treated as contingent and local. Hence we may not just assume without question the necessity of the system of p-hypersurfaces. Nor is this system geometric. For geometry consists of features intrinsic to the Space-Time itself regardless of the details of history. The passage of Time is, I say, a matter of geography and history, not geometry.

7. The Volcanic Landscape Hypothesis about the Shape of the Present.

To provide a more specific hypothesis about the shape of the present, I distinguish originating from transeunt causation. *Originating* causation does what God was widely assumed to be the only one capable of doing, bringing into reality something new. I initially suppose that all and only agents are originating causes. Other cases of causation, known as *transeunt*, are merely cases of what follows from originating causation and the laws of nature. The laws of nature are then thought of as conditional: if a certain region of Space-Time is brought into being, then the events occurring in it must accord with such and such a rule, eg energy conservation. My hypothesis is that each case of originating causation specifies a point P in Space-Time that has up to then been in the future and brings into existence the portion of the backwards-light cone from P that had not already existed. The flow of Time is therefore neither continuous nor uniform, and the edge of reality is increased in discrete steps.

This hypothesis may be modified in two ways. In one, originating causes occur much more frequently and are not restricted to agents. In that case this volcanic landscape structure would only be apparent at the level of the very small, and we would expect the rate of the flow of Time to be normally distributed around a mean rate with rather little variation. Storrs McCall (2000) proposes something like this for his dynamic theory of Time in which branches of the universes fall off. The branchings occur along what he calls *corrugated surfaces*.

The other modification gives us Howard Stein's suggestion that each new cone contains all the previous ones (Stein 1968). If the cones are part of the global structure of the universe then the system of cones should be invariant under a change of origin for the coordinates, which is impossible. So Stein's suggestion must be

interpreted as just one the shape the present might, by accident, have.

8. Many Worlds

When I stated special relativity I assumed that Space was three-dimensional, so a quadruple of numbers was sufficient to specify a location in Space and Time. Within the scope of that supposition I hypothesised a lumpy bumpy present to explain how a dynamic theory of Time could be combined with special relativity. But there is an alternative, which I shall now discuss.

Let us forget its origins and consider a many worlds theory in the context of special relativity. If it also helps integrate quantum theory with relativity then that is a bonus, but this is not our present concern.

I call the many worlds *universe-fibres* rather than *universes*, because familiar objects and events extend across fibres rather than being contained within them. I shall first state a hypothesis and then modify it. Here is the unmodified version. On it we have a Newtonian Time in each fibre, with the same rate of flow of Time. The p-hypersurfaces are flat in each fibre, but events that are in the same p-hypersurface in one fibre may well be in different p-hypersurfaces in another fibre. This is a relativistically invariant theory because to change to a new system of coordinates is to describe different fibres in the same many-fibred Universe.

We obtain the same sort of hypothesis if we suppose that the universe is indeterminate between many determinate ways it might be. The only difference is that the *ways it might be* replace the universe-fibres in the proposed account, with the universe-fibre hypothesis being thought of as a mere model.

Now for the modification. We should not posit such a fibrous universe without some selectivity as to which of the physically possible fibres occur. For suppose the Yellowstone super-eruption and the Rigel supernova has just occurred in some fibre, ES. Then because the Rigel supernova is some distance away there is fibre GS in which both the supernova and the melting of the Greenland Icecap have just occurred, but the super-eruption is twenty years old, say. Hence the super-eruption, which, recall, is spread across fibres, occurs both in the present and the past. What this amounts to is that the super-eruption was not determinately the case when it occurred in ES but became more determinate when it occurred in GS. This example generalises. So unless we are selective about fibres there would be no event that is ever determinately the case. For there would always be an infinity of fibres in which the event would occur in the future.

To make sense of either observation or of agency we must assume that some events occur with (almost) complete determinacy. To ensure this, suppose that at each stage many fibres terminate with only some surviving. (This is a "collapse of the wave-packet".). We might perhaps also suppose that the remainder undergo fission into several identical copies so as to preserve the total number of fibres. The termination might itself spread out from a given point at the speed of light. But in any case there successive acts/observations will result in the same macroscopic events intersecting the present in different fibres setting up the sort of privileged frame that is not in the spirit of relativity. But this is a contingent development. Had there been neither observation nor agency nor other

source of fibre termination the Universe would have been relativistically invariant.

I am proposing then that Time necessarily flows uniformly and that contingently the same events in different fibres are simultaneous in the sense of being present in (almost) all the fibres together. This is compatible with special relativity and with the Space-Time interpretation within each fibre, because the necessary uniform flow does not itself imply the simultaneity of the same events in different fibres.

9. Conclusion

Simon Saunders is right to say that metaphysicians should take special relativity seriously, but the conclusion we should draw is not that dynamic theories of Time are untenable. Perhaps the flow of Time is itself contingent and, for that reason there is a non-trivial question as to the shape of the present. I suggested that the present is shaped like a volcanic landscape made up of cones. Alternatively, we may reconcile the Newtonian conception of Time with special relativity by appealing to many universes, or, as I prefer to put it, a Universe made of many fibres.

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Explanation and Definition: On Hallett on Wittgenstein

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An overall concern of mine is how to understand what Wittgenstein is doing in *PI* §43.¹ In this paper, I will examine an article by Garth Hallett having to do with that section. The article, “Did Wittgenstein Really Define ‘Meaning’?” is one with which I disagree; I do not believe that Hallett accurately represents Wittgenstein’s views. Nevertheless, his article is an extremely useful one, for he is remarkably clear about his views, and he raises the right questions. This makes for a well-defined, narrowly focused discussion of Wittgenstein’s views on meaning. A discussion centered on §43 is an important one, however slowly-paced caution dictates it must be. Understanding this section is, it seems to me, necessary if one is to understand the *Investigations* itself.

Let me briefly state my views first. I do not see Wittgenstein as offering a definition of meaning in *PI* §43, nor do I see him as offering any kind of theory as to what meaning consists in. My disagreement with Hallett begins with his views on Anscombe’s translation of *erklären* in *PI* §43 as “define” rather than “explain.” Hallett is content with her rendering, whereas I am not. I see this as indicative of a deeper misconception of the role of §43, which should be made clear below.

1. At the end of his article, Hallett offers three questions pertaining to §43. I shall concentrate on the first two in order to elicit our differences. First, Hallett asks, “Did Wittgenstein define the word ‘meaning’, in the broad sense of explaining, and intending to explain, its actual meaning?” (Hallett 1970, p. 298). His response to this is “definitely yes.” I agree that Wittgenstein did explain something about the meaning of “meaning,” and that he intended to do so. I do not agree, however, that this licenses us to say that Wittgenstein offered a *definition* of “meaning.”

Simply: an explanation of meaning and a definition may not be the same thing.² A definition is a kind of explanation, but an explanation need not be a definition. An explanation of the meaning of a word, for instance, can be a good explanation if it effects my understanding of the meaning of the word. For example, I might ask you what a university trimester system is, because I’ve only ever experienced semesters. Knowing this, you might then explain to me that it’s like what I’m used to, but instead of two terms, there’re three. Thus such an explanation would bring me to understand the meaning of “trimester system,” yet without having given me a definition. Even more vividly, this could work as an explanation: “It’s what Dave was talking about yesterday in the lounge.” (I see the explanation that Wittgenstein gives in §43 as analogous to this kind of an explanation.)

When Hallett says, then, that Wittgenstein defined “meaning” in the sense of giving an explanation, he has misconceived the relationship between definitions and explanations. This is no doubt part of the reason why he is content with Anscombe’s translation of *erklären* as “define”

and is significant for understanding his views throughout his article.

I said that I did agree, that Wittgenstein was explaining something about the actual meaning of “meaning.” The explanation that he gives, “the meaning of a word is its use in the language,” is an explanation that is based upon our actual use of the word “meaning.” As I see it, Wittgenstein wouldn’t really be giving us an explanation if it were not based upon our actual use of the word. So since I do see him as giving an explanation, I must be content with saying that it is based upon our actual use of the word.

Hallett endeavors to identify the source of disagreement that “many knowledgeable people” had with his view of §43 (Hallett 1970, p. 294). His conclusion is this: “It was the idea that Wittgenstein was giving any account of the word’s actual use that one person after another objected to...” (Hallett 1970, p. 294). There are two ways to take this conclusion. First, one might focus on the “actual use” aspect of it. I would then say, again, that what Wittgenstein says does relate to our actual use, and so this does not represent my disagreement. Second, however, one might focus on the word “account.” According to this emphasis, Hallett may be saying that Wittgenstein gives us something like a summary of how we use the word “meaning.” Here, I disagree. Wittgenstein does not say that he is giving an account of our use of “meaning”—rather, he gives us an *explanation* of “meaning” (which is, again, more general).

2. Let us return to Hallett’s second question about §43. “Did he define the word, in the sense of asserting synonymy between ‘meaning of a word’ and ‘use of a word in the language’?” (Hallett 1970, p. 298). His answer to this is, “maybe,” while mine is “no.” To understand the difference between our views, it will be necessary to return to the difference between an explanation and a definition. When I give an explanation of the meaning of a word, I may do a variety of things. I might try to actually say what the meaning of the word is. This is a type of explanation—sometimes the most effective type, though not necessarily. When my explanation is of this sort, though, I am said to be giving a definition of the word. This is what it is to give a definition: one gives the meaning of the word.³

As my example above showed, however, one need not give a definition to explain the meaning of a word. “It’s what Dave was talking about yesterday in the lounge,” can count as an acceptable explanation of the meaning of “trimester system.” Thus what we say, when we give an explanation of the meaning of a word, need not itself be the meaning. What it must do, if it is going to count as a good explanation, is get us to see the meaning of the word.

This applies to Hallett’s answer to his second question in this way: what Wittgenstein gave us was an explanation of the meaning of “meaning.” According to what we’ve just said about explanations, what the

1 “For a large class of cases—though not for all—in which we employ the word ‘meaning’ [Bedeutung] it can be defined [erklären] thus: the meaning of a word is its use in the language. And the meaning of a name is sometimes explained [erklärt] by pointing to its bearer.”

2 See, e.g., Baker and Hacker’s discussion of definition and explanation (Baker and Hacker 1980, p. 70). They describe it as a “cardinal sin of philosophers to think that the only legitimate form of Erklärung is Definition.”

3 This may be too simplistic: see §§29–30. Wittgenstein seems to want to resist, rightly, the notion that definitions somehow break through the words of the language and get us to the meaning. My analysis focuses on what explanations do, not on what definitions do—and so, for now, I can avoid the complications Wittgenstein suggests.

explanation consists in ("the meaning of a word is its use in the language") need not itself *be* the meaning of the word "meaning." Rather, as an explanation, it is supposed to get us to be able to see the meaning. Hallett takes Wittgenstein to have given a definition, precisely in the sense that what is said is supposed to *be* the meaning.

It is important to see that Wittgenstein is not "asserting the synonymy" of "meaning of a word" and "use of a word in the language." To think that he is, is again to misconceive what an explanation does. "It's what Dave was talking about yesterday in the lounge," is not meant to stand on its own, as it were. Rather, when we give a explanation, it is often the case that it is particular to the circumstances of giving that explanation. I may give different explanations of the same word at different times, to different people. "It's what Dave was talking about yesterday in the lounge," will not be an explanation, most likely, for anyone who was not in the lounge yesterday, when Dave was talking about trimester systems.

This raises an important point about §43. Its explanation occurs in a particular setting. Speaking rather broadly (and somewhat roughly), this explanation comes following a prolonged discussion of the view first articulated in §1: "Every word has a meaning. This meaning is correlated with the word. It is the object for which the word stands." We have no reason to expect that the explanation given in §43 is one that can stand on its own, as it were.

We've seen that the question that forms the title of Hallett's article is still as urgent a question as it was to begin with—we've seen how important a question it is.

The evidence I've presented thus far has shown that there is no problem in supposing that Wittgenstein did not define "meaning."

I think that Hallett's reading has a number of obstacles in its path. First, Wittgenstein does not talk about the expressions, "meaning of a word" and "use of a word in the language." The only word *mentioned* is "meaning," and that is because he is explaining it. He simply does not say even, "this phrase means the same as that phrase." Notice in particular, that he does not speak about the word "use." Second, if we take Hallett's reading literally, what sense are we to make of "the meaning of a word is its use in the language" as a definition of "meaning?" Under the most charitable reading, this would at best be a definition of "meaning of a word."

Moving beyond the first sentence of §43 itself, there are further reasons why I believe that we must reject Hallett's assertion that Wittgenstein was offering a *definition* in §43: (1) When writing the first draft of the first version of the *Investigations*, Wittgenstein explicitly decided not to write the verb that would most directly be rendered as "define": *definieren*. Wittgenstein wrote *definieren* first, then crossed it out, ultimately ending up with *erklären*. (See Schulte 2001, pp. 90-91.) (2) There exists a translation of an early version of the *Investigations* done by Rush Rhees, together with Wittgenstein.⁴ This translation renders *erklären* as "explain." (3) The second sentence of §43 gives us an example of an *explanation*, not of a definition. (4) Wittgenstein, throughout the 1930's was never content with his statements about meaning. If we assume that his views were not changing radically during this time,⁵ then we can look upon his various

statements about meaning as different explanations. (Differences between them would be less worrisome then, as one can give different explanations for different reasons.) It should be noted that Wittgenstein's explicit remarks about meaning almost always follow a consideration of something like the view articulated in §1 of the *Investigations*, which should emphasize the importance of that aspect of §43's context.

Hallett does discuss the translation of *erklären* at the beginning of his article. He seems to think that objections to "define" as a translation are due to "connotations of precision and completeness" (Hallett 1970, p. 294). That he says this reflects that he does not appreciate facts about explanations highlighted above.

3. I will conclude with a brief look at Hallett's third question, which is about the value of his reading—independent of its merit as a reading of Wittgenstein. He asks, "Did he define the word, in the sense of actually giving a good synonym (regardless of what his intentions were)?" (Hallett 1970, p. 298). I will only address this question briefly, as my main concern is with understanding what Wittgenstein says. Hallett's answer is "yes," while my view is that Wittgenstein did not, unwittingly, give us a good synonym. If I can give some indication of why he did not, then that will give us another reason for rejecting Hallett's reading.

PI §561 will serve this role. Wittgenstein says, "Now isn't it queer that I say that the word 'is' is used with two different meanings (as the copula and as the sign of equality), and should not care to say that its meaning is its use; its use that is, as the copula and the sign of equality?" I see this remark as directed against the kind of reading Hallett has of §43. For if "meaning of a word" were synonymous with "use of a word in the language," then the meaning of "is" should simply be its uses. But here Wittgenstein explicitly highlights that that's *not* what he will say. He says rather that "is" has two different meanings. I take it, as well, that this is what *we'd* be willing to say about "is." On Hallett's view, though, where can this judgment come from? Wittgenstein shows that we may see that the point of using the word can at times be different, and that this can (and does) lead us to conclude that the word has different meanings. (See *PI* §§563-564.) Without moving significantly beyond what Wittgenstein says in §43, I do not see how Hallett can accommodate what Wittgenstein reports about our language in §561.

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4 See, e.g., Baker and Hacker 1980, p. 10. They describe this (TS 216) as a translation of TS 220. This does not seem to be accurate, however.

5 Considering, say, from 1932 on. Wolfgang Kienzler, e.g., sees Wittgenstein's work throughout this period as essentially consistent.

Time: A Social Construction?

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1. Introduction

For beings living in the Now, presence is the ultimate mode of existence. Whatever it is that we perceive and deal with, it is bound to present itself in the present. Not even past and future exist if not re- or pre-presented, respectively. Accordingly, whatever reality is constituted or constructed, its origin lies in the present.

Presence, however, is a strange mode of existence. Only individual temporal states of the world can, successively, be fully present. The mode in which the world exists in the Now consists in the temporal becoming and vanishing of states. On the other hand, it is always now. It has been now since time began to pass. Presence, thus, is afflicted with a fundamental ambiguity. It unifies what is supposed to resist unification. In the mode of presence, permanence and passage are united. Even though the Now as such endures, the world presenting itself in the Now is subject to spontaneous and relentless change.¹

A mode of existence uniting permanence and passage is without prospects of winning scientific approval. The only mode of existing that science acknowledges is reality. Reality, far from being restricted to successive individual states of the world, encompasses the totality of the states which the material world exhibits. The sciences, above all physics, consider something as real if it can be substantiated by measuring, no matter when such measurement takes place.

The passing of time cannot be measured, as there is no reference point beyond the Now. Clocks, therefore, measure something different from passage of time. They are mechanisms designed to count recurring states. The act of counting constructs a distance that can be represented as a one-dimensional continuum which, however, is something fundamentally different from the process we experience as the passing of time. The one-dimensional continuum represents the path along which the Now is moving when time passes. It is insufficient to represent both the movement of the Now and the velocity at which the Now is moving.

From the perspective of experience happening in the Now, any reality other than present, and any measured time, are conceptual constructs. Conceptual constructs turn into social ones when they become binding as facts whose recognition or denial is independent of individual preference.² Reality beyond presence and linear time beyond the present moment are examples of constructs that have acquired such binding force.

These constructs are not made of thin air. They are socially recognised facts because they have withstood the test of everyday practical life. On the other hand, they also exhibit a strange tendency of becoming independent of their origin. They break loose from the place of their production as soon as – and to the extent that – the respective concepts are sharpened and made consistent.

It seems ironical, yet it is an obstinate fact, that the way physics conceives reality and defines time does not leave any room for the Now. These constructs apparently have an irresistible tendency of denying their genetic origin in the Now.

2. Objective and Subjective Time

Reality beyond the Now, be it history or nature, cannot be denied its socially objective existence. Clock time has become the temporal measure of society. The one-dimensional continuum is the construct that transforms the states surfacing in the Now into processes susceptible to measurement and calculation. By means of this construct, society, as a process, is organised. Linear time has long ceased to be a conceptual construct only - it has become sociological reality.

This sociological reality is cemented by unquestioned acceptance. Yet, the nature of the construct time is such that what it eliminates will not disappear altogether. The construct involves a good deal of abstraction, as it implies that time must emancipate itself from experiencing subjectivity. Experience only happens in the mode of mental presence. Without a distinction between presence and non-presence it would be impossible to state where in time experience could occur. The difference between presence and non-presence, however, is not part of the description of time as one-dimensional continuum. All points along the continuum have the same quality and they only differ with respect to their position. Indeed, those differences in position completely consume the degree of freedom embodied in the single dimension. In order to account for a process, i.e. for relative movement, an additional degree of freedom would have to be introduced, which would mean loosening the assumption of strict one-dimensionality (cf. Franck 2003).

Such loosening seems to be out of the question. Anyone trying to cast doubt on the one-dimensionality of time is not taken seriously. Although no one denies that it is difficult to reconcile subjective experience with objective description, this problem is handled by admitting that something like subjective time exists which, – precisely because it is subjective, evades objective delimitation.

In fact, essentially, the velocity at which time passes is subjective. It is subjective in the sense that the “time” needed by the Now to cover chronometric distance can only be experienced as the duration of one’s mental presence. One hour may last shortly or very long, depending on one’s mood and on the intensity of conscious experiencing. One hour seems to fly past when we enjoy ourselves or when we are engrossed in some interesting activity; another hour may last forever when we are bored or feel pain. This varying duration is known as the subjective time paradox: hours rich in experience that have flown past seem, in retrospect, to have lasted very long, while hours that seemed unending appear short in retrospect. An hour, a day, or a week seem long in retrospect when detailed episodic recollection would take up much time; they seem short, if there isn’t much to remember. (For an account of the subjective time paradox see Pöppel 1997.)

¹ Edmund Husserl calls this confluence of enduring and waning the arch-impression of the both standing and flowing Now. Cf. Husserl 1905; for a discussion see Franck 2004.

² David Bloor even suspects that this is the way that objectivity, understood scientifically, emerges. Cf. Bloor 1976, ch. 5.

A powerful – if not overwhelming – confirmation of the view that what we experience as duration is subjective has been supplied by relativistic physics. In relativistic space-time there is no universal simultaneity and therefore no objective Now. The Now, Einstein explains, loses its objective meaning in the spatially extended world.³ Einstein insists that presence is a subjective phenomenon which is not and cannot be part of physics.⁴ Expressed differently, Einstein concluded that temporal presence only occurs in connection with mental presence.

3. The Collective Now: A Convention?

Einstein's conclusion relieved not only natural scientists but also philosophers of nature, since it lessened their persistent difficulties to take presence as a mode of existence seriously. If the interplay between permanent presence and spontaneous change is just a subjective phenomenon, it seems legitimate to simply relegate the matter to philosophical phenomenology. However, that discipline, too, is struggling with the phenomenon, since to this day human experience of time has not been convincingly captured by human thought. Anyway, we are used to running into problems with subjective phenomena. Science, on the other hand, wards off any predicament by declaring that phenomena are something subjective.

The problem remains partially unresolved, however: not in all sciences can the phenomenology of the subjective be simply ignored. If the Now is declared to be a subjective phenomenon, psychology and sociology run into trouble. If the equation between presence and mental awareness holds, psychology has so far largely missed its subject. Also, if the Now is a subjective phenomenon, sociology will have to explain how the presence of individual consciousness is synchronised inter-subjectively and how it can move in social unison.

If the present exclusively occurs as mental presence, then it would be consciousness – and nothing but it – that makes time pass (cf. Franck 2003). No passing of time without the present in which changing states are surfacing. If consciousness alone makes time pass, many findings of psychology about consciousness become irrelevant. Consciousness, then, far from being a weak epi-phenomenon would be the most powerful force in this world. Compared to the force exerted on us by the passing of time, the hold of the so-called laws of nature over us is mild. No advances in knowledge or technology have in the slightest loosened the relentlessness with which the Now is moving on. Traditional psychology is not well equipped to explain this force and power.

If the present exclusively occurs as mental awareness, then there are as many nows as there are mentally present subjects. Psychology, when it does concern itself with phenomenological consciousness at all, assumes that the different states of consciousness are produced by the individual brain. However, if presence is a product of the individual brain, then why should the individual nows be synchronised inter-subjectively? We generally assume that the individual spheres of consciousness are isolated from each other. We have no insight into another person's consciousness; we are only

able to communicate indirectly with one another, via physical stimuli. However, we can only communicate with each other if the states of physical reality, which we experience as being present, are inter-subjectively synchronised. We must, expressed differently, ride the same wave of presence across the ocean of world states in order to be able to say "we" with good reason. Who puts us on this wave, if presence only exists as individually present consciousness?⁵

To this day, there is no scientific explanation for the occurrence of the process experienced by us as the passing of time (for a clear statement of this fact see Primas 2003). The abstraction of the wave of presence does not seem to affect the conception of reality as something apart from the conjecturing mind, but no underlying physical objective process has been detected, either. If it is the case that the wave of presence only moves across the block of world states by being subjectively experienced as such, then inter-subjective synchronisation of the world state experienced as present can only be brought about collectively. In other words, synchronisation of the process of temporal change must be due to some sort of convention.

However, if one proceeds from the assumption of collectively experienced, sociologically objective passing of time, the conception of time as social construct raises further questions. It would seem that not only linear time but also the social unison of individual temporal presence are social constructions – an interesting but also sobering conclusion. If not only reality conceived as independent of conscious experience, but also reality as collectively experienced are constructs, this is interesting. The sobering aspect is that we cannot explain how, exactly, such a collective Now could be brought about by social convention.

4. The Temporal Present and Presence of Consciousness

Reality, as we experience it both subjectively and together, inter-subjectively, always is just one section cut out of the block of world states. This section results from singling out one among the multitude of states as being present, while the presentation – or, rather, presentification – of the rest is suppressed (cf. Pavsic 2001). In space-time there are no three-dimensional objects (what we know as things), but only four-dimensional world-lines, or world-threads, which encompass the totality of the respective object states indifferently. For an experience of reality as a collection of "res" – i.e. three-dimensional *things* – to happen, only one of the multitude of states must surface at a time. Since the surfacing state changes continuously, the process of presentification is to be visualised as a wave moving across the four-dimensional ocean of states. Only by riding this wave do we experience reality as a collection of concrete things, and only by riding the wave together do we jointly experience reality as the same collection of concrete things. (On the association of concreteness and presence see Franck 2004.)

³ "The four-dimensional continuum is now no longer resolvable objectively into sections, all of which contain simultaneous events; 'now' loses for the spatially extended world its objective meaning." Einstein 1919, p. 149 (Appendix V)

⁴ Rudolf Carnap mentions a conversation in which Einstein seemed to be seriously worried about the Now. But Einstein insisted that the difference between past, present and future is nothing physical and cannot even occur in physics. Cf. Carnap 1963, p. 37.

⁵ The eminent Leibniz recognised this problem. He conceived the subjective spheres of experience as windowless monads. The monads, by themselves, are not able to synchronise their individual experience; rather, through the systematic function of *pre-stabilised harmony*, they are, from the very beginning, synchronised by an initial impulse that moves on forever, unperturbed, like a wave passing through a perfectly homogenous medium. (Cf. Franck 1994.)

Enthusiastic advocates of constructivism in the cultural sciences⁶ must be excited by the prospect of unmasking factual reality as a social construct. Indeed, this unmasking seems to be just round the corner, for the equation between mental presence and the temporal present does not seem to allow anything except conventional establishment of the collective Now. If the subjectivity of presence is an inescapable consequence of natural-science conceptualisation, then natural-science rigor and cultural-science relativism meet and supplement each other strikingly. Reality, as supposed to exist independently of being experienced, arises from rigorous objectivisation of time, while reality as we experience it in the sociologically objective sense, arises from the social synthesis of subjective time.

Unfortunately, this coincidentia oppositorum is too beautiful to withstand closer scrutiny. Who or what would be able to bring about a convention that decides which world state is singled out as being present? Are there any traces or clues suggesting that such a convention has ever been negotiated or silently established? Who or what could possess the power to subject us all to an inexorable law forcing us to march through time in unison? Also, are human beings the only creatures subjected to this law? Aren't animals, too, consciously present, aren't they riding the wave of presence with us? What about synchronisation of the animals' experience before the advent of human beings?

Closer inspection reveals the assumption that individual mental presence is synchronised by social convention as an absurdity. There is no chance that we will ever identify a convention or silent agreement able to bring about this synchronisation. The process of presentification, if it is not a collective hallucination, must have some counterpart in nature conceived as that kind of reality which is out of reach for individual disposition and social convention. If the natural sciences have so far not managed to identify such a process, this does not question but rather confirms the postulate that the identification of time with a homogeneous continuum of dimensionality 1 has been premature.

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⁶ I.e. of constructivism as appraised in Hacking 1999.

Time and Existence in Special Relativity

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Presentism is the doctrine of the common view that all that is real, exists at the present time. It endorses McTaggart's A-Theory of time. *Eternalism*, on the other hand, treats time like space, that is, all moments are on an ontological par and the "present time" is only an indexical term like "this place". Persisting objects *endure*, iff they are wholly present at more than one time, but they *perdure* by having temporal parts (see Lewis 1996, 202). In special relativity (SR) an enduring object is wholly present at each moment of its proper time, so it has no temporal extension. Endurantism is also called "*three-dimensionalism*". Perdurantism is also called "*four-dimensionalism*", since perduring objects are only singly located in space-time; they are temporally extended world-tubes. According to Merricks (1995), there is a link between presentism and endurantism, on the one hand, and between eternalism and perdurantism on the other hand, but Balashov (2000) and others (like Rea 1998) reject this link arguing that enduring objects may simply be multiply located in an eternalistic space-time. It is *not* controversy, however, that presentism implies endurantism and that perdurantism requires eternalism: If all that is real, exists at the present time, then an existing object has to be wholly present at this moment. In the following we will discuss an example in SR which seems to lead us to a *reductio ad absurdum*: objects perdure, it seems, even if we assume presentism and, therefore, presentism cannot reconcile with SR. I want to defend presentism against this objection.

In Newtonian physics time plays a single role as *parameter* time. There is a twofold complication in SR: First, there is not only one parameter time but *many*. And, second, there is not only parameter time but also *coordinate* time. The first, which includes the famous twin-paradox, leads at least to a modification of presentism, since there are more than one present time. It is remarkable, by the way, that this is an inherent feature of SR – the twin-paradox in its essence is expressible in a coordinate free way. The second means that time plays a double-role – as parameter *and* coordinate time – which does not hold also for space (see Bartels 1997, 209). This coordinatization of time seems to rule out presentism as it will be shown in our example. For simplicity, we will consider only observers which coincide at the origin. There will be only one common proper time, that is, only one present time, and therefore the first complication remains out of consideration (I hope so).

The crucial point of my argument is based on an idea which is, in my opinion, clearly articulated in Gordon Fleming's "hyperplane-dependent Quantum Field Theory" (see Fleming 1997, 93), but until now it has not affected the debates about presentism and/or persistence in SR. The point is the following: It is not the case that there are entities on the one side which are absolute, invariant, and observer-independent ones and furthermore there are other entities on the other side which are relative, not-invariant, and observer-dependent. But, on the contrary, there is one and the same entity which can be considered in two different ways. There is *one and the same* particular geometrical object, called "hyperplane xyz", which is – considered as *spacelike* – an absolute, invariant, and observer-independent entity and which is – considered as a plane of simultaneity or as *spatial* – a relative, observer-dependent one. "Absolute" and "relative", "invariant" and

"observer-dependent" do not establish two classes of entities but two ways of considering one entity. A hyperplane is both - spacelike *and* spatial – under two different ways of consideration.

I

Now we start with our example: Take an observer A, represented by a two-dimensional orthogonal coordinate system where the x-axis represents the three spatial dimensions. On the x-axis is located an extended object P-Q which is at rest with respect to A, that is, the worldlines of its ends are parallel to A's t-axis. Now we introduce another observer, B, which coincides with but is moving relative to A. The x'-axis of this new observer is inclined relative to the x-axis and intersects the object's worldlines at P' and Q'. At the *common* present, that is, at the common proper time 0 in the common origin, the considered object is represented by two different extensions, P-Q and P'-Q', located on two different planes of simultaneity. Assume now, the object is wholly red until its proper time $t_1 > 0$. At this time there is a transition from red to green in all the parts instantaneous, for simplicity. So, for all $t < t_1$ the object is wholly red, for all $t > t_1$ it is wholly green, and at t_1 it is wholly in transition from red to green (at this stage the object is represented by P_1-Q_1 located on the x_1 -axis which is parallel to the x-axis). If P'-Q' intersects P_1-Q_1 , the object is partly red and partly green relative to observer B, and therefore the *reductio ad absurdum* seems obvious: If presentism is true, P-Q and P'-Q' represent all that exists. But if so, there is a green part which is not simultaneous with P-Q. The object is, consequently, not wholly present at *its* proper time (which is our unique present time). It perdures rather than enduring which is incompatible with presentism. Therefore, presentism is false; there is more that exists than it is represented by P-Q and P'-Q', which are merely time-slices of the whole world-tube which is the object (and not only its history). (see for a similar story Hales and Johnson 2003)

But, I think, the argument is wrong and we can defend presentism in SR. From the fact that the object represented by P'-Q' is partly red and partly green, it does not follow that there exists a green part which is not simultaneous with P-Q. It is merely the case that the green part is a modified part of P-Q rather than a further part in addition to P-Q. So, the judgement that there exist (at our unique proper time) spatial parts not present with A is false, since "spatial" is the relativized concept and not "parts". This can be seen with the following argument: Each extension like P-Q can be considered in two different ways. It can be characterize as spacelike or as spatial, that is, as absolute, invariant, and observer-independent or as relative and observer-dependent. But, nevertheless the two different bounded extensions P-Q and P'-Q' are *both* two different spatial *and* spacelike extensions, too, only the spacelikeness of P-Q has something to do with the given object. Only P-Q represents the object's *proper length* which is defined *epistemically* as the *spatial* distance measured in the specific frame moving with the object but *ontologically* as the *spatio-temporal* length of the object's representation on the same hyperplane. Therefore, only the extension P-Q shows the object's spatiality *and* spacelikeness. P'-Q', on the other hand, has *only* as a

spatial extension something to do with our object. It represents the object length contracted and, in our case, also modified. Since only P-Q represents the given object *also* as an invariant entity, there is no spacelike thing that exists in addition to P-Q, and therefore the object is wholly present at the given proper time. It is a *unique spacelike* extension (and only all *its* parts) which appears *spatially*. It appears *twice* – as the spatial extension P-Q *and* as the spatial extension P'-Q' – because there are two relatively moving observers.

For defending presentism in SR it is necessary to give a modified version of presentism in the following way: Spatiality, which is represented by each extension (P-Q and P'-Q'), is observer-dependent, but spacelikeness (equivalent to the ontological sense of "proper-length"), which is represented in the rest frame alone, is invariant, so observer-independent. Concerning the *reality* of an empirical object it is necessary to draw the difference of its absolute spacelikeness and its relative spatiality, since it is *real* only as a spatial *and* spacelike thing. As a spacelike extended thing alone, it cannot be real, since there is always a point in Minkowski space-time which is spacelike separated from one of the object's end, but timelike separated from the other one which is troublesome. As a spatial extended thing alone, an empirical object would be correlated to specific observers in an anti-realistic way; each observer would have its own object like its own plane of simultaneity. So, an existing object in SR is both. According to presentism, an object exists, only if it is present (or spatial). According to SR, a present object is *not only* present, but spacelike as well (this is the modification). What SR tells us is that "not only present" does not mean: "also past or future". But this, I think, is exactly what a perdurantist claims: Something that is "not only spatially" extended has to be "also temporally" extended. This is not true: Something that is "not only spatially" extended is "also spacelike" extended which is not an analytic tautology, but the crucial difference of relativity and invariance.

II

Let us turn to our example: Relative to the observer A the extended object is either wholly red or wholly green (or wholly in transition), while relative to B there are stages in which the object is partly red and partly green (and always length contracted). So, the object's *spatiality* is observer-dependent. Furthermore, the transition from red to green which is, for simplicity, instantaneous in all its parts relative to A, is continuous and has a certain duration relative to B. And the object as a wholly green one appears at different proper times. So, the *temporality* of the transition is observer-dependent. Relative to both observers, however, the object has always its unique proper length. So, the *spacelikeness* is absolute, observer-independent. It is a spacelike extended object which appears in its relative spatiality and temporality after introducing observers in different states of motion. The *only* spacelike and *not yet* spatially extended (but, perhaps, timelike extended) object, that is, the object in coordinate-free description is, in Kantian terminology, the thing in itself which has to appear through coordinatization.

Now, there is a problem, if we extend this approach to general relativity (GR): According to Friedman (1983), there are three different senses of "absolute" opposing it to the concepts of "relative", "relational" or "dynamical". The characterization of a given hyperplane or a given extended object as *spacelike* remains absolute in the area of GR in the senses of "not-relative" and "not-relational", but in the third sense it becomes not-absolute, that is, "dynamical". So, the temporal-free notion of "spacelikeness" becomes temporal-loaden which is troublesome not only for my solution, I think, but, for example, also for Kant, since an object considered in itself cannot be "dynamical". Perhaps, this is the reason why the motion of galaxies caused by a moving or expanding space is incomprehensible, as it is shown in Friebe (2004).

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On the Temporal Context of Expectation

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1. The Characterisation of Psychological Phenomena

Wittgenstein expressed that 'psychology deals with certain aspects of human life' (RPP II §35). One of those is certainly time. Human life is temporally constrained, a fact that is not surprising. What is more surprising is that time does not equally affect all psychological phenomena, since as Wittgenstein claims, such phenomena are not 'activities' and cannot be characterised as such. He also stressed that thinking can be properly ascribed to man if this ascription is taken as an assertion of 'natural history' (RPP II §18), but not as an example of something I am currently doing, since thought, together with other psychological phenomena, lacks what Wittgenstein calls 'genuine duration' (Z §71-85, 472) (Hacker 1996, 129). I will argue that such anomalism of the psychological, which I will explore by analysing the concept of expectation and fulfilment, makes the reduction of this concept either to feelings or to neural events impossible.

'Pain is a state of consciousness, understanding is not' (RPP II §48). The distinction between states of consciousness, such as pain, moods, emotional states or concentration, which are characterised by a 'genuine duration', and dispositions, such as thoughts, beliefs, hopes, wills, intentions or desires, which do not have it, is a recurrent idea of Wittgenstein's philosophical psychology. A patient can point to an approximate time for the beginning and the end of his headache. Someone can concentrate for a few minutes, be interrupted several times, as a result get exasperated, and can report the time at which each of these states began. On the other hand, to believe that 'Mars does not contain a drop of water' and to wish someone 'a happy Christmas' do not have such a clear beginning and end. If an astronomer reaches the conclusion that Mars is a dry planet, his conviction might have a temporal beginning, but the beginning is not marked by an intimate feeling of conviction, but by conclusive evidence relying on empirical data. Likewise, no one will dispute that wishing happy Christmas to someone can be measured by the time I speak or write a Christmas card, but it is altogether unclear at which precise moment I did the wishing and once uttered, how it extends over Christmas. None of the former criteria for determining temporal limits is apt to characterise a wish which again, is better characterised by its being a sign of courtesy and a particular human custom.

Phenomena such as headaches and states of concentration are states; beliefs and wishes are dispositions. Whereas states can have certain duration, dispositions show less affinity to temporal criteria. But as phenomena of human life, dispositions exhibit some temporal relations in their nexus to circumstances and actions. Thoughts may not have duration, but this does not mean that they are totally foreign to time; i.e. a thought is properly said to have come to someone's mind in 1905. Some dispositions show some closeness to time by way of an intentional object, namely, the object or content of a particular phenomenon. In his study of intentionality, Wittgenstein devoted some time to the analysis of expectation, a phenomenon with an intentional object which is identified as a 'disposition' (RPP II §45) different from 'states of consciousness' (RPP II §57). I will use the

'everyday concept' of expectation (RPP II §62). On expecting, an individual awaits some happening lying ahead of him in the future; the grammar of 'to expect' rules out the expectancy of a past event. Generally, the expected event does not exist in the present and very occasionally it is under the control of the subject. Wittgenstein points out that 'expectation is unsatisfied, because it is the expectation of something' (PI §438), that is, for the expectation to be satisfied something has to be brought about, 'something' which is called an object of the expectation, and not by some possible feeling accompanying it. Expectation is compared by Wittgenstein to belief or the holding of an opinion (PI §439), which justifies us in thinking that, if the parallel between belief and opinion is correct, an expectation is similar to a different expectation as an opinion is similar to another, although being both different phenomena, the *psychology* of one and the other is obviously different.

2. The Time Measurement Factor

In one sense, expectations have a certain duration which, if possibly lacking a clear beginning, at least have a clear end, because an expectation ceases when the expected object comes about. A subject expecting a phone call may not feel anything until ten minutes before the agreed time. In such a case, it is difficult to say at what time he started to expect it, unless we want to mark the beginning of the state as the time the subject becomes aware of it. However, if the subject has his diary full of upcoming phone calls, unless the relevant one is truly significant, he can hardly be said to be expecting anything at all; as the time approaches he even might have forgotten about the call. Therefore, the end of expectation is uncontroversially better defined than its beginning, as this is the time at which the expectation is satisfied and disappears.

I have suggested that expectation has certain duration, but does this mean that it can be timed? If the idea behind this is that expectation is a physically segmented process, we have a problem. Measurement in physics requires the specification of two temporal points which mark the beginning and the end of a process. T1 is the beginning of a process N finishing at T2; if N's start is specified, T2 is of some use, but if it is not, even if temporality can be said to be constitutive of N, its duration cannot be specified. The problem is then how to determine the temporality of expectation, a phenomenon which, contrary to some others like headaches and states of concentration has a clear end but no clear beginning, and it is not describable as a process in the language of physics.

A satisfactory answer to the question should emphasise that expectation, like belief, is not a state of consciousness. We have already reviewed the arguments for the case of belief not being a state, and added that it has some kinship with expectation. Wittgenstein holds that with the exception of uses of 'I believe' such as 'for the whole time, I believed I could hear a whisper', that a subject believes that *p* is not indicative of duration (RPP I §597). For one thing belief is not an action, and therefore, the person who believes that *p* is not *doing* anything describable in terms of what goes on in the mind as the

belief is believed by the subject. One can speak of 'carrying out' or 'trying' tasks and activities, but does it make sense to speak of 'carrying out' or 'trying' a belief? Wittgenstein asks: 'what does it mean to *believe* Goldbach's theorem? What does this belief consist in?' (PI §578). The resort to 'underlying occurrences' to deal with this question, such as associated feelings of conviction and satisfaction, or at another level, the appeal to neural events, is a possible answer. But if the grammar of belief tells us anything about the way in which this question should be answered, it looks questionable whether feelings and neural events provide anything significant to someone wanting to learn Goldbach's theorem in a context in which the theorem is explained to students. Here, feelings and neural activities are contingent effects in connection with someone's believing the theorem. Feelings of conviction and satisfaction, if effectively prompted by a belief, last for a measurable time, as do neural events; but the kinds of feelings elicited by Goldbach's theorem are not part of its understanding, for I can understand and endorse things which I do not find convincing nor give me satisfaction, but which are nonetheless *reasonable* to believe.

The argument that belief lasts only as long as do corresponding conviction and satisfaction demands a closer scrutiny of the concept of 'belief' which is here at play. To give an account of a belief in terms of 'what is currently believed' in similar ways as we give an account of a feeling as 'what is currently felt' distorts our concept of other psychological states such as the familiar concept of intention. If trying to define an intention someone says 'what I am at, is intending' or 'I am engaged in intending' (RPP I §598), we can be sure that the subject is certainly not intending, because 'to intend *p*' is not something that one *does* for some time – the time during which one intends. No intention can be realised at the time in which the speaker expresses it, but only in the future, at the time of carrying it out. The activity which one tends to ascribe to the intention is not *intending*, but the actions we take to carry out that intention. In this way, we do not define an intention in terms of what I do or need to do *in order* to intend, but in terms of what I intend to do, i.e. my intention to read such-and-such a book.

3. The Grammatical Misunderstanding of Dispositions

The grammar of expectancy is similar to that of intention in that it has an intentional object. 'I expect such-and-such to occur' cannot be described without reference to the circumstances to which the words 'such-and-such' refer, that is, the content of the expectation. Hence, without the expected object it is grammatically impossible to conceive of a state of expectation. This is understandable only if expectation is not temporally coincidental with its fulfilment. Thus, the genuine content of the expectation is not 'the state at which I am at present', but that contained in the object of expectation, in opposition to someone's feelings while expecting something to occur. Someone who says that she is *anxiously* expecting a visit can surely be said to be in a state of anxiety, but not to expect her own anxiety or any other feeling to occur (PI §453).

There is a grammatical misunderstanding in the idea that dispositions boil down to their current occurrence, and I think that my analysis has exposed this misunderstanding, demonstrating why expectation is not measurable as a process, while being still temporal in a broader sense, namely, as human life can be said to be temporal. We can assign

some time to the expression of such-and-such a disposition, but this does not mean that dispositions are temporally linked with the time of such expression. Time is predicated of dispositions because they are 'aspects' of human life, which is temporally constrained, but not because dispositions occur in a clockable time. Wittgenstein's arguments, far from avoiding this question, put them in their proper place by focusing on the analysis of the content of expectation rather than on factors accidental or contemporary to it. In this context, temporality comes into play in the circumstances attached to the expected object. I could presumably tell how long I was expecting someone's call by reference to what satisfied my expectation, saying i.e.: 'she phoned up at 9.30 pm'. From that I infer I expected her to phone for three hours, taking 9.30 pm as the time of the fulfilment of the expectation. This time (T2) is then better defined than its beginning (T1), which is not apt to the same specification because it is not specified by the object of the expectation. Thus, my belief that she would call has only sharp boundaries at the end of the time segment, not at the beginning, unless the beginning can be determined by finding that which triggered my state, such as 'remembering that she should phone today'. We must see, however, that T1 tends to blur, for in some scenario I could have been expecting her call for a long time and be able to say exactly when I began to expect, but only if I have reasons to be concerned about her call, and not if she tends to phone randomly and for no particular reasons.

If this is correct, T1 is not necessarily a temporal point to be treated as we treat T2, essentially because it is not connected to the object of expectation as T2 is. The extent of this difference, though, should not be overstretched, because on closer scrutiny we see cases in which T2 loses also its temporal grip. Suppose now that she never phones. Then, my expectation will presumably wither away eventually. In trying to specify T2, or when my expectation died, we need to take into account two considerations. First, the end of the expectation will not be the time at which a particular sensation bound up with it subsided, but simply, the time at which I realised that she would never call. Secondly, having a blurry end, a frustrated expectation could simply be seen as a belief, my belief that, after all, her call might not come ever – I cannot address here the question whether expectation can be seen as a kind of belief or not, confining myself instead to note the overlapping similarity shown by unfulfilled expectations and beliefs.

The affinity of expectations and beliefs puts us in a position to deal with one final point. The grammatical misunderstanding of expectation to which I alluded, and which is at the heart of any reductionist agenda, overlooks a crucial feature of psychological phenomena. Wittgenstein considered thinking to be a disposition of a kind to which also belong expectations, beliefs, desires, intentions and others. For him, these dispositions do not have an agent; so that strictly speaking, there is no agent of thought (BB, p. 7). I have argued against the idea that expectation is the activity done when we expect. If we now apply this idea to thinking, it follows that thinking is not the activity done when we think, and also, that there is no agent of expectation if this 'agent' is conceived as a surrogate neural mechanism. This blocks attempts to reduce psychological phenomena to brain states through both type- or token-identity, since expectation and other dispositions are agent-free. Thus, the characterisation of man as a being who thinks, delivered as a statement of natural history (RPP II §18) is similar to stating that man is a temporal being. It says nothing extraordinary, but also says nothing misleading.

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Welche A-Theorie der Zeit A-Theoretiker vermeiden sollten

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Im folgenden Beitrag möchte ich mich einem speziellen Problem innerhalb der A-Theorie der Zeit widmen. Quentin Smith verteidigt in "Language and Time" eine Form der A-Theorie, die er gegen den klassischen Präsentismus in Anschlag bringt. In meinen Augen hat seine Theorie, insbesondere ihre ontologischen Implikationen, zu Verwirrungen geführt, welche häufig gegen die A-Theorie der Zeit im Allgemeinen vorgebracht werden. Es soll aufgezeigt werden, dass Smiths Position nicht nur zu einer unnötigen Verkomplizierung der Ontologie führt, sondern dass die A-Theorie der Zeit ohne die von Smith als notwendig erachteten ontologischen Annahmen besser verteidigt werden kann.

1. Der Stand der Diskussion

Philosophische Theorien der Zeit werden gewöhnlicher Weise in A- und B-Theorien der Zeit eingeteilt. In A-Theorien wird jeder Zeitpunkt in Hinblick auf Vergangenheit, Gegenwart und Zukunft bestimmt. Entscheidend für das Verständnis der A-Theorie ist der dynamische Charakter der Zeit. Derselbe Zeitpunkt ist zuerst zukünftig, dann gegenwärtig und schließlich vergangen. Diese Einteilung ist unerlässlich, und zwar nicht nur unter semantischer und epistemologischer, sondern auch unter ontologischer Rücksicht, da sie etwas Wesentliches über die Struktur unserer Wirklichkeit aussagt.

B-Theorien der Zeit werden hingegen relational aufgefasst. Für ein angemessenes Verständnis der Zeit sind die Relationen "früher als", "später als" und "gleichzeitig mit" ausreichend. Alle Zeitpunkte werden als ontologisch gleichwertig gedeutet und ihre Position auf der Zeitachse lässt sich mithilfe der oben angegebenen Relationen bestimmen. Die B-Theorie vertritt folglich ein statisches Zeitverständnis. Der Gebrauch der Zeiten hat zwar praktischen Wert, ist für ein angemessenes ontologisches Verständnis der Zeit aber vernachlässigbar. Hierfür genügen Beziehungen zwischen Zeitpunkten.

Aus dieser Charakterisierung der A- und B-Theorie der Zeit geht hervor, dass die Zeitpunkte der B-Theorie ontologisch gleichwertig sind. Wie verhält es sich aber mit den Zeitpunkten der A-Theorie?

Für die Beantwortung dieser Frage ist eine weitere Unterscheidung innerhalb der A-Theorie der Zeit notwendig. Einige Vertreter der A-Theorie sehen Vergangenheit, Gegenwart und Zukunft als ontologisch gleichwertig an. Sie stimmen hierin mit Vertretern der B-Theorie der Zeit überein. Worin sie sich von der B-Theorie der Zeit unterscheiden, ist, dass für sie die verschiedenen Zeiten ontologisch berücksichtigt werden müssen. Sie können nicht auf "früher als" - oder "später als" - Beziehungen zurückgeführt werden, sondern es müssen intrinsische Eigenschaften angenommen werden, die den einzelnen Zeitpunkten zukommen, nämlich die Eigenschaften des Vergangenseins, des Gegenwärtigseins und des Zukünftigseins:

According to the A-theory of time, there are intrinsic and monadic properties such as pastness, presentness, and futurity, and it is in virtue of having such a property (an 'A-property') that things in time are past, present or future. (Parsons 2002, 2)

Andere Verteidiger der A-Theorie der Zeit lehnen diese Position ab. Was es gibt, ist nur die Gegenwart. Vergangenheit und Zukunft können nicht nur nicht in der gleichen Weise als real existierend betrachtet werden wie die Gegenwart, sondern sie existieren überhaupt nicht. Nennen wir diese Position die "reine A-Theorie der Zeit":

On a pure A-theoretic ontology, then, the only temporal items which exist exist presently. (...) Hence there can be no question of an entity's trading in futurity for presentness or cashing in presentness for pastness. Rather entities come to be and pass away absolutely, so that the only temporal entities there are are the present ones. (Craig 1997, 28)

Wer folglich Aussagen über die Vergangenheit, Gegenwart oder Zukunft macht, muss nicht Eigenschaften wie "vergangen sein", "gegenwärtig sein" oder "zukünftig sein" in Bezug auf vergangene, gegenwärtige oder zukünftige Entitäten annehmen. Vertreter dieser A-Theorie der Zeit werden auch als "no-property tensed theorists of time" (Smith 1993, 166) bezeichnet.

2. Smiths Kritik und Gegenthese

Smith ist der ersten Gruppe von A-Theoretikern zuzuordnen, d.h. er argumentiert für die Realität zeitlicher Eigenschaften, die der Einteilung der Zeit in Vergangenheit, Gegenwart und Zukunft entsprechen. Er hält 'no-property tensed theorists of time' entgegen, dass ihre Theorie die metaphysische Frage ausklammert, was ontologisch dem Gebrauch der Gegenwart in Aussagen wie "John is running" entspricht. Wenn nach den ontologischen Korrelaten dieser Aussage gefragt wird, so können für 'John' und 'running' entsprechende Entitäten, z.B. ein Ding und ein Ereignis, angegeben werden. Aber was entspricht ontologisch dem Gebrauch der Gegenwart?

Da no-property tensed theorists diese Frage unbeantwortet zu sein lassen, hält Smith die reine A-Theorie der Zeit für unverständlich. Sie kann nicht näher hin erläutern, welchen Teil einer Proposition die Verwendung einer spezifischen Zeit zum Ausdruck bringt, da sie nur sagt, was dem Gebrauch der Zeiten unter ontologischer Rücksicht nicht entspricht – nämlich dass es intrinsischen zeitlichen Eigenschaften nicht gibt. Smith hält dieser Theorie seine eigene Position entgegen. Sätze wie, "Das Ereignis E wird vergangen sein" sollen folgendermaßen analysiert werden:

Zwischen dem Ereignis E und seiner Eigenschaft V, vergangen zu sein, besteht eine Inhärenzbeziehung I_1 , der die Eigenschaft Z, zukünftig zu sein, zukommt. Der Inhärenzbeziehung I_2 , die zwischen I_1 und Z besteht, kommt die Eigenschaft G zu, da es in der Gegenwart wahr ist, dass die Vergangenheit von E in der Zukunft liegt. Zwischen I_2 und G besteht erneut eine Inhärenzbeziehung I_3 , der G zukommt und so weiter ad infinitum.

Dem unendlichen Regress, der sich zwischen Inhärenzbeziehungen und zeitlichen Eigenschaften auftut, sieht Smith gelassen entgegen. Die zeitliche Eigenschaft 'gegenwärtig zu sein' unterscheidet sich von anderen Eigenschaften wie 'rot sein' oder 'groß sein' darin, dass sie

reflexiv ist und als solche auch ihrer eigenen Inhärenzbeziehung inhärieren kann:

This means that presentness not only inheres in E and in its inherence in E but also in its inherence in its inherence in E. This regress continues infinitely but in a benign manner, since at no stage in the regress is there a contradiction. (Smith 1993, 171)

Smith ist bereit, den Preis eines Regresses zu zahlen, da seine Theorie zum einen nicht dem McTaggart'schen Paradox der A- Eigenschaften verfällt und zum anderen die Rede von Vergangenheit, Gegenwart und Zukunft auch ontologisch voll und ganz ernst nimmt.

3. Einwände gegen Smith

Eine erste Anfrage an Smith ist, ob er nicht allzu naiv mit unserem alltäglichen Sprachgebrauch und seinen ontologischen Implikationen umgeht. Wer die Unterscheidung zwischen Oberflächen- und Tiefengrammatik ernst nimmt, hütet sich davor, allzu schnell ontologische Schlüsse aus dem Sprachgebrauch zu ziehen. (Seddon 1987, 9-14) Tun wir unserem Sprachgebrauch wirklich unrecht, wenn wir im Allgemeinen geneigt sind, für Adjektive Eigenschaften als ontologische Korrelate anzunehmen, aber es ablehnen, dem sprachlichen Gebrauch der Zeiten das Gleiche zuzugestehen?

In anderen Fällen gehen wir auch so vor, etwa bei Negationen. Wenn ein Gegenstand nicht blau ist, so schreiben wir ihm normalerweise nicht die Eigenschaft ‚nicht blau zu sein‘ zu, sondern eine andere Eigenschaft, etwa ‚grün zu sein‘. Mit der Aussage, „Dieser Gegenstand ist nicht blau“ wollen wir deutlich machen, dass der besagte Gegenstand eine andere Farbe als blau hat, nicht dass ihm die spezifische negative Eigenschaft zukommt ‚nicht blau zu sein‘.

Ähnliches gilt für den sprachlichen Gebrauch von Zeiten. Die Aussage „Es war ein großer Auftritt“ bedeutet nichts anderes, als dass es einen Auftritt gegeben hat, der jetzt vorbei ist. Es ist nicht der Fall, dass dieser Auftritt immer noch existiert und nur die Eigenschaft ‚gegenwärtig zu sein‘ verloren und jene ‚vergangen zu sein‘ gewonnen hat.

Smiths These, dass Ereignisse zeitliche Eigenschaften annehmen und wieder verlieren, legt die Auffassung nahe, Ereignisse seien Entitäten, die Träger von zeitlichen Änderungen sein können. Diese Auffassung ist aber mit der problematischen Konsequenz verbunden, dass der Unterschied zwischen Ereignissen und Dingen zu verschwinden scheint. Im Normalfall sagen wir von Gegenständen, dass sie durch die Zeit hindurch als dieselben existieren und verschiedene Eigenschaften besitzen, verlieren bzw. andere annehmen können. Wenn ich zwei Stunden am Mittagstisch sitze, so nehme ich an, dass ich dies als dieselbe Person tue, die am morgen aufgestanden ist und gefrühstückt hat. Es sitzt nicht eine „Zwei-Stunden-Phase“ am Mittagstisch, die in irgendeiner Form mit den anderen Phasen des Aufstehens und Frühstückens in einer Kontinuitätsbeziehung steht.

Von Ereignissen sagen wir hingegen aus, dass sie „so und so lange dauern“. Sie haben eine bestimmte zeitliche Ausdehnung, die sich gewöhnlich in einzelne zeitliche Abschnitte gliedern lässt. Die Annahme einzelner Abschnitte eines Ereignisses wird zumeist ohne größere Probleme akzeptiert, da zu verschiedenen Zeitpunkten der Dauer des Ereignisses nicht das Ereignis „als Ganzes“ existiert, sondern ein Ausschnitt davon, etwa der Anfang

oder die Mitte. Was sich bei Ereignissen ändern kann, sind Eigenschaften relativ zu ihren spezifischen Teilen. Während Ereignisse aus verschiedenen Phasen oder zeitlichen Teilen bestehen und mit ihren Summen identisch sind, würde eine solche Deutung von Gegenständen zu erheblichen Problemen führen, wenigstens für unsere Alltagsauffassung der Wirklichkeit.

Bei Smith scheinen Ereignisse aber als „Ganze“ zu existieren, d.h. relativ zu einem bestimmten Zeitpunkt ist nicht nur ein spezifischer Abschnitt des Ereignisses gegenwärtig, sondern das ganze Ereignis, welches als ein und dasselbe zeitliche Eigenschaften annimmt, zuerst (unendlich viele) Grade der Zukünftigkeit, dann Gegenwartigkeit und dann (unendlich viele) Grade der Vergangenheit.

Dieses Verständnis von Ereignissen kommt einer ätneralistischen Auffassung der Existenz von Ereignissen sehr nahe. Die Existenz von Ereignissen ist nicht an bestimmte Zeitpunkte gebunden, denn es existieren ja nicht nur gegenwärtige, sondern auch vergangene und zukünftige Ereignisse. Worin sie sich unterscheiden, sind ihre zeitlichen Eigenschaften. Die Frage, die sich allerdings stellt, ist, wie die Inhärenzbeziehung zwischen den Ereignissen und ihren intrinsischen zeitlichen Eigenschaften zu deuten ist. Wenn ein Ereignis eine zeitliche Eigenschaft annehmen kann, so scheint die Fähigkeit des Ereignisses, diese Eigenschaft annehmen zu können, bereits vorauszusetzen, dass das Ereignis existiert. Aber wie kann dieses Ereignis bereits existieren? Setzt das nicht voraus, dass ihm bereits eine zeitliche Eigenschaft zukommt? Der unendliche Regress erweist sich doch nicht als so harmlos, da auf jeder Ebene das Ereignis, dem eine zeitliche Eigenschaft zugeschrieben wird, bereits vorausgesetzt werden muss.

Ein zusätzliches Problem, das sich aus Smiths Deutung von Inhärenzbeziehung zwischen Ereignissen und ihren zeitlichen Eigenschaften ergibt, ist, dass der Unterschied zwischen konkreten, d.h. in der Zeit existierenden, und abstrakten, d.h. zeitlos existierenden Individuen, wie etwa Zahlen, verschwimmt. Wenn es eine Eigenschaft von 4 ist, das Quadrat von 2 zu sein, so stellt sich die Frage, wie diese Inhärenzbeziehung zwischen ‚4‘ und ‚Quadrat von 2‘ zu bestimmen ist. Besteht diese Inhärenzbeziehung nicht gerade deshalb, weil ihr stets die Eigenschaft zukommt gegenwärtig zu sein und es somit nie eine Zeit gibt, in der diese Inhärenzbeziehung nicht besteht bzw. noch nicht besteht? Dann würden aber Zahlen gleich konkreten Individuen in der Zeit existieren. Alles was es gibt, würde dann in der Zeit existieren, die Unterscheidung zwischen konkreten und abstrakten Entitäten müsste umgedeutet werden zur Unterscheidung zwischen Entitäten, die immer gegenwärtig sind und solchen, die nur zu bestimmten Zeitpunkten gegenwärtig sind:

It can never be the case that they [logical and mathematical propositions and states of affairs] passed away or are still to come, but it must always be the case that they are present – which is to say that they are necessarily sempiternal. (Smith 1993, 212)

Aus diesen Einwänden sollte es fraglich geworden sein, ob die von Smith anvisierte A-Theorie der Zeit tatsächlich als Lösungsvorschlag akzeptabel ist. Seine Theorie bringt derart schwerwiegende Probleme mit sich, dass ihr die reine A-Theorie der Zeit vorgezogen werden sollte.

4. Die reine A-Theorie der Zeit als Alternative

Die bisherige Diskussion verdeutlicht, dass die Frage nach der Zeit aufs engste mit der Frage nach dem, was existiert, verbunden ist. Wenn wir gemäß der reinen A-Theorie von einer Entität aussagen, dass sie existiert, so sagen wir von ihr aus, dass sie gegenwärtig ist. Die einzigen Entitäten, die existieren, sind gegenwärtige Entitäten.

Zu behaupten, dass eine zur Zeit existierende Entität durch die Zeit hindurch existiert, bedeutet demnach nichts anderes als dass diese Entität in der Vergangenheit existiert hat und es immer noch tut. Aber ihre Vergangenheit existiert jetzt nicht mehr und so tut es auch noch nicht ihre Zukunft. Das Problem zeitlicher Eigenschaften kann nicht entstehen, da es nicht verschiedene Zeiten gibt, die einer bestimmten Entität zukommen können. Die einzige Zeit, in der etwas existiert, ist die Gegenwart. Unter ontologischer Rücksicht ist diese Auffassung präsentistisch. Dieser Lösungsansatz wurde aufgrund seiner Radikalität kritisiert. Die Auffassung, dass beispielsweise ein Ding nur jene Eigenschaften besitzt, die ihm im Augenblick zukommen, während andere Zeiten (und darin vorkommende Entitäten) "like false stories" (Lewis 1987, 204) sind, ist unseren Alltagsauffassungen scharf entgegengesetzt.

Es ist allerdings fraglich, ob wir eine präsentistische Ontologie so verstehen müssen. Entitäten anderer Zeiten sind nicht "wie falsche Geschichten", sie existieren nur nicht mehr oder noch nicht. Wenn wir sagen, dass eine Entität eine bestimmte Eigenschaft in der Vergangenheit gehabt hat oder in der Zukunft haben wird, so spezifizieren wir durch die Angabe der Zeit die Exemplifizierung dieser Eigenschaft. Es wird nicht die Existenz dieser spezifischen Eigenschaft per se in Frage gestellt; was (zeitlich) relativiert wird, ist der Sachverhalt, dass diese bestimmte Eigenschaft bestimmten Dingen zukommt.

Eine präsentistische Ontologie leugnet folglich nicht, dass wir sinnvoll über Vergangenheit und Zukunft sprechen können. Sie leugnet nur ihre Existenz relativ zur Gegenwart. Wir können uns nichtsdestotrotz auf Entitäten in der Vergangenheit beziehen und sie können weiterhin eine wichtige Rolle in unserem Leben spielen. Dafür ist es aber nicht notwendig anzunehmen, dass diese Entitäten auch jetzt noch existieren; es genügt, dass sie existiert haben. Dasselbe gilt für zukünftige Entitäten. Es ist wichtig zwischen Ontologie einerseits und dem sprachlichen Bezug andererseits zu unterscheiden. Wir können uns sprachlich auf verschiedenste Dinge beziehen; diese Möglichkeit des sprachlichen Bezugs impliziert aber nicht automatisch die ontologische Verpflichtung, dass diese Dinge auch existieren müssen.

Diese Auffassung beinhaltet nicht ontologische Beliebigkeit bezüglich Vergangenheit und Zukunft. Sie besagt nicht, dass die Existenz von Dinosauriern ebenso wenig wie die Existenz von Einhörnern ein Faktum ist, nur weil die Existenz der Vergangenheit geleugnet wird. (Tooley 1997, 233)

Sie leugnet nicht, dass die Vergangenheit einst existiert hat, es wird nur bestritten, dass sie immer noch in irgendeiner Form weiterexistiert. Dass Dinosaurier existiert haben, zeigt uns die Paläontologie dank zahlreicher Belege, während für die Existenz von Einhörnern solche Belege fehlen. Was allerdings Faktum ist, ist, dass jetzt weder Dinosaurier noch Einhörner existieren.

In diesem Zusammenhang kann auch der Vorwurf zurückgewiesen werden, eine präsentistische Ontologie könne keine Kausalbeziehungen (wenigstens nicht gemäß unserer Alltagsauffassung) rekonstruieren, da die Ursachen, auf die Bezug genommen wird, gewöhnlich in der Vergangenheit liegen und daher nicht existieren. Erneut ist darauf hinzuweisen, dass die Existenz dieser Ursache nicht grundsätzlich geleugnet wird; es wird nur bestritten, dass diese Ursache immer noch existieren muss, um für eine Kausalerklärung herangezogen werden zu können. Die Folgen des Ausbruchs des Vesuvs sehen wir noch heute, aber das Ereignis des Ausbruchs ist längst vorbei. Entscheidend für das Verständnis des Kausalzusammenhangs sind die einzelnen Vorgänge, die kausal aufeinander wirken. Dies setzt die Existenz der Vorgänge voraus, allerdings nicht in einer unspezifizierten Weise. Die einzelnen Vorgänge existierten relativ zu einer bestimmten Zeit. Ihre Existenz wird nicht negiert, sondern zeitlich relativiert. Für ein angemessenes Verständnis kausaler Vorgänge genügt dies vollends. Es ist nicht nötig anzunehmen, dass diese Vorgänge auch jetzt noch als vergangene existieren.

Ausgangspunkt der Fragestellung war Smiths Vorwurf an die reine A-Theorie der Zeit, dass sie unfähig ist, die Frage zu beantworten, was ontologisch dem sprachlichen Gebrauch der Zeiten entspricht. Vielleicht ist die sinnvollste Antwort auf diese Frage, dass sie falsch gestellt ist, da es keine Antwort auf sie gibt. Was wir sagen können, ist, dass der Zukunft und der Vergangenheit nichts in der Ontologie entspricht, da Zukünftiges und Vergangenes nicht existieren. Nur Gegenwärtiges ist ontologisch relevant.

Smiths Kritik, dass eine solche Antwort unzureichend oder gar unverständlich ist, kann entgegen gehalten werden, dass seine eigene Position mit einer Reihe schwerwiegender Probleme einhergeht. Im Gegensatz zu den ontologischen Implikationen von Smiths A-Theorie der Zeit ist die präsentistische Ontologie schlank und weist eine größere Nähe zum Alltagsverständnis der Wirklichkeit auf. Jemand, der die A-Theorie der Zeit zu verteidigen versucht, ist daher gut beraten, sich der reinen A-Theorie der Zeit zuzuwenden und A-Theorien vom Schlage Smiths zurückzuweisen.

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Space-Time Theories, Schlick's Phenomenal Spaces and the Possibility of Qualia Inversion

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1. Schlick's Notion of Coincidences

(Schlick 1917) provides the first solid philosophical interpretation of Einstein's Theory of Relativity. Since in the Einsteinian theoretical framework all extended measures fall prey to geometrical relativization (in the sense of mutability after a transformation and dependence on gravitational forces), he arrives at his notion of point coincidences, which serve the purpose of a well-founded basis for objective space. When two trajectories in space-time intersect, the events belonging to the two trajectories share the same coordinates at that moment. Coincidences remain coincidences after any transformation, as opposed to metrical entities, which can be modified in a transformation. Coincidences therefore have to be referred to as the sole constituents of physical objectivity, whereas the Newtonian framework assumed absolute space to ensure the direct applicability and consistency of the laws of physics in all inertial systems.

Yet, (Schlick 1917) isn't satisfied with commenting on this extraordinary *physical* property of coincidences, he also ascribes to them a special *epistemological* role. The point of intersection of two world lines is observable, and since such point-coincidences are the only landmarks of the physical penetrating the veil of perception¹, they also have to be instrumentalized as the cornerstones of the edifice of knowledge about the external world. Thus a coincidence in space-time is the incarnation of the "coincidence" of the observable with the objective.²

But the obligation to use this epistemological "instrument" of point-coincidences doesn't remain a naturalistic postulate. Schlick explains how to his mind such an epistemological role for the coincidence is to be justified on philosophical grounds. This explanation takes the form of a multiplication of space for the various sensory capacities of human perception. The resulting phenomenal spaces are thought to be independent of each other and, more importantly, incomparable to each other. But experience shows that coincidences do occur consistently throughout the various phenomenal spaces.³ This consistency makes it possible to infer the events of objective physical space from them.

2. Shoemaker's Juxtaposition

(Shoemaker 1982) compares cases of intrapersonal with cases of interpersonal spectrum inversion. He quotes Wittgenstein, whom he interprets to side with the behavioral detectability of both kinds of spectrum inversion; thus implying that the full-fledged kind of a spectrum

inversion (which generates the characteristic "philosophical uncertainty") is impossible. Shoemaker in turn argues that a slow and smooth transition could still – at first sight, as a logical possibility – effect a systematic and sustainable modification of someone's color experience (compared with the unchanged experience of others), yet one which is empirically indeterminable. In what follows he tries to rule out this possibility.

Shoemaker goes on by underlining the (obvious) difference between the intentional and phenomenal implications of a spectrum inversion. There could be an interpersonal spectrum inversion in place *qualitatively*, yet we *can know* that something looks to us the way it looks to someone else *intentionally*. A spectrum inversion does not necessarily lead to some sort of general skepticism about other minds. (In turn, you *cannot* argue the contrapositive either: if you want to avoid the absurd consequences of such a skepticism, you need to rule out the possibility of a spectrum inversion. Shoemaker assumes that *no such threat* is contained in the possibility of a spectrum inversion.)

Nevertheless, this seems to be what Shoemaker intends, giving reasons why a spectrum inversion is not possible, though for other reasons. He presents the standpoint just described as the "Frege-Schlick view" with reference to (Schlick 1932).

 well defined for	intrasubjective case	intersubjective case
intentional similarity	✓	✓
qualitative similarity	✓	X

The "Frege-Schlick view". Qualitative similarity is assumed to be defined functionally for one and the same person over time.

Shoemaker concedes to the Frege-Schlick view that similar qualia – in the intrasubjective case – possess the causal role of inducing a belief in the person in the similarity of colors seen over time. This belief in turn induces the abnormal behavior at the occasion of a spectrum inversion. No such belief, *according to this view*, is plausible for the similarity of qualia across persons. It is at this point that Shoemaker disagrees. According to his alternative, which he coins the "common-sense view", the intuition goes in the direction of the statement "a visual experience of mine can be like a visual experience of yours in exactly the way it can be like another visual experience of mine" (Shoemaker 1982), p. 371. I.e., the functional definition of qualitative similarity can be extended, *according to Shoemaker*, to the intersubjective case.

What arguments does Shoemaker present? Qualia are characterized as universals. Functionalism generally assumes multiple (physical) realizability of mental states. It is in virtue of the quale being realized in physical properties that it can be shared in the experiences of different people. Therefore, Shoemaker argues, the functional

1 cf. (Schlick 1925), p. 255: „das Prinzip der Koinzidenzen beruht ja gleichfalls auf dem Herausheben des Diskreten, Unstetigen aus dem kontinuierlichen Wahrnehmungsverlauf.“

2 cf. (Friedman 1983), p. 22: "the features of the world that are now objective according to general relativity are precisely the observable features of the world"

3 Of course, the risk of mistake or deception cannot be entirely mitigated; even with coincidences. cf. (Schlick 1925), p. 251: „Es versteht sich von selbst, daß nicht jedes Erlebnis des Zusammenfallens in irgendeinem Sinnesgebiete bereits als Koinzidenz im objektiven Sinne gedeutet wird. Bei einer Sternbedeckung durch den Mond koinzidiert für unser Auge der Stern mit dem Mondrande; wir wissen aber recht gut, daß der Stern sich in Wahrheit nicht am Orte des Mondes befindet, sondern außerordentlich viel weiter entfernt ist.“

definition of qualia indirectly supports the common-sense view. The functionalist's Martian, who has the same behavior but a physiology different from that of a human, would therefore not be able to share a quale similar/identical to that of a human, since the physical realization is quite different from that inside a human. The installation of qualitative similarity beyond the borders of *one* consciousness thus hinges on the specification of the physical realization of the functional role of a quale.⁴

3. Stalnaker's Application of Relationalism

One argument Shoemaker comes up with against an undetectable spectrum inversion (and thus in favor of a sufficient definition of similarity between qualia) is as follows. He imagines an intrapersonal spectrum inversion where colors change place with their complementaries; i.e. they are exchanged with their opposites in a color circle. This happens in several steps. This division into partial adjustment steps enables Shoemaker to put a special emphasis on a single step. Since after the complete inversion, the *order* of the colors *relative to each other* is the same as before the change, the last step *would* restore the person's original set of color judgements *in case* the relation between colors is all there is. Yet, (Shoemaker 1982), p. 363 insists, "these partial inversions add up to a total spectrum inversion". The argument suggests that similarity and difference between qualia is defined in absolute terms so that the last step was not a neutralization, but part of a substantive change. It seems absurd that the last step, only affecting part of the color spectrum, could undo the whole change.

(Stalnaker 2000) defends the "Frege-Schlick view" against Shoemaker. He assumes qualia to be of relational dignity as opposed to their intrinsic nature ("universals") in Shoemaker's view. He comes up with the following comparison. (This is inspired by a relational space-time theory like that of Leibniz.) The movement of the whole universe three feet to the right is equivalent with the application of a coordinate system originating three feet to the left of the old coordinate system. The choice of an alternative coordinate system is purely conventional. Yet, the critique Shoemaker presents amounts to arguing that an imagined division of such a transformation into the separate movements of the objects in space implies that the movement of the last object, which is surely a substantive change, cannot render things as they were before, because the partial movements of single objects are irreducible to a mere recoordination.

Stalnaker holds against such a critique that the *artificial division* into steps of change cannot be an argument against the result yielding everything exactly as it was before. The refutation of any physical objectivity attributed to a coordinate system (as in the cases of Leibniz and Einstein) cannot be resolved by Shoemaker's "analysis" into separate movements. It is by this analogy that Stalnaker rejects the idea that a difference between the situation before and after a spectrum inversion can be determined empirically. Shoemaker's well defined qualitative similarity breaks down with the premiss of a functionalist account of qualia as relational characteristics of experience, which cannot be tied down to any specific "physical realization". It is exactly this emphasis on the

physical realization which seems unsupportable vis à vis the relativization of geometry.

4. Schlick Again

It seems to me more than a mere "coincidence" that Schlick used the same comparison. In order to "explain" the psychophysical nexus Schlick refers to the idea of relationalism and the insubstantiality of "absolute" movement.

Es stellt sich nämlich heraus, daß die Fragestellung ‚wie verhält sich das Physische zum Psychischen‘ (oder wie man es sonst formulieren mag) nur der Ausfluß einer Unklarheit war, durch deren Aufklärung die Möglichkeit einer sinnvollen Fragestellung von selbst verschwindet. Ähnlich fragte man früher, wenn zwei zueinander bewegte Körper gegeben waren: welcher von beiden bewegt sich denn eigentlich, und welcher ruht? Aber nach Aufklärung des relativen Charakters der Bewegung konnte man die Frage nicht mehr stellen; sie wurde nicht beantwortet, sondern sie verschwand.
Schlick to Sommerfeld, 18.12.1932

Certainly, this analogy popped up in Schlick's head due to his own work on the Theory of Relativity. But he has good reason to use this "metaphor", since there is also a systematic relation here. In an early paper, (Schlick 1916) says more about the dignity of qualia in the context of the construction of objective physical space from the phenomenal spaces.⁵

There he asks the magnificent question: *Where* are phenomenal qualia? One possible answer is to localize them in the brain. But (Schlick 1916) argues heavily against any kind of pineal-gland solution⁶ by employing the principle of the causal closure of the physical⁷.

Die Welt des Physikers ist ganz in sich vollendet, es bleibt in ihr schlechterdings kein Platz für die Welt des Psychologen mit ihren sinnlichen Qualitäten. Beide kämpfen um den Besitz des Raumes.
(Schlick 1916), p. 238

In the showdown between psychology and physics Schlick gives in to psychology insofar as to leave the human body to the mental (as a phenomenon given to consciousness).⁸ This critical philosophical gesture serves to illustrate radically that mental phenomena cannot be tied down to physical realizations and so to imply that locating mental states in the body means to locate them in consciousness, which is trivial and artificial.

Since psychological, i.e. phenomenal space is autonomous⁹ in that sense, *it is not a coincidence (in the technical sense)* that occurs when two people each

4 This is as much as to suggest that brain physiology is relevant here. Schlick would disagree. cf. Schlick to Sommerfeld, 18.12.1932: „...ist es bei der psychophysischen Frage so, daß ein beliebig großer Fortschritt der Psychologie und Gehirnphysiologie uns nichts nützen würde.“

5 It is this division into physical space on the one side and phenomenal spaces on the other, which constitutes Schlick's parallelism. (Heidelberger 2003) has lately elucidated this aspect of Schlick's philosophy. While (Heidelberger 2003) counts critical realism and positivism as the two main influences for Schlick's conception, he doesn't comment on Einsteinian space-time relationalism in this context, which, I would claim, is the motivation to combine the two.

6 Certainly the pineal gland idea served a substance dualism, which is not the topic of this paper. Nevertheless, it is used to give way to a physical localization of mental activities. This is what Schlick opposes. The same holds for identifying mental activities with neuron firings.

7 According to Michael Tye this principle is at the core of the argument against the irreducibility of qualia. cf. <http://plato.stanford.edu/entries/qualia/>

8 (Schlick 1916), p. 241: „das Psychische ist nicht im Leibe des Menschen lokalisiert, sondern der Leib ist selbst nur eine Vorstellung im Bewußtsein“

9 This autonomy of psychology, which Schlick obviously wants to maintain, can biographically be motivated by Schlick's theoretical interest in psychology during his time in Zurich. It fits well with the functionalist's demarcation between the mental and its physical realization.

attribute a quale to a thing. Their phenomenal spaces do not overlap.¹⁰ Consequently, there is no problem with different qualia being perceived in relation to the same thing. A quale attribution is as elementary as a coincidence.¹¹ Thus, it is systematically impossible that two sensations of qualia are conceptualized within one common space.

This is how (Schlick 1932) arrives at his conviction that qualia cannot be compared across persons. Again he motivates his conclusion with reference to space-time events. It is crucial that a coincidence has a status quite different from events which share only one coordinate; namely, the time coordinate. Such events have to be related to each other via a system of stipulative definitions, one cannot rely on an a priori framework like absolute space. (Schlick 1932) explicitly refers to such a relational framework, thus supporting Stalnaker's interpretation.

Dem Begriff ‚Gleichzeitigkeit am selben Orte‘ entspricht hier der Begriff ‚Gleichheit von Erlebnissen desselben Individuums‘; und der ‚Gleichzeitigkeit an verschiedenen Orten‘ entspricht hier die ‚Gleichheit von Erlebnissen verschiedener Individuen‘. Das Zweite ist jedesmal gegenüber dem Ersten etwas Neues und muß besonders definiert werden. Für die Gleichheit zweier Grün in verschiedenen Bewußtseinen läßt sich ebensowenig eine direkt erlebbare Qualität aufweisen wie für die Gleichzeitigkeit an verschiedenen Orten; beide müssen durch ein System von Relationen bestimmt werden. (Schlick 1932), p. 15

It is important to emphasize that Schlick thereby *doesn't deny* that we can sensibly talk about colors. It makes sense to draw your driver's attention to that red traffic light in front of the two of you. Just like the relativization of geometry doesn't imply that coordination is arbitrary but that there are laws on how to coordinate the manifold with respect to the local situation¹², the news that red might look qualitatively different to your driver than to yourself doesn't make individual traffic collapse. The "philosophical uncertainty" of an inverted spectrum is acknowledged by Schlick by stating that there is no simple rule or permanent definition of how people have the same phenomenal sensation. Yet, there is a relational system (maybe of a functionalist sort), which grants qualia their interpersonal existence and enables one to specify them to a certain extent. This is why Schlick cannot be classified as an eliminative materialist; sentences about colors remain sensible – without their reduction to the scientific explanations of color, and, more importantly, while maintaining the critical notion of the impossibility (irrationality) of defining similarity of qualia across persons.

The Frege-Schlick view is sometimes thought of as an eliminativist thesis – a thesis that denies the existence of phenomenal character, or qualia. I don't think this is quite right.

(Stalnaker 2000)

This becomes evident where (Schlick 1916), p. 236-237 contemplates the explanation of contradicting perceptual qualia reports by differences in sensory organs. The contradiction is reduced away by the physiological explanation. But this Cartesian skeptical stance about the (possibly deceptive) sensation of qualia is not acceptable for Schlick. He marks this as the point where the philosopher, who, as opposed to the scientist's eliminative approach, maintains for heuristic reasons the belief in what he sees, has to continue wondering what qualia actually are.

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10 cf. (Schlick 1916), p. 244: „Nun können sehr wohl zwei verschiedene Individuen (z.B. ein normalsichtiges und ein farbenblindes) einem Gegenstande verschiedene Qualitäten zuschreiben, denn die eine ist ja im Erscheinungsraum des einen, die andere im Raum des anderen Bewußtseins lokalisiert, beider Orte sind daher nicht miteinander zu identifizieren, und es ergibt sich also kein Widerspruch.“

11 cf. (Schlick 1921), p. 101: „Aber ich glaube, daß gerade diese ‚Koinzidenz‘ ... Repräsentant eines psychologischen Erlebnisses des Zusammenfallens ist, so wie etwa das Wort ‚gelb‘ ein einfaches nicht mehr definierbares Farberlebnis bezeichnet.“

12 It is exactly this stability of the Theory of Relativity, which many of Einstein's critics didn't see. The upkeep of a law-like order in spite of a merely relational framework is what makes sentences about events that do not coincide sensible. cf. (Schlick 1922), p. 65: „...wäre z.B. Gleichzeitigkeit am gleichen Orte nicht etwas Absolutes, so ließe sich auch keine Gesetzmäßigkeit für die Relativität der Gleichzeitigkeit an verschiedenen Orten angeben.“

Fluid Clocks: Emergence of Quantum Theory from Sub-Quantum Dynamics

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1. Introduction: Fluid Clocks

In April of this year, the first observation ever was reported of the microscopic structure of a crystalline material fluctuating in time. In a diffraction experiment with x-rays, a metal alloy composed of iron and aluminium was investigated. The diffraction pattern shows fluctuations in time when the x-ray beam is focused to a very small size of a few micrometers. The number of these temporal fluctuations is so small that they now become visible as x-ray intensity fluctuations (i.e., as opposed to a static pattern when the number is much higher). In other words, this gives “clear-cut evidence that temporal structural fluctuations on an atomic scale are present in the crystal”. [Mocuta *et al.* 2005]

Usually, metals or crystals are often evoking the ideal of some kind of “eternal stability”, at least in a metaphorical sense. Hardly does one ever consider these solids as objects, which when looked at close enough, reveal a wild sea of fluctuating constituents. Or, considered the other way ‘round, it is seldom recognized that stability in our “macroscopic” world is an *emergent phenomenon* based on a very large number of restless constituents. As Nobel laureate Robert Laughlin argues so convincingly in his new book [Laughlin 2005], emergence is a collective effect of a huge number of particles that usually cannot be deduced from the microscopic equations of motion in a rigorous way and that disappears completely when the system is taken apart. In fact, in said book Laughlin also promotes the idea that one can visualize the vacuum (of only apparently “empty space”) as analogous to the ground state of a condensed matter system, with ordinary matter being analogous to excited states of this system.

This is particularly interesting for those who are interested in a deeper understanding of why quantum theory looks (and works) the way it does. For this theory, the most fundamental one concerned with experimentally falsifiable statements on the nature of matter's basic constituents, is also characterized by features of “stability”, viz., the linearity of its basic equation, the Schrödinger equation, and the validity of the so-called superposition principle. So, the idea is today increasingly being investigated, whether quantum systems might not be emergent phenomena themselves from an hypothesized underlying non-linear sub-quantum dynamics. (For an early paper on this topic, see [Grössing 1989].) In particular, there exists a long tradition of attempts to explain quantum theory on the basis of an assumed fluid substrate, sometimes (again) called an “aether”, whose particle-like constituents undergo diffusion-like processes very similar to the familiar Brownian motion of molecules suspended in water. However, so far approaches focusing solely on the particle constituents of the hypothesized sub-quantum medium in a reductionist manner have largely remained unsatisfactory. The idea of emergence playing a key role in various domains of physics thus leads to the suggestion that also the wave-like phenomena of quantum theory might be nothing but emergent ones due to the presence of a huge number of particle-like constituents of the sub-quantum medium.

In other words, only a strictly reductionist view of nature would claim that, “in the end”, or at the “deepest level” of explanations possible, matter would behave according to rules applying to their “ultimate building blocks”, like, e.g., some kind of “elementary particles”. Actually, a predominant view of quantum theory for many years has been one that favored such an approach, i.e., that matter was ultimately composed of “particles” following specific rules of propagation (viz., Feynman's path integral formalism, for example). However, along with such an approach also came the view that the specific rules just mentioned are, albeit working perfectly well, not understood at all.

So, it is only legitimate to search for different approaches, including ones which do not assume a strictly reductionist view from the start. In fact, what shall be proposed here is a view which maintains that, at least as far as quantum theory is concerned, no single “ultimate” level of explanations in terms of particles is possible, but rather, that nature might be composed such that a complete description of quantum phenomena is only possible when the physics of particles and of waves are combined within one modelling frame. With the (since many years) well-established knowledge that the so-called “vacuum” is not empty at all, but constitutes some kind of “medium” in which “particles” may propagate, one very natural approach to quantum phenomena may in fact be considered under such premises.

As was shown by the work of Nelson [Nelson 1966 and 1985], motion according to the Schrödinger equation can be reduced to a Brownian-type motion on an assumed “fluid” sub-quantum level, where particles undergo collisions in the framework of diffusion processes according to well-known laws of hydrodynamics. However, one of the problems with Nelson's approach is given by the fact that it cannot account for the by now well-established nonlocal features of the theory. (See, however, [Fritzsche and Haugk 2003].) Still, this may very well be due to the fact that also Nelson's approach exclusively considers one “basic level”, i.e., the particle dynamics, only. Considering that classical Brownian motion describes the motion of *particles suspended in some medium*, it would only be logical to consider said hypothesized sub-quantum dynamics in such a way that a description of both particles and waves is necessary, the latter actually originating from the particles, i.e., being created by the particles' “wiggly” motions in the “fluid” medium.

Within a thus circumscribed modelling framework, it is in fact possible to show that the essence of quantum theory (i.e., the Schrödinger equation, Heisenberg's uncertainty relations, the superposition principle and Born's Rule for the probability amplitudes) can be derived from classical physics – albeit only under a new perspective of the latter as well. [Grössing 2004, 2005a, 2005b]

In my approach, both the particle positions and the wave configurations represent “hidden (or rather, with Bell, uncontrollable) variables” to be suitably described by some sub-quantum dynamics. This means, among other things, that Schrödinger's wave function ψ does not need a

realistic ontology itself (as Schrödinger himself still assumed), but only represents, just like in the orthodox “Copenhagen” interpretation, the totality of our knowledge about the quantum state.

[In this sense, an alternative, i.e., the de Broglie-Bohm interpretation, also got stuck „half way“, because in it the (unexplained) wave function still has fundamental status, with the „hidden variables“ being determined by functions of it.]

It is only the approaches by Nelson, and recently also my own one, which try to provide an *explanation* of the ψ function and the Schrödinger equation describing its temporal evolution, with particular attention being paid in my work to the nonlocal features of the theory. The latter becomes feasible exactly by attributing wave phenomena an equal status with the particle phenomena. Thus, quantum mechanics (as opposed to classical physics) is pictured as describing the motion of particles subject to *fluctuations* stemming either from a) particle-particle collisions on a sub-quantum level, or b) from wave fronts determined by the wave configurations of the surrounding medium. (A very similar approach is also found in [Baker-Jarvis and Kabos 2003].)

One can show that the latter is co-determined by the totality of the experimental setup, and thus is essentially of nonlocal character. Even in the domain of classical physics, then, particles can be imagined to be the origins of such waves, but in this case – just like in a “zooming” out from the observed object – the fluctuations will be, relatively speaking, too small and thus unobservable. The stochastic particle trajectory then looks “smoothed out”, and the waves practically are emitted in a centric-symmetric manner (Fig. 1) so that they don’t carry away any momentum – in clear contradistinction to the “zoomed in” view of the quantum case, where exactly this is happening and the corresponding fluctuations (or changes of particle momentum, respectively) are responsible for the “quantum phenomena”.

Let me start by recalling the famous „light clock“, with which one can nicely illustrate Einstein’s ideas on the relativity of simultaneity [Einstein 1905a]. Here we consider only the idealized case of a photon bouncing back and forth between two parallel mirrors. Each time, the photon completes a “roundtrip”, the clock “ticks”. Thus, this clock has an insurmountable limit of its time measuring capability given by the inverse “frequency” of said roundtrip. The best temporal resolution is given by $\Delta t = 1/\Omega$, and this light clock, being a so-called “harmonical oscillator”, can in a completely equivalent manner be represented by a fiber-optic light-guide in the form of a ring with radius r . The angular frequency is then given by $\Omega = c/r$, where c is the velocity of light in the light clock. (In other words: Although one may consider a hypothetical, continuous process relating to the propagation of the photon, the operationally relevant quantity corresponds to a discretization of time into minimal time steps Δt .)

Now we remember Einstein’s other work from 1905, i.e., on the “light-electrical effect”, where for the first time the energy E of a particle is given in its „quantized“ form [Einstein 1905b],

$$E = \hbar \omega, \quad (0.1)$$

where $\hbar = h/2\pi$, with h being Planck’s quantum of action and ω the characteristic angular frequency of the photon. However, since the oscillating photon can be

described as a „harmonical oscillator“, we can now describe the single photon itself as a “miniaturized light clock”. Also in this case are we dealing with an insurmountable limitation of temporal resolution, now given by the angular velocity of the photon itself. In other words, the idealized “continuous” time axis must in an operational sense be discretized, so that one has intervals of minimal temporal resolution δt , with their inverse given by a fixed quantity, i.e., the angular frequency: $\frac{1}{\delta t} \rightarrow \omega$. This will be

of great use in the following. Next to equation (0.1) defining the energy we shall have to consider another empirical finding, i.e., that per degree of freedom one has to add an additional amount of energy, the so-called “zero-point energy”

$$\delta E = E_0 = \frac{\hbar \omega}{2}. \quad (0.2)$$

It represents fluctuations of particle energy based on the “restless” environment of the so-called “vacuum”, which is why one also speaks of “vacuum fluctuations”. They were first measured in [Mulliken 1924], i.e., before today’s quantum theory, or the Schrödinger equation, were formalized.

In other words, as our “miniaturized clocks”, with their typical angular frequencies, are embedded in a medium characterized by “vacuum fluctuations”, one may consider them as “fluid clocks”: periodic oscillations in an environment that is ultimately described by the laws of hydrodynamics.

2. Emergence of Quantum Theory from Sub-quantum Dynamics

Equations (0.1) and (0.2) are, together with de Broglie’s equation, in complete analogy to (0.1), for the momentum, $\mathbf{p} = \hbar \mathbf{k}$ (with wave number $\mathbf{k}$), the only empirical, or „fundamental“, equations necessary for the derivation of the Schrödinger equation, as shall be shown now. In a next step, we shall derive a useful relation from classical statistical mechanics. Assuming that the “particle” (our “fluid clock”), being embedded by the zero-point fluctuations of the surrounding vacuum, is generally in a thermo-dynamical state off equilibrium, one can nevertheless assume the limiting case of thermodynamic equilibrium exactly for the states fulfilling some extremal condition. This would then be in accordance with our assumption that the “pure” states of quantum theory correspond to emergent eigenstates of an underlying dynamics which more generally would have to be described by non-equilibrium thermodynamics. Still, for the equilibrium scenario between a “particle” and the surrounding vacuum, one can use the familiar expression for entropy, $S_e = k \ln P$ (where k is Boltzmann’s constant and P denotes the “probability density”), thus providing in differential notation:

$$d \ln P = \frac{dQ}{kT} = - \frac{d(\delta E)}{\delta E}, \quad (1.1)$$

where Q and T describe heat exchange and surrounding temperature, respectively, and δE describes an “energy bath”, which we can now identify with the thermal bath of the zero-point energy. With the limited temporal resolution discussed above, i.e., as given by the inverse angular frequency, one obtains with equations (0.2) and (1.1):

$$P = P_0 e^{-\frac{d(\delta E)}{\delta E}} = P_0 e^{-\frac{2d(\delta E)}{\hbar \omega}} = P_0 e^{-\frac{2}{\hbar} d(\delta E) \delta t}. \quad (1.2)$$

Choosing without loss of generality that $P_0 = 1$, we get from (1.2):

$$\frac{\partial}{\partial t} \ln P dt = -\frac{2}{\hbar} d(\delta E) dt. \quad (1.3)$$

Now one can introduce the action function S from classical physics, which provides for the energy that $E = -\frac{\partial}{\partial t} S$.

Then, of course, for energy fluctuations one has $\delta E = -\frac{\partial}{\partial t} \delta S$, which are conserved for short periods of time so that one can then assume $\delta S = \text{constant}$ (which trivially also means that $\frac{\partial}{\partial t} d(\delta S) = 0$). Thus we can

rewrite equation (1.3):

$$\frac{\partial}{\partial t} \ln P dt = \frac{2}{\hbar} d(\delta S). \quad (1.4)$$

This equation will be very useful, as will be seen shortly. When identical to zero, it tells us that the relative temporal variation of the probability density P is extremal and thus in accordance with a minimal action principle for the fluctuation δS .

Now we turn our attention to the “fluid” part of the model. One usually starts off with the so-called “continuity equation”, which describes the classical law of the conservation of a “probability current” (i.e., due to the stochastic nature of the participating fluid elements) in so-called “configuration space”. With (normalized) probability density P , the continuity equation describes the temporal change of said density in a given spatial volume as determined by the flow of the particle current (described by the gradient, i.e., the Nabla operator, ∇) with velocity $\mathbf{v}$:

$$\frac{\partial P}{\partial t} = -\nabla \cdot (\mathbf{v} P). \quad (1.5)$$

Multiplication by dt and division by P then gives

$$\frac{\partial}{\partial t} \ln P dt = - \left(\frac{\nabla P}{P} \cdot \mathbf{v} + \nabla \cdot \mathbf{v} \right) dt. \quad (1.6)$$

Comparison of equations (1.4) and (1.6) thus finally provides

$$\frac{\partial}{\partial t} \ln P dt = \frac{2}{\hbar} d(\delta S) = \frac{2}{\hbar} (\delta \mathbf{p} d\mathbf{x} - \delta E dt). \quad (1.7)$$

On the r.h.s. of (1.7), we have introduced two quantities representing the fluctuating contributions of the vacuum to momentum and energy of the particle, respectively. Comparing with equation (1.6), they are explicitly given by

$$\delta \mathbf{p} = \hbar \mathbf{k}_u = \nabla(\delta S) = -\frac{\hbar}{2} \frac{\nabla P}{P}, \quad \delta E = \frac{\hbar}{2} (\nabla \cdot \mathbf{v}). \quad (1.8)$$

Equation (1.8) thus introduces a new momentum component according to the assumed additional fluctuations, which can be understood partly as due to the influence of Huygens wave fronts (Fig.1, and [Grössing 2004]) such that for the total momentum one now has

$$\begin{aligned} \mathbf{p}_{\text{tot}} &= \hbar \mathbf{k}_{\text{tot}} = \mathbf{p} + \mathbf{p}_u, \\ \text{where } \mathbf{p} &= \hbar \mathbf{k} = \nabla S, \\ \text{and } \mathbf{p}_u &= \hbar \mathbf{k}_u = -\hbar \nabla P / 2P = -\hbar \nabla R / R. \end{aligned} \quad (1.9)$$

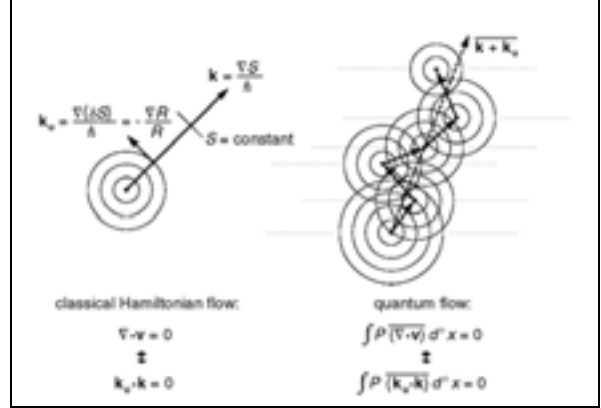


Fig. 1:

Schematic distinction of classical (“Hamiltonian”) flow (left) and quantum flow (right), with the circles indicating the propagation of spherical Huygens wave surfaces at arbitrary distances (from [Grössing 2004]). The dotted lines in the figure on the right indicate symbolically that the waves pictured represent only the local surroundings of a generally extending probability field, thus illustrating that the fluctuations shown are to be seen in the context of the whole (and possibly nonlocal) embedding environment.

In equation (1.9) we have also made use of the fact that for the intensity of classical waves with amplitude R it holds that $P = R^2$. When taking the averages (denoted by bars) and integrating over positions and fluctuations, one can show that both the average energy fluctuation and the expression $\overline{\mathbf{k} \cdot \mathbf{k}_u}$ vanishes (see Fig. 1 for illustration, and [Grössing 2004] for details). One can thus write down the classical action integral with the new momentum expression and with some external potential V ,

$$A = \int P \left\{ \frac{\partial S}{\partial t} + \frac{\hbar^2 \overline{k_{\text{tot}}^2}}{2m} + V \right\} d^n x dt, \quad (1.10)$$

where

$$\overline{\hbar \mathbf{k}_{\text{tot}}} = \overline{\nabla(S + \delta S)} = \nabla S - \hbar \frac{\nabla R}{R} = \hbar \mathbf{k} + \hbar \mathbf{k}_u. \quad (1.11)$$

Now we introduce the so-called “Madelung transformation” (with the star denoting complex conjugation),

$$\psi^{(*)} = \text{Re} e^{-\frac{i}{\hbar} S}. \quad (1.12)$$

Thus one has

$$\frac{\nabla \psi}{\psi} = \frac{\nabla R}{R} + \frac{i}{\hbar} \nabla S, \text{ and } \left| \frac{\nabla \psi}{\psi} \right|^2 = \left(\frac{\nabla R}{R} \right)^2 + \left(\frac{\nabla S}{\hbar} \right)^2, \quad (1.13)$$

and one obtains a new transformation between the formulations of classical physics and orthodox quantum theory: the square of the average total momentum is given by

$$\overline{p_{\text{tot}}}^2 = \hbar^2 \left[\left(\frac{\nabla R}{R} \right)^2 + \left(\frac{\nabla S}{\hbar} \right)^2 \right] = \hbar^2 \left| \frac{\nabla \psi}{\psi} \right|^2. \quad (1.14)$$

With $P = R^2 = |\psi|^2$ from equation (1.12) one can rewrite (1.10) as

$$A = \int L dt = \int d^n x dt \left[|\psi|^2 \left(\frac{\partial S}{\partial t} + V \right) + \frac{\hbar^2}{2m} |\nabla \psi|^2 \right]. \quad (1.15)$$

Further, with the identity

$$|\psi|^2 \frac{\partial S}{\partial t} = -\frac{i\hbar}{2} (\psi^* \dot{\psi} - \dot{\psi}^* \psi)$$

one finally obtains the well-known “Lagrange density”

$$L = -\frac{i\hbar}{2} (\psi^* \dot{\psi} - \dot{\psi}^* \psi) + \frac{\hbar^2}{2m} \nabla \psi \cdot \nabla \psi^* + V \psi^* \psi. \quad (1.16)$$

As given by the standard procedures of classical physics, this Lagrangian density provides (via the so-called Euler-Lagrange equations) the Schrödinger equation

$$i\hbar \frac{\partial \psi}{\partial t} = \left(-\frac{\hbar^2}{2m} \nabla^2 + V \right) \psi. \quad (1.17)$$

Here, the function ψ does not appear as an operational physical quantity, but only as a *compact notation* which, according to equation (1.14), puts together in one complex-valued quantity the momentum components of waves (fluctuations) and particles. The Schrödinger equation then provides the temporal evolution of a mathematically compact „wave-particle system“. It describes properties of quantum systems (thereby using time t as a parameter only) as emergent from a sub-quantum dynamics which is characterized by the discretization of the time axis, or, respectively, by the presence of “fluid clocks” in the vacuum-aether.

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Wittgenstein, Spengler and Time

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I

This paper is about, on the one hand, the years between 1929 (Wittgenstein's return to Cambridge) and 1935 (the dictation of the *Brown Book*), and, on the other hand, the first volume of Spengler's *Decline of the West* (*Form and Actuality*). It is about two premises. The first I leave unargued: one especially informative way of characterizing the evolution in Wittgenstein's thinking from early to middle to late is in terms of a transformed sensitivity to time. The second premise forms the real substance of what follows: Wittgenstein's emerging attention to the temporality of language and of language users, to macro-histories and to micro-histories, owes a considerable debt to the principal work of Oswald Spengler.

In tracing Spengler's influence, I have something specific in mind. Though there is some direct evidence of Spengler's significance (e.g., Wittgenstein puts Spengler on the list of ten thinkers who 'have influenced me' (CV: 16/16e)), it is indirect evidence that will form the basis of my remarks. A pattern of allusion to, and appropriation of, Spengler's thought and categories combines with other influences to set the terms of Wittgenstein's newly temporalized understanding of language and human practice. Those other lines of influence have been well-documented. (Bouveresse 1995; Hacker 1986; Janik 2001; Janik and Toulmin 1973; Pitcher 1964; Schorske 1980; Stern and Szabados 2004; von Wright 1982). Much of that literature, like much of that influence, is relevant to Wittgenstein's early writings. Whom Wittgenstein was reading, listening to, thinking about, *after* 1929 is a comparative blind-spot. (Exceptions are Cavell 1988; DeAngelis 1994; Haller 1988; Monk 1990; von Wright 1982) Here, I focus exclusively on Spengler.

In the *Tractatus Logico-Philosophicus*, language is non-temporal. We struggle to find time in the experience of a subject who 'makes pictures to himself.' ('Wir machen uns Bilder der Tatsachen' (TLP 2.1)) What are we to understand by a subject who *makes*, in the absence of a time for the making? The early Wittgenstein separates the principles of semantics and representation from the principles of temporal change and human history. He denies the 'passage of time' (TLP 6.3611), the 'causal nexus' (TLP 5.136; see also 5.135, 5.1361), and the dependence of one fact upon another (TLP 2.061, 2.062). 'What is history to me?' he asks in 1916. 'Mine is the first and only world.' (NB: 82) Both to language and to the world, he refuses the ligaments of time.

In 1930, an incipient interest in time is evident in Wittgenstein's remarks: 'Our civilization is characterized by the word progress. Progress is its form, it is not one of its properties that it makes progress' (CV: 9/9e). The language of progressive time as the Western 'form' of culture is Spenglerian:

World-history is our world picture and not all mankind's. Indian and Classical man formed no image of a world in progress, and perhaps....there will never again be a Culture and a human type in which "world-history" is so potent a *form* of the waking consciousness. [emphasis added] (Spengler 1926: 15)

In 1930 and after, Wittgenstein draws out the pathologies in our experience of temporality. We suffer as a culture because we are not at home in time, striving always to construct 'a more and more complicated structure'. To this progressivist spirit of science and the Atlantic tradition he contrasts his own approach:

One movement orders one thought to the others in a series, the other keeps aiming at the same place.

One movement constructs & takes (in hand) one stone after another, the other keeps reaching for the same one. (CV: 10/10e)

Wittgenstein expresses his preference for the latter kind of temporality over the former. 'Each sentence that I write is trying to say the whole thing, that is, the same thing over and over again & it is as though they were views of one object seen from different angles' (CV: 9/9e). He seeks to replace serial, progressive time with a kind of angular, or perspectival, time, the time of the *Übersicht*, drawing attention to the actuality and familiarity of what we do, rather than to an imagined future. There is also a clear temporalization of the vocabulary in which Wittgenstein shapes his new ideas—'life', 'history', 'natural history', 'use', 'rule', 'activity', 'learning', 'teaching', 'training', 'memory'. What are the likely origins of this new interest in time? And what are its implications for the development of Wittgenstein's philosophy?

II

The particular effect of Spengler's work on Wittgenstein is difficult to discern. In the seven places in *Culture and Value* in which Spengler is mentioned, one remark cites Spengler, *en passant*, as an influence (CV: 16/16e), two are passing adjectival references (CV: 12/12e; 17/17e), three are mildly elucidatory/critical (CV: 21/21e; 23/23e; 31/31e), and one, from 1946, calls Spengler 'not great' (CV: 53/53e). Wittgenstein's own caution creates the problem of deciding how best to trace the dimensions of Spengler's influence. Wittgenstein himself suggests a way out, the inherent virtue in finding a 'new way of looking at things', of forming a 'new comparison'. The connections I see fall into three categories: similarities of method, similarities of temporalized terminology, and, at a still more speculative level, similarities of bearing to the time-bound Western 'soul'.

Rudolf Haller, in his remarks on Spengler's influence, emphasizes a specific continuity of method (Haller 1988; see also von Wright 1982: 212-214). The method that Wittgenstein inherits, according to Haller, is Spengler's 'descriptive morphology'. Central to that method is the production of instructive, provocative, sometimes reckless, comparisons:

In the ethics of the West everything is direction, claim to power, will to affect the distant. Here Luther is completely at one with Nietzsche, Popes with Darwinians, Socialists with Jesuits....' (Spengler 1926: 341)

Wittgenstein's own practice of comparison in the middle texts is widespread. ('Let us compare grammar with a system of buttons....' (PG §136); 'Words can in many ways

be compared to chess men.' (BrB: 84)) 'What I invent are new *comparisons*,' he writes in 1931 (CV: 16/16e).

There is another methodological sympathy between Spengler and Wittgenstein that (to my knowledge) has not been noted, namely a shared appreciation of discursive analysis. Spengler is alive to the different ways that we talk, and specifically to the different ways that we talk about time. Anticipating Wittgenstein, Spengler links the ways in which we talk about time to the ways in which we experience and investigate temporal change (Spengler 1926: 122). Time-discourse is situated, multiple, and at times irreconcilable. For example, there is Shakespeare's and Goethe's vocabulary of the dynamic time of 'destiny', which can be contrasted with the modes of discourse practiced by the scientist: 'Not Time and Destiny are reversible, but only that which the physicist calls "time" and admits into his formulae as divisible....' (Spengler 1926: 390). The contest between different discourses and practices of time is a large part of the story of degeneration told in *Decline of the West*.

Wittgenstein clearly found the idea of multiple discourses, and particularly of multiple discourses of time, congenial. He famously identified with Kent's remark in *King Lear*: 'I will teach you differences' (Altieri 1976). Faced with an apparent philosophical problem about time in the *Brown Book*, he recommends the following: 'Let us now consider further language games into which temporal expressions enter....' (BrB: 106). Wittgenstein finds therapy in the interrogation of our forms of discourse (see PI §116). In the middle writings, he surveys forms of temporal discourse that are physical and scientific (PR §50/51), everyday and social (PR §75), mnemonic (PR §49/§75), phenomenological (PR §75) and mental (PR §49). And he warns us against misapplications and mis-crossings (PR §52; BIB: 6).

III

Methodology is one form of inheritance. Vocabulary is another. Both have the effect of temporalizing Wittgenstein's attitude to language. When Wittgenstein begins again to write philosophically, the language in which he writes, the vocabulary in which his transformed attitude to language is forged, is brimming in Spenglerian metaphor. It is true, of course, that much of Spengler's conceptual vocabulary is itself derivative. (Cooper 1999; Goethe 1981; Herf 1987; Kusch 1995; Nietzsche 1967; Ringer 1969; Schnädelbach 1984; Schoepnhauer 1966) But despite Spengler's own dependence on a long history of artists, musicians and philosophers, it is the particular synthesis of those traditions in *Decline of the West* that would have been especially proximate for Wittgenstein between 1929 and 1935.

We see the influence of Spengler's vocabulary in many places. For example, the word 'physiognomy', Spengler's term for the character of a culture and its uncovering, has a notable place in Wittgenstein's middle and later texts. (BrB: 170; BrB: 174; PI §568) More profound to the temporalization of Wittgenstein's thought, however, is his appropriation of a new vocabulary of life and organism. Organicist language signals not only a terminological continuity with Spengler, but a much deeper effort to vitalize and humanize language. Wittgenstein now describes language in the vocabulary of life and death, of the organic and the inorganic. ('....Without a sense, or without a thought, a proposition would be an utterly dead and trivial thing. And further it seems clear that no adding of inorganic signs can make a proposition live' (BIB: 4; see

also BIB: 5; PG §104).) Wittgenstein ties this new sense of the life of language and language users to a parallel dichotomy, very prominent in Spengler, between dynamics and statics. 'What I want to say,' Wittgenstein writes in *Philosophical Grammar*, 'is that to be a sign a thing must be dynamic, not static' (PG §17).

IV

There is another form of influence that is less visible than shared methods and vocabulary, but I believe equally profound. Spengler builds his theory of Western growth and decay around a set of foundational figures, institutions and practices—Gothic architecture, Hamlet and Lear, Bach, Goethe, Beethoven, Nietzsche, among others. All appear in one way or another in Wittgenstein's remarks from the 1930s. For Spengler, what unites them is a shared relation to time. When he writes, for example, that 'the Gothic style *soars*, the Ionic *hovers*' (Spengler 1926: 177), that 'Lear is at the last a mere name, the axis of something unbounded' (Spengler 1926: 129), or of an orchestra that 'swells, breaks, and ebbs, [and that] depicts distances, lights, shadows, storms, driving clouds, lightning flashes, colours etherealized and transcendent' (Spengler 1926: 177), he is talking about manifestations of a specific time-sense, a sense of the 'directed' and 'infinite'. These people, practices and institutions do not coalesce as neatly in Wittgenstein's remarks. But, by the later 1930s, Wittgenstein no longer uses the de-temporalized image of the picture (the word 'picture' does, of course, continue to appear) as his preferred form of comparison. He turns now to those very same examples that Spengler had recognized as the great *temporal* achievements of the West. Wittgenstein: 'Phenomena akin to language in music or architecture. Significant irregularity—in Gothic e.g....Bach's music is more like language than Mozart's & Haydn's.' (CV: 40/40e)

There is one biographical remark to add. According to von Wright, Wittgenstein's main connection to Spengler's text is that 'he lived it' (von Wright 1982: 212). We see the truth of that idea in several places. It is apt, for example, that Wittgenstein writes in 1931: "A confession has to be part of one's new life" (CV: 16/16e; Monk 1990). For Spengler, acts of confession, like acts of 'justification before God', are exemplars of the Western, or Faustian, time-sense. (Spengler 1926: 131, 261, 264, 273, 350) What is exemplary in the Faustian soul is its projection forward, its projection into infinite time. Projected thus, the Western soul, standing against time, is a soul alone, and Wittgenstein certainly knew the truth of that. Struggle as he might against the afflictions of Western time, we yet recognize him in the iconic figures of *Decline of the West*. 'Siegfried, Parzeval, Tristan, Hamlet, Faust are the loneliest heroes in all the Cultures', a list that would perhaps one day grow to include Wittgenstein as well (Spengler 1926: 186).

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Perdurantism, Change, and Special Relativity

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Things change, and an adequate metaphysics of objects needs to explain this fact. There is a widespread suspicion that perdurantists, who think that objects are temporally extended and their persistence through time is to be explained in terms of temporal parts, are committed to an unchanging universe. Slightly more charitably, many think the way in which perdurantists explain the phenomenon of change is by supplanting our intuitive notions of real change with an ersatz version. Authentic change, critics maintain, is when an object has a property at one time and loses it at a later time; the object itself is wholly present at both times, it is three-dimensional, it endures. The motivation for the endurantist picture of change is straightforwardly rationalist: endurantist change is more intuitively plausible. We believe that this intuition-driven approach is fundamentally misguided. Our intuitions are shaped by our experiences of the world, and these experiences are overwhelmingly three-dimensional; however, there are powerful empirical reasons, based in Special Relativity, for believing that the world is actually four-dimensional. We argue that scientific findings are relevant for understanding persistence and change, and that our metaphysics ought to be based upon our full experiences of the world, not upon intuitions that arise from incomplete and limited perceptions. Once we do so, it becomes clear that there are excellent reasons to accept a perdurantist explanation of change.

A popular approach in metaphysics is to develop theories on the basis of intuitions about the physical world — intuitions that are grounded in empirical experience — instead of directly on the experiences themselves. Mark Hinchliff, for example, rejects perdurantism because according to perdurantists, whole objects do not undergo change of intrinsic properties. Hinchliff argues that if one bends a candle, the candle undergoes a change in its intrinsic properties: the candle is straight and then bent. Perdurantists are unable to accommodate this fact, he claims; under perdurantism, a temporal part of the candle is straight and a separate temporal part is bent, but not the whole candle itself. Hinchliff finds this approach to be unsatisfactory, since true change requires one and the same changing thing to have both of the incompatible properties. The problem is that perdurantism denies “one of our intuitions about change” ((Hinchliff 1996) p. 120). The perdurantist account of change is therefore rejected because it is unintuitive. Hinchliff’s own explanation of change involves a defense of presentism. Again he is admirably clear about his motives: “presentism seems to be our intuitive or commonsense conception of the nature of time” ((Hinchliff 1996) p. 131).

Empirical folk intuitions arise out of everyday experience. The problem is that our everyday experiences are limited by our speed and size relative to other objects, the resolution limits of our native perceptual equipment, and our innate heuristic biases such as pareidolia, confirmation bias, subjective validation, and so on. Privileging our intuitions in developing a metaphysics is therefore a chancy business. The history of science is the history of humanity overcoming its intuitions in favor of superior explanations of physical phenomena, and the struggle to teach physics to the uninitiated is to a large extent the struggle to replace pre-scientific intuitions about the world.

Hinchliff’s theory of change is crippled by his failure to overcome his pre-relativistic intuitions of change. Hinchliff is not alone though—there are other philosophers trying to develop metaphysical understandings of change in the face of modern physics, who mistakenly privilege our intuitions rather than our experiences. Charles J. Klein and David S. Oderberg give arguments very similar to Hinchliff’s, rejecting a temporal parts explanation of change as unintuitive. (See (Klein 1999), (Oderberg 2004))

The problem with the approach of Oderberg, Klein, and Hinchliff, is their strategy. In deciding issues about change, what are the data that must be accommodated? What are the desiderata? Hinchliff, et al. argue that the chief desideratum is the accommodation of our intuitive understanding of change. They (1) give an *a priori* definition of change, (2) claim that the fact of change is an undisputable metaphysical datum, (3) claim that defenders of perdurantism cannot allow change, and conclude that (4) so much the worse for perdurantism. In our view, their error is in assuming that it is primarily our *a priori* intuitions that must be preserved.

What we need is a diagnosis and a reconsideration of the data that need to be saved in developing a metaphysical picture of the world. Here is the diagnosis: we believe in change because of certain kinds of experiences. For instance, we experience the presence of some properties at one time and the lack of those properties at another time. We experience a Toyota Corolla free of rust in 1985 and rusty in 2005; we experience ourselves hirsute in our youth and balding in middle age. Our empirical intuitions are a reaction to, a way to make sense of, these experiences. To be sure, our empirical intuitions—our naive pretheoretical beliefs about the physical world—are endurantist, Newtonian, 3D. According to these intuitions there are objects which wholly exist at each moment and, as they move from now to now, gain and lose properties. So we explain change in terms of this gain and loss.

Yet the real data to be saved are *not* these empirical intuitions. We need to save the appearances, the experiences. The intuitions are a *reaction* to what really matters. The test of an adequate theory is not whether it can preserve the pretheoretic empirical intuitions, but whether it can accommodate the experiential data upon which those pretheoretical intuitions are grounded. Our intuitions about change are inconsistent, which means four-dimensionalism can’t save all of our naive intuitions about change. Hinchliff et al. are right about that. But it can preserve our experiences of the world, and at the same time, accommodate our best understanding of how the world operates.

“Change” in ordinary parlance is ambiguous. One sense of change is like the road changing from gravel to asphalt, or the landscape changing from a savanna to a rain forest, or the climate changing as one crosses a mountain ridge. Endurantists consider this sense of change a mere *façon de parler*, not authentic change. For them, true change is the gain and loss of intrinsic properties. Roads can’t change from gravel to asphalt merely by traveling along them; they change to asphalt only as the result of paving. Four-dimensionalists, on the other hand, think that the landscape changing from a savanna to a rain forest is much more like what change is

all about: one part of a thing giving way to another part. It is talk of objects gaining and losing intrinsic properties that is the *façon de parler*, to be explained away in terms of different parts of an object possessing different qualities.

As a rationalist battle of *a priori* reasoning, the debate over which is the correct conception of change is more or less a standoff. We have already conceded that the three-dimensionalists have powerful intuitions, grounded in ordinary experience, supporting their view of change. However, to the extent that there is competition between 3-d and 4-d world views, it is not in the ability to explain ordinary phenomena. It is the ability to account for the full range of phenomena conceivable in our physics.

Imagine Lance, a cyclist, streaking down Mont Vendoux on his bike at relativistic speeds. He passes his trainer, who is sitting by a barn on the side of the road, and as he does, Lance notes the length of the barn is about two bike lengths. Having reached the bottom, he turns and cycles back up at impressive, but plainly not relativistic speeds, and stops to chat with his trainer. Lance says, in conversation, "you know, when I was cycling down, the barn was only two bike lengths long. Now it is much longer. The barn has changed." His trainer looks at him quizzically, and says "what do you mean? I was sitting in front of the barn then, and it was exactly the same length when you passed going downhill as it is now. Although, come to think of it, your bike seems to be a lot longer." Lance is taken aback. "Don't you think I would be the first to know if the bike I was riding changed length?"

Either the barn changed size, or it did not change size. Either the bike changed its length, or it did not change. The law of non-contradiction says that both cannot be true. Yet both Lance and his trainer are absolutely certain about the qualities of the barn and bike at the moment Lance shot by. (It is worth remembering that nothing about relativistic effects depends upon observers, measurement, or epistemic concepts. We use Lance, what he sees, and what he is certain of purely as heuristic devices.) Moreover, a thing's length is surely an intrinsic property. For endurantists, the bike and barn are wholly present at each moment of their existence, and so at the moment when the bike passes the barn, the (entire) barn has a length of two bike lengths as measured in Lance's inertial frame, and several bike lengths as measured in the trainer's frame, but when Lance and his trainer are talking they both agree that the barn is several bike lengths long. This yields a contradiction in the endurantist's metaphysics of change: it can't be true that the (enduring) barn has changed length and at the same time has not changed length.

All the successful explanations of non-relativistic effects are not enough to give an enduring metaphysics of change any traction over these relativistic problems. The test of the three dimensional metaphysics won't be found in ordinary, non-relativistic experiences. The test of a four-dimensional or a three-dimensional metaphysics will be in those phenomena in which we experience relativistic effects.

We experience an object in our rest frame undergoing change in the sense of Hinchliff, Klein, and Oderberg, when the subset of spatiotemporal parts of the perduring object in our frame "now" have different properties than that subset of spatiotemporal parts of the perduring object "then." This description of change is completely consistent with the experiences described by the various 3-d expressions of change: there is no *experience* by which the endurantist can distinguish this change from their own, erroneous but intuition preserving, 3-d description of change. From the point of view of the trainer, the spatiotemporal parts which

comprised the barn just as Lance approached were several bike lengths long. The spatiotemporal parts which comprised the barn after Lance passed were the same several bike lengths long. The barn has not changed length.

If we generalize this a little further, we can accommodate the experiences of both the trainer and Lance. Instead of restricting change to the properties of an object in its rest frame, we can consider the differences in the properties of those spatiotemporal parts which comprise the object in *any* rest frame. Thus, when Lance is screaming downhill, the spatiotemporal barn parts that are simultaneous with him are not the same spatiotemporal barn parts that are simultaneous with his trainer when he draws even with the trainer. The spatiotemporal slices that Lance observes as the barn have a different spatial extent than those perceived by the trainer (or Lance at rest with respect to the barn). While this is a deep and abiding mystery for an endurantist—how can an enduring object, wholly present at each moment, be both changed and unchanged at the same time?—a near-light-speed Lance poses no problem for the perdurantist's understanding of change. Lance sees one mereological sum of spatiotemporal barn parts (length contracted) when he rides by, and a different sum (no longer length contracted) when he stops to talk. Lance has experienced a change in the barn, the trainer has not. The resulting contradiction stumps endurantists, but perdurantists have an elegant and natural resolution: the sum of parts Lance saw going down is different than the sum of parts on the way up, and each collection of parts has different (length) properties. Precisely which spatiotemporal parts Lance perceives is specified by the speed of Lance's inertial reference frame relative to the trainer/barn's reference frame through the Lorentz Transformation.

In addition, this SR-informed understanding of change allows us to integrate the sense of change that Oderberg and fellow travelers would explain away as a mere figure of speech: changes in terrain, pavement, climate, etc. The general perdurantist definition of change can be generalized further as the change in some property between those parts of the object we experience at one place in space and time and those parts we experience at some other place. The sidewalk, as we can see it from here, is cobblestone, but as we perceive it from another location is concrete (where location might mean temporal location as well as spatial). Oderberg claims that perdurantists offer a replacement theory of change, and ought to own up to it. We deny that this is so. As an ordinary word, "change" is ambiguous, as we noted earlier, with one sense of change more amenable to endurantists and the other more amenable to perdurantists. Our contention is that there are good empirical reasons, grounded in SR, to prefer the perdurantist sense of change as one part giving way to another part.

Rationalist metaphysicians tend to be skeptical about the use of science and empirical examples to overturn a pet theory that they have defended *a priori*. We have argued that this is a great mistake because the intuitions that drive endurantism are grounded in our ordinary experiences which seem overpoweringly 3-d. Instead we have argued that there are relativistic phenomena upon which endurantist accounts of change founder, but that perdurantists navigate with ease. Four-dimensional change may seem strange and unintuitive, but it is the best way to understand change in a relativistic universe.

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The Historical Wittgenstein: Biography and the Philosophy of Russell's German Engineer

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"As I conceive it, biography is a peculiarly Wittgensteinian genre in that the kind of understanding to which it aspires is precisely the kind of understanding upon which Wittgenstein lays great emphasis in *Philosophical Investigations*, the understanding that consists in seeing connections (Monk 2001)."

Ludwig Wittgenstein was one of the most influential and controversial philosophers of the twentieth century, and the connections between his life and philosophical work continue to engage scholars searching for deeper understanding of his philosophical ideas. In *Wittgenstein: Biography and Philosophy*, the possibilities and problems involved in making those connections were investigated in a variety of contexts. Discussing "the very idea" of philosophical biography, both Raymond Monk and James Conant argue that Wittgenstein's life and work seem eminently suitable for this genre. Wittgenstein himself believed that the character of a man would be reflected in his philosophical work. That poses the question, in what ways are his philosophical problems connected to his personal history?

This line of philosophical inquiry has a venerable history. Wittgenstein scholarship is full of personal anecdotes, carefully preserved bits of personal history, that are widely considered important background for understanding his philosophy. Conant reflects on the "possibility of a certain genre of biography...which I will call philosophical biography ---a mode of representation of the life of an individual philosopher that aspires to facilitate the understanding of that individual *qua* philosopher (Conant 2001). There was an earlier important and ambitious biographical account that deepened our understanding of the *Tractatus*. In *Wittgenstein's Vienna*, Janik and Toulmin argued that understanding Wittgenstein in the Viennese context of his youth, we could see the *Tractatus* "aright." Their work affected my own researches profoundly. In "Wittgenstein and the Mind's Eye," I wrote

Professor G. H. von Wright... told Allan Janik that it was important to remember "firstly, that he was a Viennese and, secondly, that he was an engineer with a thorough knowledge of physics." This insight was at the heart of *Wittgenstein's Vienna*. In this paper, I have explored one important aspect of the manner in which Wittgenstein came to his logical work under Bertrand Russell with a world view and a set of problems embedded in his background as a "Viennese engineer" (Hamilton 2001).

My research concerning Wittgenstein's engineering background led me from the mathematical models and Helmholtzian metaphysics of Hertz's *Principles of Mechanics* to an investigation of Wittgenstein's engineering education and aeronautical research. These investigations illuminated a new aspect of the *Bild* theory, connecting Wittgenstein's investigation into the basic principles of all our languages as modes of representation and communication to important work on technology as knowledge as understood by technologists and engineers. Thus, my research is part of a growing body of work developing a new direction for Wittgenstein scholarship.

1. Another New Wittgenstein

In "Another New Wittgenstein: The Scientific and Engineering Background of the *Tractatus*," Alfred Nordmann considers the work of a new group of scholars concerned with the scientific and engineering training and interests informing Wittgenstein's *Tractatus*: Hamilton, Wilson, Sterrett, Lampert, Graßhoff and Hyder (his order). Although it will not be possible to give his arguments the careful consideration they deserve in a brief paper, I would like to clarify my own work in the context of his comments.

Nordmann argues that this work helps solve the puzzle of "how Wittgenstein became a philosopher rather than an engineer." After all, how did Wittgenstein come to philosophy from his researches in aeronautical engineering? He points to Wittgenstein's ongoing engagement with engineering and scientific problems.

While growing up to become an engineer in Vienna, Berlin and Manchester, he developed powerful philosophical intuitions and when he finally encountered Russell and Frege, he brought these intuitions along with his engineering approach to their philosophical problems.

He suggests "the puzzling lack of fit does not even arise if one inverts the perspective. Perhaps, Wittgenstein never became a philosopher but was always a scientist or engineer."

I would argue that formulating the issues this way frames the question too starkly and suggest a different but complementary perspective that retains the original insight. Wittgenstein remained an engineer, presuming the philosophical intuitions of his engineering and scientific backgrounds, as he also became one of the most important philosophers of the twentieth century. His engineering mindset was not only compatible with his philosophical brilliance, but also contributed to it significantly.

Nordmann argues this inversion has consequences for Wittgenstein scholarship.

This inversion of the problem has considerable implications for our understanding of the *Tractatus*. Rather than an enterprise internal to questions of language, logic and mathematics, it now appears driven by epistemological, metaphysical and ontological intuitions that had been cultivated throughout the nineteenth century by philosophically minded scientists and engineers. Gerd Graßhoff refers to this as a replacement of a "logician" by a "metaphysical" interpretation of the *Tractatus*.

I would argue for coexistence of these themes in Wittgenstein's work. They are not mutually exclusive. Questions as to who or what was the most important influence, or earlier influence, may simply narrow our field of vision and limit our ability to benefit from important ongoing philosophical investigations. To me it seems clear that it was important to Wittgenstein to solve all of these problems, to satisfy all of his intuitions, and those are not even limited to the obvious influences from Frege, Russell,

Hertz, or his engineering training. The convergence of all these sources of philosophical inspiration is what is important.¹

Another point concerns seeing connections between Wittgenstein's method of projection and laws of similitude in engineering models and experiments. Nordmann concludes his consideration by noting

How much there is to learn from this other new Wittgenstein....the science and engineering context has provided Wittgenstein with skills and paradigms, with problems and resources...and representational devices. But as one ventures beyond that and claims the implicit reliance of the *Tractatus* on particular scientific theories, experimental practices...the problems of interpretation really begin (Nordmann 2002).

Thus, I want to continue discussion of the issues raised in Nordmann's paper.

Considering my "third line of argument" connecting Wittgenstein's projective method and laws of similitude involved in experimentation with scale models, Nordmann argues that Wittgenstein's use of "the term projective does not in any way go beyond coordinated," and that "the notion of coordination is perfectly sufficient." An important distinction for Nordmann concerns "articulable rules." He cites TLP 3.11 "We use the perceptible sign of a proposition (spoken or written, etc.) as a projection of a possible situation. The method of projection is thinking the sense of the proposition." He argues:

Thinking the method of projection is not, of course a method of projection at all, if by that is meant a methodical derivation of or the establishment of a possible situation by drawing it out of the sense of the proposition through the application of articulable rules...this method of projection issues immediately in a possible situation which can be then compared to reality...This immediacy results not from rule-governed projection but from mere coordination (Nordmann 2002).

But Wittgenstein himself clearly refers to rules at the heart of the law of projection that makes possible all our modes of representation.

4.014 A gramophone record, the musical idea, the written notes, and the sound waves, all stand to one another in the same internal relation of depicting that holds between language and the world.

They are all constructed according to a common logical pattern. . .

4.0141 There is a *general rule* by means of which the musician can obtain the symphony from the score, and which makes it possible to derive the symphony from the groove on the gramophone record, and, using the first rule, to derive the score again. That is what constitutes the inner similarity between these things which seem to be constructed in such entirely different ways. And that *rule* is the *law of projection* which projects the symphony into the language of musical

notation. It is the *rule for translating* this language into the language of gramophone records.

4.015 The possibility of all imagery, of all our pictorial modes of projection, is contained in the logic of depiction.

How should we understand this notion of rule following? I would like to suggest a metaphorical notion of rule following closer to tacit knowledge as at least one aspect of this important practice/way of knowing and thinking. A knowledge embedded in ways of knowing and inventing, which stems from an internalized understanding of structural relations, would ground rule following in practices. The prepared mind recognizes the relations embedded in structures, a practice necessary to modeling and representation. Following this "general rule" that is "the law of projection" constituting the "inner similarity" of the gramophone record, the musical idea, the written notes, and the sound waves in the air, can guide language use because what is projected is the logical form, through the internal relation of depicting. "They are all constructed according to a common logical pattern."²

The law of projection captures the "inner similarity" of these representations and situations. Here, the engineering background of scale models and laws of similitude as understood by Raleigh and engineers using scale models at the NPL are illuminating. Laws governing similitude are important, for as a contemporary scientist notes

The ultimate principle is precisely expressible . . . as one of similitude . . . tested by the rule that mere change in the order of magnitude of the ordered set of units of measurement that is employed must not affect sensibly the forms of the equations that are the adequate representation of the underlying relations of the problem. (Lockyer 1915, in Hamilton, 2001).

For Wittgenstein, the logic of depiction, through the law of projection, preserves the underlying relations of the logical structure in "the forms... that are the adequate representation of the underlying relations," thus grounding the possibility of all of our "pictorial modes of projection."

In the *Tractatus*, a sign does not become a symbol until thought---agency on the part of the human language user is necessary. I believe the construction of a propositional sign as a model of a state of affairs in the world not only requires the coordinated points of the elements of the propositional sign and the objects constituting states of affairs to map on to one another---feelers that in some sense do touch reality like the rays of the projective geometer, as Nordmann notes. It also requires a constructive vision of internal structure (the logical form that actually occurred), a seeing and understanding of the relationships constituting the logical structure. The internal relations in which the elements of the *Bild* stand to one another in the propositional sign are as important as the external state of affairs to which it is coordinated. The external mapping relations and seeing the internal structural relationships are both necessary to his sense of the law of projection, and neither is sufficient by itself. I develop this in depth in my monograph, *Wittgenstein and the Mind's Eye*, and I welcome any comments or feedback.

¹ "All of the ways in which he thought had to be explained by the *Bild* theory for it to be successful. It is in this sense that I want to argue that Wittgenstein's engineering training profoundly affected his philosophy (Hamilton 2001)". Thus, I have no quarrel with those who emphasize other important influences on Wittgenstein's work.

² This is related to Susan Sterrett's complex human skills (Sterrett 2005, forthcoming). For my initial treatments of these ideas and passages, see Hamilton (1995) and (2001, particularly pp. 83-84 and 96, footnote 31).

2. Visual Thinking and Modeling in the Wright Brothers' Wind Tunnel Experiments

An indispensable criterion for arguments concerning connections between Wittgenstein's philosophy and contemporary engineering research is historically grounded argument linking his philosophical ideas to contemporary examples. Another illustration of how principles from the *Tractatus* are reflected in historical case studies indispensable for an understanding of contemporary aeronautical engineering research is the Wright brothers' wind tunnel experiments. Here I am indebted to two leading scholars concerned with the Wright brothers' aeronautical research: Tom Crouch, author of the authoritative biography of the Wright brothers, *The Bishop's Boys*, and Peter Jakab, author of the definitive work on their research and experimental method as inventors and design engineers, *Visions of Flying Machines*.³

Both scholars note the brothers' "extraordinary ability to visualize the operation of mechanisms that had yet to be constructed." Crouch argues that "a simple cardboard box suggested a mechanical analogue to the twist of a bird's wing. Wilbur's graphic imagination, the extraordinary path that led from his hand to his eye, was at work once again. He describes Wilbur's "intuitive grasp of the links between flying and cycling."

it was an intuitive process, based on visual and tactile perception. What Wilbur could see and feel he could understand. Consider, for example, the way he reduced the complex business of turning a bike to the left into a series of concrete, graphic images...The development of a system to control an airplane in flight rested on this foundation—Wilbur's understanding of how a bicycle is turned to the left (Crouch 1989).

A characteristic of their engineering methodology was an outstanding ability to see connections, such as designing a balance for their wind tunnel work that physically embodied the principles involved in their engineering problem. This "intuitive process" involves the *Bild* theory's "thinking through the sense of the proposition," understanding structure and functional relations.

Jakab characterizes the wind tunnel experiments as "one of the single most impressive segments of the Wrights' program of aeronautical research." These experiments also exemplify the inner similarity between *Bilder* and states of affairs described in Wittgenstein's projective method.

The balances were basically a mechanical representation of what the lift and drag equations expressed mathematically. *They were designed to measure values related to the actual aerodynamic forces acting on the model surface in terms that could be translated directly into the equations...* Creating the physical arrangement of the device and working through the geometry clearly involved visualizing the direction and the interplay of the forces and the model wing surface. To have conceptualized the function of the balance literally necessitated picturing what was

happening in the tunnel. ...Beyond... their talent for visual thinking, the Wright's lift balance also demonstrates their practical and fruitful approach to invention of creating a piece of technology that replicates a conceptual model of a problem.

I would argue that the Wright brothers' experimental apparatus in their wind tunnel experiments functioned as a Wittgensteinian *Bild*. The manner in which they visualized "the direction and the interplay of forces and the model wing surface," used schematic drawings, and constructed their experimental apparatus as physical models of the mathematical relations in their equation, (reflecting the underlying relations of the logical form), instantiate the powerfully visual projective method of the *Tractatus*. The method of projection as understood in the visual thinking and modeling practices of the engineer involves more than coordination. I believe it is the metaphor at the heart of the *Bild* theory, and I hope that it shows us fruitful connections, as is the case with any good metaphor, beyond the context of understanding the *Tractatus* itself.

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Temporal Extension

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1. Time as Quantity

According to Aristotle, a quantity is anything that can be divided into parts (*Metaphysics* Δ13, 1020a7–8). However, some quantities have parts that have a position (*thesis*) relative to each other, some do not (*Categories* 6, 4b20). Aristotle claims that time is the only continuous quantity whose parts do not have a position relative to one another:

Nor do the parts of time [have some position in relation to one another]; for none of the parts of a time endures, and how could what is not enduring have any position? (5a26)

In the *Categories*, time appears as a special kind of quantity. In *Metaphysics* Δ13 and *Physics* Δ11, time is not even considered a genuine quantity. It is quantifiable only because it is the measure of motion, motion occurs in space, and space is a quantity.

Ockham sometimes seems to define quantity as anything that has *partes extra partes*. Thus according to the Aristotelian criterion, time again would not qualify as a quantity. Parts that do not have any position relative to another cannot be external to another (*extra partes*). However, Ockham never explicitly makes such a statement. He only claims that every *permanent* continuous quantity has *partes extra partes* (e.g. *In Physics* 4,6, Opera Phil. V 52). Occasionally, he calls such quantities *extended* (*De corpore Christi* 17, Opera Theol. X 125). We might thus call time a nonextended quantity.¹

In early modern times, having *partes extra partes* is commonly considered a mark of extension (cf. Locke, *Essay* II,xii,15). Extension, in turn, is the essential attribute of the corporeal nature. Time does *not* appear to be extended in that sense. When Descartes inquires into the nature of quantity, he considers only length, breadth and depth (AT VII 63). Further, he claims that the extended world is just what pure geometry describes (AT VII 87).

But why should time not also be considered the subject matter of pure geometry? Kant sometimes divides mathematics according to the spatial and temporal modes of extension: geometry is concerned with space, arithmetic with time (*Prolegomena*, §10). But at least since the invention of analytical geometry, there is no gap between geometry and arithmetic. Accordingly, Kant also introduces time as the subject matter of a one-dimensional geometry (*Critique of Pure Reason*, B 47).

For such reasons, time may appear to be just a fourth geometrical dimension. However, as I will argue, the essential difference between time and spatial extension is precisely the one that Aristotle points out in the *Categories*. Time is not a kind of quasi-spatial extension since tokens of temporal entities do not have parts that occupy positions relative to one another. The reason is that there “is” no dimension in which they could be placed next to each other.

The following arguments hold for specimens of any kind of temporal entity: stretches of time, process tokens or alleged four-dimensional objects. I will call all these, for

short, *temporal tokens*. I remain silent about the ontological status of *types* of temporal entities.

I will put forward two related arguments that support the Aristotelian distinction. First, no temporal token can be divided into more than one *currently existing* part. The other parts do not exist on the same plane; they will always be either past or future. Second, there can be no representation of change without a change of representation. Therefore, temporal tokens cannot be adequately represented by non-changing geometrical items.

2. Temporal Parts of Temporal Tokens

The first argument proceeds in several steps. I will argue that temporal tokens can only metaphorically be split up into their parts. Second, when dividing a presently existing token, only one of the temporal parts can presently exist. This claim may be countered by an attempt to leave the present tense out of the picture. Such attempts, however, directly lead to fatalism, which I consider an absurd consequence.

As for the first step, spatially extended token objects can often be cut or broken into their parts. For instance, a bit of chalk can be broken into two halves. For the obvious reason that breaking occurs in time, it is not possible literally to break a temporal token into its temporal parts (Thompson 1983:212).

But let us nonetheless imagine such a division of a given temporal token into its temporal parts. If this division is a partition (that is, the parts do not overlap), there will always be exactly one part that is present, the other parts being past or future. Which is to say that only one of the temporal parts of a temporal entity is *existing* while the others *have existed* and *will exist*. We may agree with Aristotle, on this basis, that temporal tokens can have only one temporal part that exists (present tense), and hence no temporal part can be related to another existing temporal part.

Some will object that by relying on the use of the present tense, this argument presupposes the disanalogy between space and time. For one might as well want to argue that no object can be split into more than one spatial part, since only one of the parts can be *here*, the others necessarily being elsewhere. If that argument appears to be inconclusive, why should we be persuaded by its exact temporal analogon?

The suggestion is, then, to treat reference to time instants exactly analogous to reference to points in space. In order to do this, we might define a tenseless copula “is*” as “was, is, or will be” and refer to time instants only by using expressions like “now” and “at time *t*”. However, combining this kind of tenseless verb with demonstratives like “now” and “at time *t*” will not have the desired effect. Any fact *p* is* true *now* if and only if *p* is* true at any other time. For instance, if Socrates is, was, or will be walking now, it is necessarily also true that relative to every time instant, he is, was, or will be walking. The demonstratives “now” and “at time *t*” do not make any difference in the truth-value of such tenseless sentences.

¹ Which is not to say that time is an intensive quantity in the Kantian sense.

Several more sophisticated temporal semantics have of course been suggested. Usually one starts by assuming a set of time instants, analogous to the set of points in space. Then one can say that a fact holds true *at* or *for* one such time point, thereby defining the copula relative to some time instant.

The final step in the current argument concerns this assumption of a set of time instants. Consider, for instance, the following passage from Sider's *Four-Dimensionalism*:

Objects move in both space and time. Other times are as real as the present, just as other places are as real as here. (2001:87)

It is not at all clear what the first sentence is supposed to mean (compare "I will be in both New York and a week"). It takes time to move in space; does it take space to move in time? Can anything literally move from one time to another? Would such a movement not take its own time? However that may be, Sider does assume that time instants exist next to each other in the same sense in which points in space are located relative to each other. That is to say, Sider does not acknowledge the Aristotelian distinction.

The next step would be, then, to assign facts to all these really existing time instants. But here we are faced with a dilemma. Either the facts and their assignments to time instants are as unchanging as the set of time instants itself, such that every fact about the so-called future would already (tenselessly) obtain. This is fatalism. Or part of the four-dimensional space is still empty and will gradually be "filled with events". Strangely enough, Sider considers this a valid option, which he calls the "growing block universe" view (2001:12). It should be obvious, however, that every growth must occur *in some time*. But the growth of the four-dimensional block cannot occur *within* one of its dimensions. We need a tensed metalanguage in order to say that the growing block universe is *not yet* completely filled with events or that it *is still growing*. The conclusion should be that we have to presuppose time anyway. If we stick to a tenseless language and only introduce references to time instants ("now", "at *t*"), we have not yet introduced time.

I have argued that it may be true that temporal tokens have only one existing temporal part, even though spatial tokens obviously have more than one spatial part. The reason is that it does not make sense to assume a multitude of equally existing time instants. Rather, only one time instant exists, others will exist and have existed. We cannot make sense of time without using a tensed metalanguage. Time differs from space. The following argument is intended to establish this point more directly.

3. McTaggart's Time Representation Device

It is indeed possible to represent temporal tokens by using, *inter alia*, spatial diagrams. The point that I want to stress here is that purely spatial entities could never be *enough* to represent time adequately.

Consider first the inverse case. Imagine a spot moving over a grey scale picture and registering the degrees of brightness at every point. A machine might record the purely temporal sequence of changes in brightness, and then reconstruct the original spatial pattern from that information. But in order to do so, it will need more information, for instance the speed and exact course of the movement of the spot. If the speed of the spot is not known, the representation will probably differ in size. If changes in the speed of the spot are not accounted for, the proportions will get distorted. Speed, however, concerns the ratio between

spatial and temporal quantity. Hence, any reference to speed would introduce space again.

The situation is the same regarding spatial representations of temporal items. One may use a line in order to indicate how long an event takes. But in order to understand such a representation, it is important to know at what *speed* one should read the diagram. This would introduce time again.

I think this is the core of at least the first part of Ellis McTaggart's famous argument for the unreality of time (1908). In order for a line to represent time, McTaggart argues, it is not sufficient that it be extended and directed. If we know what happens first and what next, we still do not know how long it takes. In order to know this we need to use a more complicated device, consisting of *two* parallel lines that are *moved* relatively to each other. McTaggart calls these lines the A-series and the B-series.

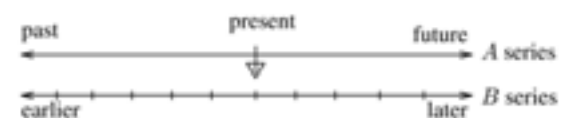


Figure 1: Cut out the A series and move it to the right at constant speed.

While the B-series contains marks for several events or moments, the A series has only one important mark, which represents the present. On both series, 'right' means 'later' and 'left' means 'earlier', but in the A series, 'later than present' is replaced by the synonymous 'in the future', and 'earlier than present' is replaced by 'in the past'. Taken in isolation, the A series does not differ much from the B series.²

Now everything depends on how we use this time representation device. In order to obtain an adequate representation of the temporal sequence of events that is encoded in the B series, one has to move the A series to the right, relatively to the B series. Only then will a sequence like the following be generated: "now this happens and that is still in the future, then that later happening occurs, and the first is already in the past". But obviously, the movement of the A series against the B series is itself something that happens in time. The conclusion is that there can be no adequate representation of time that is not itself temporal. As a slogan, *there can be no representation of change without a change of representation*.

4. Conclusion

I have thus shown that time and space differ. Wherein lies this difference? Both time and space are extensive and continuous quantities. But whereas the spatial parts of spatially extended tokens all exist in the same sense, there is always exactly one distinguished temporal part of a currently existing temporal token. All other temporal parts *do not exist* — they have existed or will exist. Spatially extended entities can be viewed from several spatial points of view at once. They are realized or constituted by several parts at once. Temporally extended entities cannot be viewed from several temporal points of view "at once". There is never more than one temporal point of view.³

² People have asked whether the correct theory of time should be an 'A-theory' or a 'B-theory'. Neither is the case. McTaggart shows that if there is any theory of time at all, then it must be an 'A-B-theory'. However, he thinks that there can be no coherent A-theory, and hence no A-B-theory.

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On the Intelligibility of Tenseless Sentences

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Following Dolev (2000), Lowe (1998), Teichmann (1998), and others, I question the intelligibility of the tenseless sentences assumed by McTaggart's B-series (1968) and essential to both the new and old tenseless theories of time. If the viability of these sentences, including the notion of tenseless temporal relations, is doubtful, then the project of stating their connection to tensed sentences is at best premature and at worst futile.

There is a perfectly ordinary sense in which sentences may be tenseless which needs to be acknowledged at the outset. D. C. Williams suggests that the semantic scruples of opponents of tenseless theories are invalid because they mistake "for an ontological absolute the semantical accident that the significance of Indo-European verbs is generally complicated by tenses." (Williams 1951) Williams thinks that if we were to put this semantical accident out of mind and grasp *is* in its tenseless sense, we would not think paradoxical the statement that what has ceased or yet to be nevertheless is. Indeed, it is a semantical accident that in certain natural languages the time of an action relative to the time at which an expression is being used is indicated by the inflection of verbs. Thus understood, tense is not a feature of Chinese, as the following table illustrates:

明天我去北京。 míng tiān wǒ qù běi jīng. Tomorrow I go Beijing.
现在她去北京。 xiàn zài tā qù běi jīng. Right now she go Beijing.
去年我們常常去北京。 qù nián wǒ men cháng cháng qù běi jīng. Last year we often go Beijing.

The character pronounced *qù*, which means *go*, is not inflected with tense in any of its occurrences above. However, though the verbs of Chinese are tenseless, sentences in Chinese can be translated without loss of meaning into languages employing tensed verbs. It would therefore be a mistake to think, as Williams apparently does, that we can grasp the tenseless sense of verbs intended by tenseless theories of time by reference to natural languages that do not employ tenses to indicate time relative to the use of an expression – as though we understood what it would be to use *go* in the sentence "I go to Atlanta," but mean it tenselessly as it is meant when a speaker of Chinese says *qù*.

It is understandable that advocates of the tenseless view use present tense forms of verbs to construct tenseless sentences; but the use of a present tense form of a verb obviously is not sufficient to determine a tenseless reading of it. We have seen that the existence of natural languages without tenses does not assist us in making such a reading. And so it is useful, I think, to look at other ways of reading present tense.

Any token of a present tense sentence is subject to various construals depending on context. We might take "I go Atlanta tomorrow" as a non-native speaker's way of saying that he is going to Atlanta tomorrow. We might take "I go to Atlanta tomorrow" as a perfectly acceptable and in fact quite common use of the present tense to indicate a planned event or an event that is predicted with a high degree of certainty. ("The President speaks tomorrow." "There is an eclipse of the sun tomorrow.") In both these instances, the context will guide me to the correct construal of the token, just as the context of a Chinese sentence guides me to its correct translation into a tensed sentence of English.

Perhaps the use of indexicals such as "tomorrow" or "today" and their Chinese counterparts in the above examples disqualifies them as exemplars of tenseless sentences. "My trip to Atlanta is one day later than this utterance," is cleansed of any explicit reference to past, present or future involving temporal indexicals such as "today" and "tomorrow." The use of the token-reflexive "one day later than this utterance" seems to expunge any reference to past, present, or future. But this is so only due to a linguistic slight-of-hand that shifts the reference from the literal sentence to its context. From the context I assume that "this utterance" refers to the utterance being made to me now. As Yuval Dolev has argued, "It is true that 'It is now 1997' can be explained by saying that the date of the utterance of this very sentence is 1997. But that is only because the context makes it clear that the phrase 'this very sentence' refers to the sentence tokened now." (Dolev 2000)

According to the new tenseless theory of time, tokens of true tenseless sentences are true "whenever they are uttered." (Oaklander 2004) A token of the sentence "The Battle of Hastings occurred before the Battle of Agincourt," would not be true if uttered at any time before the battle of Hastings occurred, but a token of the sentence, "The battle of Hastings occurs before the battle of Agincourt," where *occurs* is construed tenselessly, is true whenever it is uttered (before, during, or after either battle). What I am questioning is the intelligibility of the tenseless construal of any tokening of this latter sentence.

A token of the second sentence might, indeed, be construed as an example of the "historic present" – a use of the present tense to convey immediacy and to produce a living engagement with the narrated events. "The Battle of Hastings occurs before the Battle of Agincourt," one might say rehearsing his history facts. The Gospels contain many instances of the historic present in Greek and they are typically translated into the past tense because it is known that the Gospels are intended as narratives of past events. Context justifies the historic present construal of present tense in these instances.

Consider how we might construe tokens of sentences such as "The President arrives in Atlanta at 10:00 A.M., Monday, July 13," and "In Atlanta on Monday, July 13, the sun rises at 5:30 A.M.," or corresponding entries on a scrap of paper with date and time on the left side and events on the right side:

3/6, Atlanta 5:30 AM, sunrise 10:00 A.M., President's arrival 11:00, press conference
--

If I find the above sentences or their corresponding entries on a scrap of paper with no knowledge of their origin, considerable work must be done, or assumptions made, to puzzle out what is to be made of them. My interpretation of the entries will be affected by contextual factors such as whether the scrap of paper is the work of a conspirator planning to assassinate the President, the diary of a journalist traveling with the President, notes collected by a writer researching the history of the President's domestic travels, or the jottings of a novelist working out the plot of a new novel, as well as my knowledge of when they were written and whether they refer to the past, present, or future relative to that time. Far from constituting statements of tenseless facts that make tensed statements true, the entries on this scrap of paper stand in an epistemic limbo until they are properly contextualized: neither the meaning nor the truth of the entries is determinate as they stand. As such they are poor candidates for sentences that express the pure tenseless thought whose truth makes its corresponding tensed sentences true.

As early as the 18th Century certain Native American tribes kept what are known as "winter counts." (Powers 2005) These consisted of graphic symbols (for example, a stick figure of a man with many spots on his face) sometimes arranged in a spiral from the center outward on a buffalo hide. When the winter counts were first captured by white men as booty in war, it was not apparent to them what the symbols meant. In conversation with tribal leaders, however, it was learned that they constituted a kind of calendar of winters past, starting from the center and spiraling out to the most recent winter. Like our calendars, the symbols on these hides served as a point of reference for telling the history of the tribe. The "translation" of the winter counts could not have been made unless there were an overlap between our practices of historical narrative and the tribe's. As it turns out, having established the connection between our calendar and the order of symbols on the buffalo hide and having confirmed that new entries were entered after each winter was completed, it was justified to read the symbols historically. Apart from this determination, they might have been mnemonics for origin myths related as occurring "once upon a time"; they might have been specific yearly predictions, produced once a year for the forthcoming year; or they might have been revelations of events to take place in an unspecified time to come, the "end times." Determining the correctness of an interpretation is tied to our understanding of how the markings on the hides are produced and used and the relationship of these practices to our practices of describing current events, narrating the past, and predicting the future. This is why it seems that tenseless sentences represent the view from nowhere; only a being outside of time could token them.

I do not deny that there are tenseless sentences. E.J. Lowe puts forward "Two plus five is seven" as an example (Lowe 1998). Mathematical sums are not qualified with reference to today, tomorrow, or yesterday: we learn to ask what the temperature is today, but not what two plus five equals today. This is the kind of explanation which does succeed in justifying a tenseless construal of the present tense. But it is difficult to see how the tenselessness of the "is" in Lowe's examples can be transferred, as it were, to the "is" in a sentence such as

"The temperature in Rome on March 30, 2008 at noon is 15 C," as though there were a tenseless sense of "is" which could be detached from our understanding of the practice of learning sums and embedded in a sentence giving the temperature at a certain place and time.

Tenseless theories are propounded as though it were obvious that temporal relations such as "before," "after," and "simultaneous with" are tenseless. The B-series is conceived as an array of events ordered tenselessly from earlier to later. But this is not how we learn *before* and *after*. As Lucas observes, "Children, long before they can tell time, learn the meaning of 'later than' from their mother's 'Not now, but when Daddy comes home'." (1998) Typically, temporal order is expressed in tensed locutions: "The Battle of Agincourt occurred before the Battle of Hastings." "The President's press conference will be held after the luncheon." "Nero fiddled while Rome burned." Furthermore, as these examples illustrate, expressions of temporal order typically do not function as relations, let alone as tenseless relations. Unlike *is next to*, which makes a sentence out of two terms ("John is next to Bill"), *before*, *after*, and *while* typically function as sentential connectives which make compound sentences out of simpler sentences. I say "typically" because there are indeed instances in which temporal order is expressed with what appears to be a relational predicate, for example: "The Battle of Agincourt was before the Battle of Hastings" and "The groundbreaking will be at the same time as your meeting with the Governor." Regardless, it is clear that these sentences are tensed: as such they do not exemplify the tenseless relations of temporal succession that the ordering of events in the B-series requires.

We do find tenseless relations of temporal succession in certain kinds of sentences: "The days of the week are Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, in that order." "100 B.C.E. is earlier than 50 B.C.E." "Midnight is followed by one o'clock A.M." These sentences delineate characteristics of the systems whereby we divide days, count hours, and differentiate years. To call them tenseless is to acknowledge that they are statements about the logic or, if you prefer, the grammar of these systems; like mathematical sums, their function is not to relate the past, describe the present, or predict the future. But to understand the terms of temporal succession as they occur in these tenseless sentences, we need also to understand how they are used in the ordinary situations where the practices associated with tense are unavoidable. As Dolev remarks, "Attributing an understanding of a certain symbol to someone—a word, a number, a sentence—requires, at the very least, that that person be able to use it for various ordinary, modest ends, and most ordinary uses of dates are tied up with knowing the present date. Even if to the question 'When were you born?' John correctly answers '1960,' he cannot be regarded as someone who understands that he was born in 1960 if he does not know how to answer the question: 'How old are you?' or if he thinks that 1960 is in the future." (Dolev 2000) More significantly there is no reason to think that the tenseless construal of temporal terms in the examples above can be carried over into sentences relating concrete events.

If that is so, then the very intelligibility of the B-series is under question. Construction of the B-series assumes that concrete events, such as the death of Queen Anne, the death of Pope Paul II, and the death of the 43rd President of the United States, can be related to each other as terms of tenseless temporal relations. Importantly,

however, the reason for calling the occurrence of temporal relations tenseless in the above examples does not apply to their occurrence in statements about concrete events. I am tempted to say, with E. J. Lowe, that properties cannot "be tenselessly predicated of concrete historical events, but only of abstract entities which do not exist in time (or space) at all." (Lowe 1998) I prefer to make this point here in terms of the function of sentences. The tenseless construal of the present tense (including the present tense of temporal relations) is legitimate for sentences making statements about the grammar or logic of concepts, but is not legitimate for sentences referring to concrete historical events, either anticipated or recounted.

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Beständige Substanzen ohne Wesen

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Die klassische Substanz erfüllt in der Ontologie vor allem zwei Aufgaben. Einerseits ist sie das Beständige im Wechsel der Eigenschaften eines Individuums, andererseits ist die Substanz die Wesenheit eines Dinges. Substanz ist also das individuierte Ding mit einem Wesen. Bereits im Spätmittelalter und besonders in der Neuzeit wurden starke Einwände gegen das klassische Verständnis der Substanz erhoben, die beide Aspekte in Frage stellten. Gegen die Beständigkeit der Substanz wird bis heute ein empiristisches Argument vorgebracht, wonach wir in der Wahrnehmung die Substanz eines Dinges nicht wiedererkennen können. Dieses Argument wird seit den frühen Zeiten des Empirismus über Kant, Russell, Sellars bis hin zu Gustav Bergmann kaum mehr in Frage gestellt.

Gegen eine essentialistische Auffassung der Substanz werden insbesondere drei Argumente ins Feld geführt:

- (1) Wesenheiten sind zu einem großen Teil konventionell und damit nicht objektiv.
- (2) Wesenheiten werden bei zahlreichen Autoren als notwendige Eigenschaften definiert und von akzidentellen, kontingenten, d.i. möglichen Eigenschaften unterschieden. Diese Unterscheidung ist aber nur relativ. Die Notwendigkeit einer Eigenschaft beruht auf deren gesetzmäßigem Vorkommen. Daß bestimmte Eigenschaften einem Individuum notwendig zukommen, andere hingegen nicht, ist sicherlich zutreffend. Damit wird der Unterschied zwischen Wesen und Akzidenz aber auf einen modalen Unterschied zwischen Notwendigkeit und Möglichkeit zurückgeführt. Modalitäten sind aber keine kategorialen Entitäten, denn sie lassen sich als Relationen zwischen generellen und partikulären Sachverhalten analysieren. Daß a die Eigenschaft F notwendigerweise hat, besagt demnach, daß der Sachverhalt Fa logisch aus einem generellen Sachverhalt folgt. Das a die Eigenschaft G kontingenterweise hat besagt, daß G mit a logisch konsistent ist, daß es, anders gesagt, keinen generellen Sachverhalt gibt, nachdem a nicht G sein kann (vgl. Hüntelmann 2001)
- (3) Sofern wir Wesenheiten als eine eigene Art von Eigenschaften annehmen, sind dies komplexe Eigenschaften. Es läßt sich zeigen, daß nur Sachverhalte, nicht jedoch das, woraus Sachverhalte bestehen, z.B. Eigenschaften komplex sein können (Ramsey 1960, 118, Grossmann 1983, 144 ff.). Wenn Wesenheiten komplex sind, es aber keine komplexe Eigenschaften gibt, dann ist das, was als Wesenheit bezeichnet wird, ein Sachverhalt.

Lassen sich angesichts dieser bekannten Argumente gegen Substanzen dennoch Substanzen in der Ontologie verteidigen? Gibt es Argumente, die gegen die aufgeführten Argumente entkräften können?

Um es gleich vorweg zu sagen, ich halte die Argumente gegen Substanzen als Wesenheiten für so stark, daß sich essentielle Substanzen nicht verteidigen lassen, wenn dies auch von verschiedenen Seiten immer wieder versucht wurde (Plantinga, Lowe, u.a.). Diesen

Autoren geht es insbesondere um eine Verteidigung einer theistischen Metaphysik. Ich glaube jedoch, daß eine theistische Metaphysik nicht auf Wesenheiten angewiesen ist. Weit entscheidender für eine theistische Ontologie ist die Eigenschaft der Substanz, Agens zu sein.

Andererseits läßt sich m.E. zeigen, daß alle bekannten Argumente gegen die Beständigkeit der Substanz und ihre Rolle als Träger von Eigenschaften nicht stichhaltig sind. Die zuvor genannten Argumente gegen beständige Substanzen beruhen auf falschen empiristischen Voraussetzungen. Sollte es gelingen, diese Voraussetzungen kritisch in Frage zu stellen, was meine Absicht ist, dann läßt sich ein Substanzbegriff verteidigen, der unsere alltäglichen Dinge, wie Eichen, Menschen, Pferde, Stühle und Tische als Substanzen verstehen läßt, die im Wechsel ihrer Eigenschaften und Relationen fortbestehen.

Unter Beständigkeit verstehe ich die Eigenschaft einer Entität, im Wechsel der verschiedenen Eigenschaften fortzubestehen. Eine Individuum a hat zunächst die Eigenschaft F, etwas später hat es nicht mehr die Eigenschaft F. Es handelt sich hier um den widersprüchlichen Sachverhalt $Fa \ \& \ \neg Fa$. In den meisten Ontologien wird dieses Problem scheinbar dadurch gelöst, dass man behauptet, daß der Sachverhalt Fa nicht mehr existiert, wenn $\neg Fa$ existiert. Nur unter dieser Voraussetzung, die Erwin Tegtmeier (1997) als „Solpräsentismus“ bezeichnet hat, lassen sich in herkömmlichen Ontologien dauerhafte Substanzen verteidigen. Nach Auffassung der Solpräsentisten existiert allein das Gegenwärtige. Um den Problemen, die mit dieser präsentistischen Auffassung verbunden sind, aus dem Weg zu gehen, wurde die Gegenwart ihrerseits als Präsenz von Vergangenheit und Zukunft aufgefasst, so beispielsweise bei Plotin, Augustinus, Nikolaus von Kues und Heidegger. Ich werde zu zeigen versuchen, daß alle solpräsentistischen Ansätze den Widerspruch nicht auflösen können.

Ein anderer und weniger verbreiteter Lösungsansatz besteht in der Einführung einer zeitlichen Reihe von Individuen anstelle eines dauerhaften Individuums. In diesem Ansatz sind die beiden Individuen des widersprüchlichen konjunktiven Sachverhalts $Fa \ \& \ \neg Fa$ nicht dieselben. Wir hätten daher den Sachverhalt $Fa_1 \ \& \ \neg Fa_2$. Hier liegt kein logischer Widerspruch mehr vor. In Ontologien diesen Typs sind alle Individuen momentan; die Veränderung einer Eigenschaft geht stets einher mit einem neuen Individuum. Die Verbindung der verschiedenen Individuen $a_1, a_2, a_3 \dots a_n$ in einem Sachverhalt wird dann durch eine bestimmte Reihe oder einen kausalen Zusammenhang zwischen den einzelnen Gliedern einer Reihe erklärt. Übliche Wahrnehmungsgegenstände sind nach dieser Analyse Reihen aus Individuen und Eigenschaften. Die Frage die an diesen Lösungsansatz zu stellen ist lautet: Was ist eine solche Reihe? Ist sie nicht selbst eine eigene Entität? Wenn ja, um welche Art von Entität handelt es sich?

Damit a eine dauerhafte Substanz ist, muß es sich bei dem Individuum in dem konjunktiven Sachverhalt $Fa \ \& \ \neg Fa$ tatsächlich um ein und dasselbe Individuum handeln, also nicht um zwei Individuen wie in $Fa_1 \ \& \ \neg Fa_2$. Die Lösung dieses Problems besteht in einer rein rela-

tionistischen Zeittheorie im Anschluß an eine ontologisch fundierte Tenseless-Theory of Time (vgl. Tegtmeier 1997, Oaklander/Smith 1995). Demnach sind a_1 und a_2 zeitliche Teile der Substanz a die in der Relation Früher-als zueinander stehen. Wir haben es hier insgesamt mit drei Substanzen, nämlich mit a , a_1 und a_2 , und zwei Relationen, den Relationen ist-zeitlicher-Teil von und der Relation Früher-als zu tun. Der zeitliche Teil a_1 von a exemplifiziert die Eigenschaft F , der zeitliche Teil a_2 exemplifiziert nicht die Eigenschaft F , sondern z.B. die Eigenschaft G . Die zeitlichen Teile a_1 und a_2 stehen in der Relation ist-zeitlicher Teil-von zu a und die beiden Bestandteile des konjunktiven Sachverhaltes $Fa_1 \ \& \ \neg Fa_2$, nämlich Fa_1 und Fa_2 stehen in der Relation Früher-als zueinander und zwar so, dass Fa_1 früher als $\neg Fa_2$ ist (vgl. Tegtmeier 1997).

Wie bereits weiter oben erwähnt, gehört zur klassischen Bestimmung der Substanz ihre Funktion als Agens (vgl. Uwe Meixner 1997). Wie sich Substanzen in dem hier beschriebenen Sinne als dauerhafte Individuen mit räumlichen und zeitlichen Teilen als Agentia verstehen lassen, kann an dieser Stelle nicht gezeigt werden. Daß derartige Substanzen handeln können, ist aber sicherlich nicht ausgeschlossen. Der Sachverhalt, daß Peter mit dem Auto nach Kirchberg fährt ist ein molekularer Sachverhalt, der der Person Peter diese Handlung zuschreibt. Sicher kann man nicht behaupten, daß Peter diesen Sachverhalt in die Existenz bringt, denn die Existenz hat keinen zeitlichen Anfang. Überhaupt kann man meines Erachtens Kausalität nicht als „in die Existenz bringen“ verstehen. Die Existenz, dies ergibt sich auch aus unserer Analyse der dauerhaften Substanz, ist unabhängig von Raum und Zeit. Es ist aber durchaus denkbar, daß Individuen in dem Sinne Agentia sind, daß sie den zeitlichen Anfang und das zeitliche Ende einer Entität bewirken können.

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Geschichte(n) – Die Wittgensteinschen *Familienerinnerungen*. Zwischen historischer Quelle und autobiographischer „Legende“

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Die baldige Veröffentlichung der *Familienerinnerungen* von Hermine Wittgenstein macht es notwendig den Text in seiner Gesamtheit zu analysieren und zu kontextualisieren. Denn die Familienchronik ist nicht nur eine zentrale Quelle für die biographische Ludwig Wittgenstein-Forschung, sondern bis zu einem gewissen Masse – wie jede Darstellung – eine fiktionale Konstruktion einer autobiographischen Selbstdarstellung, welche durch die Intentionen der Autorin, die Wahl des Genres Familienerinnerungen und den Entstehungskontext, die Jahre 1944–48 in Wien, geprägt ist.

Jede Familie konstruiert und vermittelt sich durch Kommunikation. In gleicher Weise formt sich das Familiengedächtnis über die im Kollektiv immer wieder erzählten Erinnerungen an Personen und Ereignisse der gemeinsamen Geschichte. Es sind Erinnerungen, in denen „Vorstellungen und Urteile der Familie über sich selbst“ und über andere enthalten sind (Leonhard 2002, 205). Somit geben die *Familienerinnerungen*, ein 250-seitiges Typoskript der ältesten Schwester Ludwig Wittgensteins, Aufschluss über die Selbstwahrnehmung der Familie Wittgenstein – wie auch darüber, wie sie gesehen werden wollte.

Es war nicht nur ein Gefühl der Pietät gegenüber der Familie, welches dieses Stück Familiengeschichte so lange im Vergessenen hielt, sondern auch der Zweifel am Wert dieses Schriftstücks – seitens Familie und Forschung; eine Skepsis, die von Seiten der Kulturwissenschaften ausgeräumt werden kann. Sie interessiert, welche Bedeutung das Verfassen einer Familiengeschichte für die Autorin wie für die ganze Familie hatte; und heute noch hat. Hier wird folgende Hypothese vorgestellt: Hermine Wittgenstein verfolgte mit der Chronik nicht nur eine deskriptive Beschreibung der Familiengeschichte, sondern auch eine Stärkung ihrer Position innerhalb der Familie. Dieser emanzipatorische Impetus der Chronik wurde in der Forschung bisher verkannt. Ebenso soll gezeigt werden, warum die *Familienerinnerungen* trotz ihres harmonisierenden Charakters ein erhebliches Konfliktpotential in sich tragen.

Die Autorin: Hermine Wittgenstein (1874–1950), in der Familie ‚Mining‘ genannt, ist die Älteste der sechs Geschwister und wohnt, unverheiratet geblieben, lebenslang im Elternhaus in der Allee gasse 16 (seit 1921 Argentinierstraße) im vierten Wiener Bezirk, hinter der Karlskirche. Sie erstellt gemeinsam mit dem Vater Karl Wittgenstein die familiäre Gemäldesammlung, hat Malunterricht, spielt ausgezeichnet Klavier und organisiert musikalische Veranstaltungen im Familienkreis. 1913 erbt sie das Anwesen Hochreit und wird quasi das ‚Familieneroberhaupt‘ und Großgrundbesitzerin. Im Jahr 1921 gründet sie eine eigene Tagesheimstätte für Knaben in Grinzing, die nach dem Anschluss Österreichs an Deutschland im Jahr 1938 durch die Nationalsozialisten aufgelöst wird. Im Juni 1944 beginnt sie im Alter von 69 Jahren auf der Hochreit die *Familienerinnerungen* zu schreiben, die sie im Oktober 1948 krankheitsbedingt beendet, eineinhalb Jahre vor ihrem Tod. Anschließend wurde das im Krieg in Mitleidenschaft gezogene elterliche

Palais, viele Jahrzehnte ein Zentrum des Wiener Kulturlebens, veräußert und abgerissen; was als das Ende einer Ära gesehen werden kann.

Das Familiengedächtnis ist nicht nur eine Geschichte, wie der Einzelne seine Vergangenheit mobilisiert und ihr Bedeutung gibt, sondern auch das Verhältnis zur eigenen Geschichte und zu anderen konstruiert. Einen Text über sich selbst zu schreiben bedeutet, das eigene Ich zu ‚entwerfen‘, das erfordert Geschichten zu erzählen, über sich selbst, über andere, Geschichten, die andere über einen erzählen oder in welche man selbst eingebunden ist, als Teil einer sozialen Gruppe. In autobiographischen Texten überschneiden sich daher Literatur und Geschichtsschreibung, Fakt und Fiktion (Bruner 1998). Deshalb sind die Konstruktion, die Struktur und die Mechanismen des Textes zu durchleuchten, um erklären zu können, warum von Hermine Wittgenstein gerade *diese* Geschichte – und keine andere – erzählt wird.

Eine Auseinandersetzung mit der Vergangenheit bedeutet stets ein besonderes *Verhältnis zur Gegenwart* zu haben, denn „Erinnerung ist etwas, um mit der Gegenwart zu Recht zu kommen“.¹ Da Geschichte immer aus dem Blick der jeweiligen Gegenwart aktualisiert wird (Maurice Halbwachs), geben die Wittgensteinschen *Familienerinnerungen* insbesondere über die Erzählsituation, die Jahre unter nationalsozialistischer Herrschaft und die unmittelbaren Nachkriegsjahre im Großbürgertum in Wien, Auskunft. Und diese Gegenwart lässt, wie zu sehen sein wird, nur bestimmte Erzählungen über die Vergangenheit zu.

Zusätzlich sind Familienerinnerungen ein *spezifisches Genre*, welches ebenfalls nur gewisse Inhalte ermöglicht. Carol Feldman nennt das Genre ein „mentales Modell“ (Bruner 1998, 67) das die Produktion wie auch die Rezeption formt. Hermine Wittgenstein setzt somit durch die Wahl des Genres eine deutliche Botschaft: Der Text kommuniziert ‚Familie‘, vor deren Gesamtheit der Einzelne mit seinen Wünschen und seiner Lebensgeschichte zurückzutreten hat. So charakterisiert beispielsweise die Chronik eine genealogische Struktur einer Ahnen- und Namensforschung, eine Art „Kompilation“, gekennzeichnet durch die „Geste [...] der Wiederholung“ statt der „Geste des Widerspruchs“ (Assmann 1998, 181), oder dadurch, konfliktbeladene oder bedrohliche Erlebnisse eher ausblenden, Brüche in einem integrativen Rahmen zu präsentieren oder ruhigen Zeiten viel Aufmerksamkeit zu schenken. Andere Erzählungen finden sich hingegen in Briefen oder Tagebüchern, die wiederum einer anderen Rhetorik (z.B. der der Selbstbespiegelung) verpflichtet sind. Gewisse Leerstellen (z.B. das Ausblenden familiärer Konflikte, religiöser Gefühle oder literarischer Interessen) entsprechen so oft mehr der Logik oder Rhetorik des Genres als der Familiengeschichte.

Dieser harmonisierende Charakter wird auch durch verschiedene *Erzählmodelle* unterstützt: Die häufige Verwendung von ‚Wir-Erzählungen‘ und des Begriffs des

1 Vgl. Harald Welzer auf einer Tagung der Universität Bern, leben schreiben. Auto/Biographisches Erzählen in Geschichte und Literatur, am 22.3.2003.

gesellschaftlich-sozialen ‚Rahmens‘, der die Familie vor 1938 umgeben hatte, sind Merkmale einer ausgeprägten Stabilitätserzählung. Auch die Kritik Hermine an ihren Eltern dient dieser Harmonisierung, indem durch die dialektische Erzählweise die eigene (Kinder-)Generation homogenisiert wird. Und selbst der geschilderte Konflikt der Familie mit den Nationalsozialisten – die Einführung der Nürnberger Gesetze in Österreich und das Ansuchen der assimilierten Familie Wittgenstein um Arisierung in Berlin – kaschiert faktisch die Homogenisierungsarbeit am individuellen Gedächtnis, die Eliminierung innerfamiliärer Konflikte. Doch gerade eine solche Bedrohung von außen stärkt zerfallende Entitäten. So kommt es zu einer kulturellen Selbstzuordnung zur k.u.k.-Monarchie lange nach deren Auflösung und zum Bekenntnis zur österreichischen Staatsbürgerschaft im Moment ihrer Abschaffung. So wird in den *Familienerinnerungen* alles genannt, was die kollektive Identität stärkt: der Name, die Herkunft, Feste und Rituale, insbesondere jedoch die Wertschätzung einzelner Familienmitglieder durch Personen des öffentlichen Lebens. Damit scheinen die Erinnerungen die Intention zu verfolgen, die Familie Wittgenstein durch ein bewusstes ‚Einschreiben‘ in die österreichische Kultur der Habsburger Monarchie nicht nur als „sozial bedeutsam“ und „österreichisch“ zu legitimieren, sondern sie konzentrieren sich auch auf die staatsbürgerlichen Treuedienste und die ehrenvollen Charaktere der väterlichen Linie – und sind somit in einem ähnlichen Geiste verfasst wie das Ansuchen der Familie um Arisierung in Berlin. Auch hier wollte die Familie durch Leistung überzeugen und stellte die Herkunft hinten an. Fast so, als hätte man die Einsicht Michel Foucaults gekannt: „Die Erforschung der Herkunft liefert kein Fundament: sie beunruhigt, was man für unbeweglich hielt; sie zerteilt, was man für kohärent hielt.“ (Foucault 1998, 50) Die ‚Negation‘ des Jüdischen, sichtbar in einem deutlichen Assimilations-Narrativ, spielte somit für die Entstehung der *Familienerinnerungen* eine zentrale Rolle. Wenn es beispielsweise über die Familie des Großvaters Wilhelm Figdor heißt: „[Sie] waren Juden, fühlten sich aber, wie man das damals konnte, als Österreicher und wurden auch von Anderen als solche betrachtet“ (Wittgenstein 1948, 3).

Doch die Familienchronik scheint nicht nur aus dieser *kollektiven Verunsicherung* heraus entstanden zu sein, wie der jüdischen Herkunft der Familie, dem „Anschluss“ im Jahr 1938 und dem Vermögens- wie Besitzverlust, sondern zugleich höchst individuell motiviert von Hermine Wittgensteins *persönlichen Verunsicherungen*: Angesichts des Familienstreites mit dem Bruder Paul über die Notwendigkeit des Exils sowie einer generellen Tendenz des Auseinanderfallens des Familiengefüges und dem damit verbundenen Verlust ihrer Position als Familienoberhaupt.

Beginnen die *Familienerinnerungen* mit dem Krieg, der Zerstörung und der Verzweiflung, enden sie in der Erleichterung darüber, was nach Kriegsende noch Bestand hat. Im Nachhinein rechtfertigen gerade diese ‚Überreste‘ des Familienbesitzes Hermine Beharren darauf in Österreich zu verbleiben. Die Familienchronik scheint eine Legitimation zu stiften, nicht nur in Zeiten der gesellschaftlichen, sondern auch der persönlichen Krise. Sie scheinen eine private Strategie Hermine im Streit mit dem Bruder Paul zu sein, eine Rechtfertigung für ihre Entscheidung, 1938 in Wien zu bleiben und nicht wie er nach Amerika auszuwandern, wie er es erwartet hatte: „Paul verglich [unsere Situation] mit einem brennenden Haus und sagte, sie rechtfertige den Sprung aus dem Fenster, nämlich die Flucht aus Österreich unter Zahlung

der Reichsfluchtsteuer; ich konnte und wollte aber diese Auffassung nicht teilen, da sie mich vor große seelische Verluste und vor Probleme gestellt hätte, die ich mich nicht zu meistern traute.“ (Wittgenstein 1948, 158) Im Zuge dessen kommt es zu einer Idyllisierung der Familie und ihres bürgerlichen soziokulturellen ‚Rahmens‘, um den familiären Zusammenhalt in Zeiten des Auseinanderfallens wie auch ihre eigene Position als Familienzentrum zu beschwören. So präsentiert sie sich als eine Person, die ausschließlich in den Rahmen der Familie und sozialer Verpflichtungen integriert ist, was einen Neuanfang im Exil ziemlich erschwert hätte. Doch anders als es die *Familienerinnerungen* suggerieren, zeigt die Gegenwart der frühen 1950er Jahre eine zerstrittene Familie, die viel Geld verloren und die Grenzen ihrer Macht sowie ihre Abhängigkeit von einem politischen Regime gespürt hat. Hat der Krieg die Familie auch oberflächlich gesehen zusammengeschweißt, unterstreicht das Verfassen der *Familienerinnerungen* dennoch den geschwisterlichen Konflikt durch die Rückbesinnung von Hermine auf die familiäre Herkunft und Tradition, während Paul sich in Amerika zu integrieren versucht, seine Wurzeln aufgeben muss, um neue zu finden.

Die Struktur des Textes, Brüche und Ausblendungen, die autobiographische Aufladung besonders „elaborierter Geschichten“ (Sieder 199, 250), insbesondere die Diskrepanz zwischen *Selbst- und Ausenbild* zeigen, dass die *Familienerinnerungen* auch für die Autorin selbst geschrieben wurden, zur Ausbildung, Stärkung und Versicherung ihrer Identität – auch wenn ihre zurückgenommene Art und ein Gestus der Bescheidenheit das gesamte Werk durchziehen. So beschreibt sie im Text nur ihre häusliche Rolle und ihre Fremdheit gegenüber der gesellschaftlichen Wirklichkeit, kritisiert ihren „verträumten Egoismus, der mich förmlich hermetisch gegen meine Umwelt abschloß“ (Wittgenstein 1948, 96), beschreibt die Unterlegenheit gegenüber ihren Geschwistern, untertreibt ihre Talente und ihren Einfluss. Hermine zeichnet idyllische Sphären des Rückzugs – eine willkommene Position nach 1945 – und verwendet die *Familienerinnerungen* vor allem als ein Instrument für die „Verinnerlichung des bürgerlichen Wertekanons“, doch subkutan zeigen sich soziale und kulturelle Strategien der individuellen Positionierung und Selbstbehauptung, u.a. der Versuch der Kompensation für den Kontrollverlust nach 1938.

Denn auffällig ist, dass die *Familienerinnerungen* einen viel konservativeren Eindruck von der Familie hinterlassen als sie tatsächlich im Detail sind. Das hat mit dem präsentierten Bild von Familie zu tun (trotz der Opferrhetorik ist es eine Erfolgsgeschichte des ‚Familiensinns‘), der Rhetorik des Genres, dem Schreibstil und der Sprache, die eine vergangene Epoche reflektieren. Sie überformen die inhaltlich progressiven, kritischen und traumatischen Elemente – wie die Fortschrittsgläubigkeit in der Familie, präsent in der Karriere des Vaters, ihrer Vorliebe für die Secession sowie ihrer Kritik an den Erziehungsmethoden der Eltern, die sie für den Tod ihrer Brüder mitverantwortlich macht. Erst die Rekontextualisierung zeigt, wie sehr der politische ‚Zeitgeist‘ der 1940er Jahre hereingewirkt und die Erinnerungen diktiert hat. Mit der Beschreibung der schwierigen 1940er Jahre rückt zugleich jene Zeit in den Mittelpunkt, in der die Familiengeschichte zum zentralen Gegenstand von Aushandlungen und die Autorin zu einer zentralen Akteurin in diesem Feld wird. Deshalb sind die *Familienerinnerungen* eine aktive Auseinandersetzung mit der eigenen Identität und ein emanzipatorischer Akt der „schweigenden“ Hermine (Selbstbezeichnung). Sie übt

einerseits Macht aus über das Vergessen, andererseits ist die Suche nach Herkunft auch eine nach Unterschieden. So kommt es mit dem Verfassen der *Familienerinnerungen* zu einer Hierarchisierung des Familiengedächtnisses: indem eine offizielle Form festgehalten wurde, bleiben alle anderen Variationen im Verborgenen. Hermine ist somit als Chronistin nicht nur Traditionsbewahrerin, sondern ihr Text wird selbst zum Kanon – der nicht unumstritten ist.

Die Einstellung gegenüber den *Familienerinnerungen* changiert bei den Nachkommen der Familie Wittgenstein, den Stonboroughs, Sjögrens und Stockerts zwischen Identifikation, Ablehnung und Gleichgültigkeit, das zeigen einige Auszüge aus Interviews,² geführt angesichts ihrer baldigen Veröffentlichung. Für Hermine Großneffen Andreas Sjögren ist eine Familienchronik „a source of pride [satisfying] a normal curiosity one has of one's family“. Auch Pierre Stonborough (1932), Enkel von Hermine Schwester Margarete, hat gegen eine Veröffentlichung nichts einzuwenden: Nun, nachdem alle Beteiligten verstorben sind, ist „nichts mehr privat, alles gehört der Geschichte“. Er verbindet mit einer Veröffentlichung sogar die Hoffnung, die disparaten Familienzweige mit Verweis auf die vorangegangene Generation einander anzunähern. Aus dieser Perspektive wird die Veröffentlichung der Familienchronik als dem Familiengeist zuträglich erachtet. Doch eine fixierte Familiengeschichte hat nicht nur Identitätspotential, sondern beherbergt auch Stoff für Konflikte. Deutlich wird das, wenn sich zwei Vertreter der Nachkommengeneration von der Chronik bewusst distanzieren.

Cecilia Sjögren, Enkeltochter von Hermine Schwester Helene, hält die *Familienerinnerungen* an sich nicht für veröffentlichungswert, weil sie nur deshalb interessant seien, da Hermine die Schwester von Ludwig Wittgenstein war, oder die Tochter von Karl Wittgenstein. Zudem ärgern sie „die Selbstbezeichnungen und die Unreflexivität der Selbstdarstellung“ ihrer Großtante, deren „Pseudo-Bescheidenheit“ und Verherrlichung der Geschwister ihr mangelndes Selbstbewusstsein reflektiere. Damit will sie sich heute nicht mehr identifizieren, während hingegen in ihrer Kindheit die Chronik noch eine große Rolle gespielt hat. Ihre Mutter (Clara Sjögren, 1913–70) hatte ihren Kindern aus den Erinnerungen vorgelesen, mit dem Anliegen ihre Welt, in der sie aufgewachsen war, ihnen nahe zu bringen und den Text reich bebildert und für jedes Kind kopiert und gebunden. Die Tochter hat dazu heute ein ambivalentes Verhältnis, auch weil die Schattenseiten von Karl Wittgensteins Erfolgen sowie die Selbstmorde dreier seiner Söhne zu wenig beleuchtet sind.

Auch der 1986 verstorbene Sohn von Margarete, Thomas Stonborough, distanzierte sich von der Familienchronik und nannte sie eine „Legende“ der Tante Mining, weil alles geschönt sei, statt zu zeigen, dass sich die Familienmitglieder nicht untereinander verstanden haben. Er erklärt damit Hermine durch ihre ungemäße Beurteilungen zum „militanten Anachronisten“ (Botho Strauss), statt zu sehen, dass der Text inhaltlich und formal geformt ist durch die Sprache und Rhetorik eines Genres, den konservativen gesellschaftlichen Trend und Tenor der Rechtfertigungsliteratur der unmittelbaren Nachkriegszeit sowie durch die prekäre Situation Hermine.

Cecilia Sjögren interpretiert diese Zuschreibung „Legende“ als Ausdruck dafür, sich von der Familie distanzieren und lösen zu wollen, und resümiert: „Vielleicht

ist das bei mir auch so“. Die Ablehnung der Familienchronik scheint somit ein Zeichen von Emanzipation zu sein – doch sie signalisiert zugleich eine emotionale Involviertheit, die wiederum geradezu charakteristisch ist für Familienmitglieder, die mit „schlechtem Gewissen“ vom Familienerbe oder „im Schatten der Familie“ leb(t)en, so Pierre Stonborough mit kritischem Blick auf seinen Vater Thomas. Insbesondere für ein Familienmitglied, welches dafür bekannt war, große Teile des Familienerbes veräußert zu haben, verkörpert die Familienchronik alleine durch ihre Existenz das schlechte Gewissen einer Erbengeneration, die vom unermesslichen Vermögen Karl Wittgensteins gelebt hat.

Das Misstrauen gegenüber der Familienchronik kann somit *inhaltlich, persönlich* bedingt, aber auch *strukturell* begründet werden. Heute, in einer Gesellschaft, die sich an funktionaler Differenzierung orientiert, kann die Selbstbeschreibung eines Individuums nicht mehr auf soziale Positionen zurückgreifen, sondern nur mehr auf die eigene Individualität. Aus dieser Perspektive heraus muss die Schreibweise der Familienchronik befremdlich wirken. Zudem mag eine Familiengenealogie auch jenen Familienmitgliedern unangenehm erscheinen, die nicht mehr mit diesem großbürgerlichen Habitus vertraut sind. Schließlich hatten der Krieg, der Vermögensverlust und die gesellschaftlichen Umwälzungen die Familie sehr verändert. Der Text bildete sozusagen keine Identifikationsbasis mehr. Erinnerung gelingt nur in einem ‚milieu de mémoire‘, geht dieses verloren, „verliert die Erinnerung ihren konstruktiven Widerpart und wird zu einem Phantom“ (Assmann 1999, 164). Zudem hatte der Nationalsozialismus die Familienforschung und damit auch das Genre Familienchronik für lange Zeit erheblich diskreditiert, wie auch der Strukturalismus der Nachkriegszeit (auto-)biographischer Literatur ein grundlegendes Misstrauen entgegenbrachte. Erst die narrative Wende in der Wissenschaftskultur der 1970er Jahre führte zu einer gesamtgesellschaftlichen positiveren Wahrnehmung dieser Art von Quellen. In den 1990er Jahren führten die öffentlichen Diskussionen über Restitution bei den Wittgenstein-Nachkommen dazu, sich zur Vergangenheit neu zu äußern.

In der Frage nach dem jeweiligen Umgang mit der Familiengeschichte ist angesprochen, was Maurice Halbwachs die soziale Bedingtheit von Gedächtnis nannte: die Aktivität aller Familienbeteiligten beim Aushandeln einer geteilten Version der Vergangenheit. Gemeinhin gilt das Erinnern, Erzählen und Schreiben als ein interaktiver Prozess, der durch ein dialogisches Vergegenwärtigen der Familiengeschichte Zusammengehörigkeitsgefühl stiftet. Doch scheint gerade die Existenz einer Familiengeschichte abweichende Vorstellungen zu konkretisieren und ein Konfliktpotential für die Zukunft in sich zu bergen. Ein Blick auf die generationsspezifischen Erfahrungen und ihren jeweiligen Umgang mit Erinnerung hilft hier, die Kluft zwischen den Generationsgedächtnissen besser zu verstehen und eventuell zu überwinden, indem ein Bewusstsein für einzelne Motive und beeinflussende Umfelder geweckt wird. Damit zeigt sich das Familiengedächtnis als ein unabschließbarer Prozess, der stets offen für neue Codierungen der Geschichte(n) ist.

2 Mehrmalige Gespräche der Autorin mit Pierre und Françoise Stonborough, Cecilia und Andreas Sjögren. Vgl.: Immler 2004, insbes. 328–335.

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Zeit und Gemeinschaft. Soziale Geschichtlichkeit und geschichtliche Sozialität

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1. Anthropologische Grunddimensionen

In seiner Einführung in die „Philosophische Anthropologie“ führt Gerd Haefner vier „Grunddimensionen des menschlichen Seins“ an: (1) Sprachlichkeit, (2) Sozialität, (3) Zeitlichkeit und Geschichtlichkeit sowie (4) Leiblichkeit (Haefner 2000, z.B. 6-7). Ich vermute, daß sich dieser Liste weitere Grunddimensionen des Menschseins hinzufügen lassen, aber nach der Vollständigkeit der Liste will ich hier nicht fragen. Vielmehr soll es im folgenden um Abhängigkeitsverhältnisse zwischen diesen Dimensionen gehen. Daß etwa die Sprachlichkeit des Menschen von seiner Sozialität abhängt, ist unter Philosophen eine seit Wittgensteins Privatsprachenargument gängige Meinung. Und auch zwischen der Sozialität und der Geschichtlichkeit des Menschen sind immer wieder enge Verbindungen gesehen worden, etwa von Theodor Schieder: „Geschichtlichkeit [...] vollzieht sich schon im persönlichen Lebensverhalten jedes einzelnen [...]. Im höheren Sinne aber lebt der Mensch als geschichtliches Wesen, indem er sich eine überindividuelle Vergangenheit und Zukunft schafft und im Bewußtsein dieser Vergangenheit und Zukunft seine Entscheidungen trifft.“ (Schieder 1973, 20)

Besonders von den neueren Arbeiten zur gedächtnistheoretischen Analyse von Kultur wird der Zusammenhang zwischen Geschichtsbewußtsein und Gruppenidentität stark betont. Einer der herausragenden Beiträge zu dieser Diskussion ist Jan Assmanns Buch über „Das kulturelle Gedächtnis“. Assmann beschreibt in diesem Buch den engen „Zusammenhang der drei Themen ‚Erinnerung‘ (oder: Vergangenheitsbezug), ‚Identität‘ (oder: politische Imagination) und ‚kulturelle Kontinuierung‘ (oder: Traditionsbildung)“. Der Zusammenhalt einer Kultur, ihre „konjektive Kontinuierung“, wirke „in zwei Dimensionen: der Sozialdimension und der Zeitdimension“ (Assmann 1997, 16), Erinnerungskultur habe es mit einem „Gedächtnis, das Gemeinschaft stiftet“, zu tun (30), und „die Heiligung einer bestimmten Tradition läuft immer auf die Heiligung einer bestimmten Gemeinschaft hinaus“ (127).

Im folgenden soll dieser Zusammenhang zwischen der Geschichtlichkeit und der Sozialität des Menschen diskutiert werden. Dazu werde ich zunächst diskutieren, was mit Geschichtlichkeit (§ 2) und Sozialität (§ 3) jeweils gemeint ist und wie sich diese anthropologischen Dimensionen sprachlich manifestieren. Sodann werde ich ihren Zusammenhang untersuchen: Ist Geschichtlichkeit notwendig für Sozialität? (§ 4) Ist Sozialität notwendig für Geschichtlichkeit? (§ 5) Die Ergebnisse dieser Diskussion werden mir schließlich erlauben, den Zusammenhang zwischen Sozialität und Geschichtlichkeit genauer zu erfassen (§ 6).

2. Geschichtlichkeit und das Tempus Präteritum

„Geschichtlichkeit“ ist ein mehrdeutiges Wort, und in vielen dieser Bedeutungen kann man vom Menschen sagen, er sei „geschichtlich“. Der Mensch ist geschichtlich-1 im Gegensatz zu bloß erfunden, und er ist geschichtlich-2 in

dem Sinn, daß seine Lebensbedingungen sich geschichtlich wandeln und geschichtlich bedingt sind. Um diese beiden Bedeutungen geht es hier nicht. Wäre die Geschichtlichkeit-2 des Menschen gemeint, dann „steht ex definitione fest, daß es eine menschliche Gesellschaft ohne Geschichte nie geben kann“, wie Konrad Reppen zu Recht feststellt (Reppen 1974, 5).

Worum es hier geht, ist Geschichtlichkeit „als philosophischer Terminus“, als der er „die geschichtliche Seinsweise des menschlichen Geistes“ bezeichnet (Gadamer 1958, 1496). Es geht nicht um das Faktum der Geschichte, „das vergangene Geschehen“, sondern um das, was Reppen „Geschichtsbewußtsein“ nennt: „die Bezugnahme der individuellen oder kollektiven Mentalitäten auf dieses vergangene Geschehen“ (Reppen 1974, 5).

Menschen nehmen Bezug auf die Vergangenheit. Oder anders ausgedrückt: Der Mensch ist das Tier, das erinnern muß. Das ist die anthropologische Aussage von Nietzsches zweiter „Unzeitgemäßer Betrachtung“. Während das Tier in der Herde ganz in der Gegenwart lebt – „kurz angebunden [...] an den Pflock des Augenblicks“ (Nietzsche 1874, 211) – und nicht anders leben kann, ist der Mensch zur Erinnerung verdammt. Auch beim Tier kann vergangenes Erleben zukünftiges Verhalten beeinflussen, z.B. durch die Konditionierung auf einen bestimmten Reiz. Der Mensch hingegen kann sich des Vergangenen aber auch bewußt werden; er kann erinnern, daß etwas bestimmtes geschehen ist. Menschliches Erinnern ist also ein „Erinnern-daß“, es hat einen propositionalen Gehalt. Zudem kann sich der Mensch auch auf Vergangenes beziehen, das er selbst gar nicht erlebt hat. Er kann sich daran „erinnern“, daß Sokrates den Schierlingsbecher getrunken hat oder daß Napoleon nach St. Helena verbannt wurde, ohne daß er eines von beiden miterlebt hätte. Dies wird möglich durch die Sprachlichkeit des Menschen: Er erfährt von diesen vergangenen Ereignissen durch die Schilderungen anderer; er hat von diesen Ereignissen zwar kein *knowledge by acquaintance*, wohl aber *knowledge by description* (Russell 1912, Kap. 5).

Ein sprachliches Merkmal der Geschichtlichkeit des Menschen, auch darauf weist bereits Nietzsche hin, ist die Phrase „es war“ – „jenes Lösungswort“, wie Nietzsche pathetisch sagt, „mit dem Kampf, Leiden und Überdruß an den Menschen herankommen, ihn zu erinnern, was sein Dasein im Grunde ist - ein nie zu vollendendes Imperfektum.“ (Nietzsche 1874, 212). Ausdrücke im Tempus Präteritum wie „es war“ erlauben uns, Bezug auf Vergangenes zu nehmen. Die Tempora verbi sind zunächst einmal sprachliche Merkmale für die Zeitlichkeit des Menschen: dafür, daß er den Unterschied der modalen Zeitbegriffe Vergangenheit, Gegenwart und Zukunft erlebt. Der Mensch kann sich aber auch auf Zeitpunkte vor der je eigenen Existenz beziehen, etwa in der Formulierung „Es war vor meiner Zeit der Fall, daß ...“. Daher ist das Tempus Präteritum in diesem lebenszeittranszendenten Gebrauch zugleich ein sprachliches Merkmal der Geschichtlichkeit des Menschen.

3. Sozialität und die Personalpronomen des Plurals

Daß der Mensch ein soziales Wesen ist, ist schon in der griechischen Philosophie ein Lehrsatz gewesen. Platon stellt den Menschen im Protagoras-Mythos als ein Wesen dar, das zum Überleben auf die Kooperation mit seinen Artgenossen angewiesen ist (Platon, Protagoras 320c-322d). Aristoteles bezeichnet den Menschen explizit als ein *zoon politikon*, das erst in der Polisgemeinschaft sein Wesen voll entfalten kann (Aristoteles, Politik I 2, 1253a2). Biologisch mag man die Sozialität des Menschen in einer Art Herdentrieb verankert sehen und damit die Kontinuität zum restlichen Tierreich betonen. Doch ist die soziale Welt des Menschen extrem ausdifferenziert. Menschen gehören verschiedenen und unterschiedlichsten Gruppen an: Familien, Nationen, Kirchen, Betrieben, Vereinen, Orchestern, Fußballmannschaften, Ordenskonventen und vielen anderen mehr. Den sprachlichen Niederschlag findet die Sozialität des Menschen in den vielfältigen Möglichkeiten, auf diese Gruppen Bezug zu nehmen und sich diesen Gruppen zuzuordnen. Eine der spannendsten sprachlichen Phänomene, die diesem Zweck dienen, sind die Personalpronomen des Plurals, etwa, in der ersten Person, das „wir“.

Das Personalpronomen der ersten Person Singular „ich“ hat in der Philosophie der Neuzeit seit Descartes breite Aufmerksamkeit gefunden. Logisch gesehen ist es ein indexikalischer Ausdruck, der auf den Sprecher des Ausdrucks referiert. Ontologisch gesehen entzündet sich an ihm die Subjektphilosophie und das Problem der personalen Identität. Das Personalpronomen der ersten Person Plural „wir“ ist hingegen noch wenig beachtet worden. Wie „ich“ ist „wir“ ein kontextsensitiver indexikalischer Ausdruck. Während „ich“ aber stets dieselbe Referenz hat, wenn es von ein und demselben Sprecher verwendet wird, kann die Referenz des Pronomens „wir“ bei verschiedenen Gelegenheiten seiner Verwendung unterschiedlich sein, selbst wenn es von ein und demselben Sprecher verwendet wird. In folgenden Sätzen bedeutet „wir“ jeweils etwas verschiedenes, auch wenn alle von ein und demselben Sprecher geäußert werden:

- (B1) „Wir können uns morgen wieder zum Mittagessen treffen.“
- (B2) „Wir Deutsche sind ein ernstes Volk.“
- (B3) „Letzte Woche haben wir 1:3 gegen Bayern verloren.“
- (B4) „Seit 1213 halten wir jeden Tag unsere Gebetszeiten in dieser Kirche.“

Anhand dieser Beispielsätze lassen sich bereits einige interessante Aspekte unserer Verwendung des Personalpronomens „wir“ erkennen, die ihrerseits auf wichtige Eigenschaften sozialer Entitäten verweisen:

(1) Gemeinsam ist allen Beispielen, daß das Pronomen „wir“ auf eine Gruppe verweist – eine *Wir-Gruppe*, der sich der Sprecher zuordnet. Analog kann man natürlich auch von *Ihr-* und *Sie-Gruppen* sprechen: Wenn ein Sprecher von einer *Ihr-Gruppe* spricht, rechnet er den Hörer, aber nicht sich selbst der Gruppe zu. Wenn ein Sprecher von einer *Sie-Gruppe* spricht, rechnet er weder sich selbst noch den Hörer dieser Gruppe zu. Dabei kann aber die Zugehörigkeit zu der Gruppe ganz unterschiedlich konstituiert sein, wie besonders (B3) zeigt: Der Fan kann „Wir haben verloren“ sagen, obwohl er nie mitgespielt hat. Es müssen also unterschiedliche Arten von Zugehörigkeitsrelationen zu einer Gruppe unterschieden werden. Im Fußball-Beispiel können wir etwa unterscheiden:

- (R1) Tatsächlich mitgespielt haben
(also nicht: Reservespieler, verletzte Spieler)
- (R2) Mitglied der Mannschaft sein
(also auch: Reservespieler, verletzte Spieler)
- (R3) Mitarbeiter der Mannschaft sein (also auch: Trainer, Masseur)
- (R4) Fan der Mannschaft sein

Natürlich hat die Zugehörigkeitsrelation einen wichtigen Einfluß darauf, welche Personen als Mitglieder zu einer bestimmten Gruppe gehören und welche nicht.

(2) Eine weitere Gemeinsamkeit der Beispiele ist, daß sie in einer wichtigen Hinsicht nicht eindeutig sind: Es geht aus den Formulierungen nicht hervor, ob der Sprecher der Sätze den Adressaten mit zu der in Frage stehenden Gruppe zählt oder nicht. Ist also (B1) ein Vorschlag für ein weiteres Mittagessen, der demjenigen gegenüber geäußert wird, mit dem der Sprecher bereits zu Mittag gegessen hat? Oder wird mit dem Beispielsatz der Adressat auf die Möglichkeit einer weiteren Verabredung mit einem Dritten hingewiesen? Wird (B2) einem Deutschen oder jemandem mit einer anderen Nationalität gegenüber geäußert? Wird (B3) einem Schalke- oder einem Bayern-Fan gegenüber geäußert? Und äußert der Mönch (B4) in einem Gespräch einem Novizen gegenüber oder während er eine Gruppe Touristen durch das Kloster führt? Es müssen also zwei verschiedene Verwendungsweisen von „wir“ unterschieden werden, eine inklusive und eine exklusive Verwendung von „wir“:

- „Wir“ wird *inklusiv* verwendet, wenn der Sprecher intendiert, den Adressaten ebenfalls zu der in Frage stehenden Gruppe zuzuordnen.
- „Wir“ wird hingegen *exklusiv* verwendet, wenn der Sprecher nicht intendiert, den Adressaten zu der in Frage stehenden Gruppe zuzuordnen.

Damit ergeben sich die folgenden Kombinationsmöglichkeiten:

	Hörer der Gruppe zugeordnet	Hörer der Gruppe nicht zugeordnet
Sprecher der Gruppe zugeordnet	inklusives „wir“	exklusives „wir“
Sprecher der Gruppe nicht zugeordnet	„ihr“	„sie“

(4) Auf eine weitere wichtige Unterscheidung führt uns die Frage, zu welcher Zeit denn die Mitglieder der *Wir-Gruppe* leben oder gelebt haben? In (B1) ist klar, daß alle Mitglieder der Gruppe zur gleichen Zeit existieren. Nur mit Zeitgenossen kann man sich zum Mittagessen verabreden. Referiert ein Sprecher auf eine Gruppe von Zeitgenossen, möchte ich von einer *synchronen Gruppenbildung* sprechen. Auch (B3) kann sehr gut so verstanden werden, daß die Gruppe der gemeinsam spielenden Sportler das Spiel verloren haben. Dies funktioniert bei der folgenden Variante dieses Beispiels aber nicht mehr:

- (B3*) „Letzte Woche haben wir 1:3 gegen Bayern verloren,
wie schon 1954.“

In (B3*) ist von einer Gruppe die Rede, die keine Gruppe von Zeitgenossen ist. Fußballspieler aus weit entfernt liegenden Dekaden werden derselben Gruppe zugeordnet. In einem solchem Fall möchte ich von einer *diachronen Gruppenbildung* sprechen. Vermutlich soll auch in (B2) nicht nur den gerade lebenden Deutschen eine bestimmte Charaktereigenschaft zugesprochen werden, sondern auch den Deutschen früherer Zeiten und wohl auch den

zukünftigen Deutschen. Auch hier haben wir es also mit einer diachronen Gruppenbildung zu tun, wie auch in (B4): Keiner der Mönche von 1213 wird sich noch jetzt ins Chorgestühl begeben. In diesen beiden Fällen liegen die Anfänge der Wir-Gruppe weit vor der Lebenszeit des Sprechers; die Gruppe wird nicht nur diachron, sondern auch lebenszeittranszendent gebildet. Solche Gruppen nenne ich „geschichtliche Gruppen“ und die Fähigkeit, solche Gruppen zu bilden „geschichtliche Sozialität“.

4. Gibt es Sozialität ohne Geschichtlichkeit?

Die These, von der wir ausgegangen sind, war, daß Geschichtlichkeit und Sozialität einander bedingen. Diese These besteht aus zwei Teilen. Sie behauptet erstens, daß es keine Sozialität ohne Geschichtlichkeit gibt, und zweitens, daß es keine Geschichtlichkeit gibt ohne Sozialität. Diese beiden Teilthesen möchte ich nun nacheinander untersuchen. Dafür werde ich sie zunächst in ihr sprachliches Pendant übersetzen. Geschichtlichkeit, so hatte ich gesagt, schlägt sich im Gebrauch des lebenszeittranszendenten Präteritums nieder, Sozialität im Gebrauch von Personalpronomen des Plurals. Ich frage also im folgenden: Bedingen sich der Gebrauch des lebenszeittranszendenten Präteritums und der Personalpronomen des Plurals? Bzw. auf die erste zu untersuchende Teilthese angewandt: Kann man Personalpronomen des Plurals verwenden ohne das lebenszeittranszendente Präteritum?

Die Frage muß offensichtlich verneint werden. Ein Gebrauch der Personalpronomen des Plurals scheint vorstellbar, der sich nur auf Zeitgenossen der Sprechenden bezieht. Äußerungen wie „Wir sehen jetzt einander“ oder „Sie essen gerade gemeinsam“ involvieren zwar Personalpronomen des Plurals, aber kein Präteritum. Äußerungen wie „Wir haben gestern miteinander getanzt“ involviert zwar ein Präteritum, aber kein lebenszeittranszendentes. Anders ist es, wenn Personalpronomen des Plurals wie im oben diskutierten Beispielsatz (B4) verwendet werden. Der Satz „Seit 1213 halten wir jeden Tag unsere Gebetszeiten in dieser Kirche“ enthält zwar selbst kein Vorkommen des lebenszeittranszendenten Präteritums, aber er impliziert Sätze mit diesem Tempus. Aus ihm folgt nämlich z.B. der Satz „1213 hielten wir in dieser Kirche unsere Gebetszeiten“. Es gibt also tatsächlich eine Verbindung zwischen den Personalpronomen des Plurals und dem lebenszeittranszendenten Präteritum, aber diese Verbindung tritt nur auf bei einer diachronen Gruppenbildung bei der, wie im Beispielsatz (B4), die Lebenszeit der Gruppe selbst die Lebenszeit des Sprechers transzendiert. Diese Bildung geschichtlicher Gruppen ist eine sehr besondere, aber auch sehr spannende Weise der Gruppenbildung, und es ist ein anthropologisches Faktum, daß Menschen sich solchen Gruppen zugehörig wissen.

Gruppenbildung ohne Geschichtlichkeit ist also möglich, aber die faktische Sozialität des Menschen ermöglicht ihm auch die Zuordnung zu geschichtlichen Gruppen, die seine individuelle Lebensspanne transzendieren, und diese Zuordnung ist nicht ohne Geschichtlichkeit möglich.

5. Gibt es Geschichtlichkeit ohne Sozialität?

Wenden wir uns der zweiten Teilthese zu: Gibt es Geschichtlichkeit ohne Sozialität? Übertragen auf die Ebene der sprachlichen Merkmale dieser anthropologischen Dimensionen: Ist die Verwendung des lebenszeittranszendenten Präteritums möglich ohne die Verwendung der Personalpronomen des Plurals?

Auch hinsichtlich der zweiten Teilthese finden sich sofort Gegenbeispiele: Die Verwendung des lebenszeittranszendenten Präteritums könnte sich allein auf Individuen und Einzeltatsachen beziehen: „Karl der Große wurde am 25. Dezember 800 gekrönt“ ist eine Aussage über eine ferne Vergangenheit ganz ohne ein Personalpronomen im Plural. Solche Beispiele sprechen klar gegen eine sprachanalytisch eruierbare Notwendigkeit der Sozialität für die Geschichtlichkeit. Geschichtlichkeit ohne Sozialität ist denkbar; sie ist logisch und sprachlich möglich.

Anders sieht es wiederum aus, wenn wir uns die faktische Geschichtlichkeit des Menschen ansehen. Diese geht nämlich nicht darin auf, Behauptungen über eine ferne Vergangenheit aufzustellen. Menschen verstehen die Vergangenheit als „ihre“ Geschichte oder Vorgeschichte und als die Geschichte der Kollektive, denen sie sich zurechnen. Die Geschichtlichkeit des Menschen ist auch eine soziale Geschichtlichkeit: Ich sehe „uns“ in ferner Vergangenheit etwas tun oder erleiden, auch wenn weder ich noch irgend einer, der heute zu den „unsere“ gehört, zu diesem Zeitpunkt gelebt haben. Ich schreibe damit meiner Wir-Gruppe eine Existenz in der fernen Vergangenheit zu. Das erfordert freilich die Fähigkeit zur Gruppenbildung, und zwar zur Bildung von Gruppen, die diachron, durch die Zeit hindurch, persistieren können. Wie wir wissen, verfügt der Mensch über diese Fähigkeit, die ihm sogar erlaubt, sich einer Gruppe zuzurechnen, deren Anfänge er weit vor dem Beginn seines eigenen Lebens verortet. Solcherart soziale Geschichtlichkeit ist offensichtlich ohne die entsprechende Fähigkeit zur Bildung von geschichtlichen, also lebenszeittranszendenten diachron persistierenden Gruppen nicht möglich. Soziale Geschichtlichkeit erfordert also geschichtliche Sozialität. (Ich habe hier in der ersten Person Plural formuliert. Dies schränkt die Allgemeinheit der Behauptung allerdings nicht ein: Das Argument funktioniert analog auch in der zweiten und dritten Person Plural.)

6. Soziale Geschichtlichkeit und geschichtliche Sozialität

Fassen wir das Ergebnis zusammen: Einen logischen oder sprachanalytisch begründbaren Zusammenhang zwischen Geschichtlichkeit und Sozialität gibt es nicht. Der Gebrauch von Personalpronomen des Plurals und der lebenszeittranszendente Gebrauch des Präteritums sind von einander unabhängig. Geschichtlichkeit ohne Sozialität und Sozialität ohne Geschichtlichkeit sind logisch möglich. Hingegen sind die faktische menschliche Geschichtlichkeit und die faktische menschliche Sozialität auf das engste miteinander verwoben. Sie bedingen und ermöglichen sich wechselseitig. Daß wir von „unserer Geschichte“ sprechen, verlangt eine Vorstellung von einem „wir“ das sich durch die Zeit hindurch erhält, trotz des Wechsels der Mitglieder. Umgekehrt ermöglicht die Vorstellung von einem solchen „wir“, das die Lebenszeit des Einzelnen transzendiert, eine Vorstellung von „unserer Geschichte“ mit sich, das heißt eine Vorstellung davon,

was es heißt, daß „wir“ in ferner Vergangenheit etwas getan haben oder daß „uns“ in ferner Vergangenheit etwas widerfahren ist. Die Geschichtlichkeit des Menschen ist keine bloß individuelle Geschichtlichkeit, sondern auch eine soziale Geschichtlichkeit. Die Sozialität des Menschen ermöglicht nicht nur synchrone Gruppenbildung, sondern auch diachrone Gruppenbildung, auch über die Lebenszeit des Einzelnen hinaus, das heißt eine geschichtliche Gruppenbildung. Und diese speziellen Arten von Geschichtlichkeit und Sozialität sind es, die einander wechselseitig bedingen und ermöglichen: Keine soziale Geschichtlichkeit ohne geschichtliche Sozialität und keine geschichtliche Sozialität ohne soziale Geschichtlichkeit.

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Master Argument: Is Temporal Fatalism Really Necessary?

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1. Introduction

The famous Master Argument is a lost reasoning of Diodor Cronus. As ancient commentators claimed, Diodor had supported the standpoint that: *something is possible if it is or will be true* and *something is necessary if it is and will always be true*. In order to justify this view, Diodor assumed the negation of the first sentence and showed that it provides a contradiction. The premisses of his reasoning were the following sentences:

(D1) *Every proposition true about the past is necessary.*

(D2) *An impossible proposition cannot follow from a possible one.*

(D3) *There is a proposition which is possible, but which neither is nor will be true.*

Because Diodor thought that the first two premisses were plausible, he denied the last one, obtaining his definition of the possibility. Using the Aristotle's law: *it is not possible that it is not p iff it is necessary that p* , he could also obtain the definition of the necessity.

Although there are many interpretational problems, we decide to follow the well-known interpretation and reconstruction of A. Prior (Prior 1967, 1967a). We shall present it in a bit modified form, but preserving the original idea. Therefore, we assume that the lost argument concerns propositions, the term *follow* means a logical consequence relation, and indexical sentences are its subject, like, for example: *Socrates is sitting.*, that can change their logical value at different temporal contexts.

2. Determinism

The notions of modalities which were supported by Diodor seem to be deterministic or fatalistic. We shall consider the following proposition:

(1) *I won a lottery.*

It appears that anyone who utters (1) makes a statement that expresses a possible state of affairs. Even if he never wins the lottery (as we know the plausibility of such an event is very small), we still think that it is possible. Nevertheless, according the Diodorus' definition (1) is possible if and only if I won a lottery or will have won. Hence, if I neither did nor will win a lottery, it is not possible that (1). But it contradicts our everyday view on the nature of possibility.

The Diodor's notion seems to forbid many sentences to be possible. For example, we can easily think that the propositions:

(2) John is Paul's son.

(3) John is not Paul's son.

are both possible, but only one of them is true. According the Diodorus' notion only one of them is possible. So, for many ancient thinkers Diodorus supported the very deterministic concept of modality. It is clear when we take into account the truth-maker aspect of his definition. A

state of affair is possible if and only if it takes a place now or will take a place in the future. Hence, the states of affairs that neither do nor will take a place in the history are impossible. At the same time every possibility must be realized and there are no unrealized possibilities. This is why ancient thinkers could have thought that Diodor's concepts provide determinism or fatalism.

According to the deterministic view the history of the world can be illustrated as a line. Inversely, every indeterminist imagine the history of the world as a branching tree. In many points there are future possibilities. However, the past always is a line, the future has many variants. So, following Aristotle, we may say that although tomorrow one of the possibilities will be realized, today a tomorrow sea-fight may or may not happen.

The above remarks indicate that time will be understood here not in a physical sense, but more generally, as a way of representing temporal possibilities.

3. Time

For the sake of further considerations we shall introduce a special conceptualization of time. Our approach to the problem is very simple, i.e. we shall treat time as if it consisted of points. This approach is common in modal or tense logic, where possible worlds are interpreted as dynamic states of the same world ordered in possible ways of its development. We shall impose stronger conditions on the accessibility relation than it is usually done. However, in our considerations, it will have some common properties like transitivity and irreflexivity (hence, also asymmetry). We assume that the symbol " $<$ " will denote a relation *to be earlier than*.

DEFINITION 3.1 A *time* or a *structure of time* is an ordered set $(T, <)$ where T is a set of moments and $<$ is an relation defined on T^2 which satisfies the conditions:

1) $\forall x, y, z \in T (y < x \wedge z < x \rightarrow y < z \vee z < y \vee y = z)$,

2) $\exists x \in T \forall y \in T (y < x \vee x < y \vee x = y)$.

Using the above definition, we can define one more helpful notion:

DEFINITION 3.2 A *branch of the time structure* $(T, <)$ is any nonempty subset $T' \subseteq T$, such that:

1) $\forall x, y \in T' (y < x \vee x < y \vee x = y)$,

2) for any $T'' \subseteq T$ satisfying the condition 1), if $T' \subseteq T''$, then $T' = T''$.

These notions guarantee us that neither time structure can be branched in the past, so every moment has to have, at most, one past, and for any branches there is at least one common moment. Simultaneously, the definition allows time to be branched in the future. The question is, if the tools that the Master Argument requires, allow such a possibility.

4. Reconstruction

For the presentation of the reconstruction we need normal tense logic K_t and some additional assumptions. In the language of K_t we have tense operators: G , H that we read: "It will always be the case that...", "It has always been the case that...", respectively. Using them and negation " $\neg$ ", we define the following tense operators: $\neg G \neg$ (in short: F), $\neg H \neg$ (in short: P) that we read: "It will be the case that...", "It has been the case that...", respectively. Hence, we have the definitions:

$$\text{DEF.}^F \quad FA \leftrightarrow \neg G \neg A$$

$$\text{DEF.}^P \quad PA \leftrightarrow \neg H \neg A$$

The logic K_t can be axiomatized by the following schemas and rules (McArthur 1967):

$$A \rightarrow HFA,$$

$$A \rightarrow GPA,$$

$$H(A \rightarrow B) \rightarrow (HA \rightarrow HB),$$

$$G(A \rightarrow B) \rightarrow (GA \rightarrow GB),$$

If A is a thesis, then HA is a thesis,

If A is a thesis, then GA is a thesis.

For our further investigations we have to extend K_t language with two modal operators $\diamond$ and $\%$, i.e. possibility and necessity. They are not interpreted. The task of the reasoning is to give their interpretation in temporal terms. The interpretation of tense operators is as usual, so we remind only the basic facts. The model for the language is a triple (W, R, V) , where W is a nonempty set of objects, R is a relation of accessibility, and V is an evaluation of sentential letters at elements from W . In the usual way, we can extend any evaluation V to the evaluation V' of all formulas. For classical connectives we have the classical conditions. For formulas with tense operators we have:

$$1) V'(x, GA) = 1 \Leftrightarrow \forall y \in W (xRy \Rightarrow V'(y, A) = 1),$$

$$2) V'(x, HA) = 1 \Leftrightarrow \forall y \in W (yRx \Rightarrow V'(y, A) = 1),$$

$$3) V'(x, FA) = 1 \Leftrightarrow \exists y \in W (xRy \text{ and } V'(y, A) = 1),$$

$$4) V'(x, PA) = 1 \Leftrightarrow \exists y \in W (yRx \text{ and } V'(y, A) = 1).$$

Moreover, we must mention that if a formula is of the following schema:

$$(\text{Th}K_t) \quad HFA \rightarrow \neg PG \neg A,$$

then it belongs to the set of theses of K_t .

In our approach, we treat the relation R as a strictly temporal relation, therefore we assume that it satisfies the conditions from the definition of time. Hence, we take into account only such models that have a form $(T, <, V)$, where $(T, <)$ is defined by DEF. 3.1. Because logic K_t does not require any assumptions concerning the nature of R , in consequence all its theses and inferences are also valid in such frames.

The set of Diodor's premisses can be expressed as follows:

$$(D1): PA \rightarrow \%PA,$$

$$(D2) \% (A \rightarrow B) \rightarrow (\diamond A \rightarrow \diamond B),$$

$$(D3) \diamond p_0 \wedge \neg p_0 \wedge \neg Fp_0.$$

For the sake of further transformations we still need some premisses:

$$(AR) \text{ (Aristotle's law): } \%A \leftrightarrow \neg \diamond \neg A,$$

$$(P1): A \wedge GA \rightarrow PGA,$$

$$(P\%) \text{ (Rule of necessitation):}$$

If A is a thesis, then $\%A$ is a thesis.

This rule expresses the idea that any thesis of extended K_t after box is added is still a thesis. Later we shall show that K_t is really closed under this rule. And, finally, for the proof of Diodorus thesis is needed also the schema:

$$(D\Diamond): A \vee FA \rightarrow \diamond A.$$

Now, we can start the reconstruction in a purely formal way.

- 1) $\diamond p_0$ (D3), Propositional Logic (in short: PL)
- 2) $\% (p_0 \rightarrow HFp_0)$ (Ax K_t),
- (P%)
- 3) $\% (p_0 \rightarrow HFp_0) \rightarrow (\diamond p_0 \rightarrow \diamond HFp_0)$ (D2)
- 4) $\diamond p_0 \rightarrow \diamond HFp_0$ 3), 2), PL
- 5) $\diamond HFp_0$ 4), 1), PL
- 6) $\neg p_0 \wedge \neg Fp_0$ (D3), PL
- 7) $\neg p_0 \wedge G \neg p_0$ 6), DEF^F
- 8) $\neg p_0 \wedge G \neg p_0 \rightarrow PG \neg p_0$ (P1)
- 9) $PG \neg p_0$ 8), 7), PL
- 10) $\% PG \neg p_0$ (D1), 9), PL
- 11) $\% PG \neg p_0 \rightarrow \neg \diamond \neg PG \neg p_0$ (AR),
- PL
- 12) $\neg \diamond \neg PG \neg p_0$ 11), 10), PL
- 13) $\% (HFp_0 \rightarrow \neg PG \neg p_0)$ (Th K_t), (P%)
- 14) $\% (HFp_0 \rightarrow \neg PG \neg p_0) \rightarrow (\diamond HFp_0 \rightarrow \diamond \neg PG \neg p_0)$ (D2)
- 15) $\diamond HFp_0 \rightarrow \diamond \neg PG \neg p_0$ 14), 13), PL
- 16) $\neg \diamond \neg PG \neg p_0 \rightarrow \neg \diamond HFp_0$ PL, 15)
- 17) $\neg \diamond HFp_0$ 16), 12), PL, the contradiction with the 5)

5. Must there be only one future?

Because we do not assume anything about the letter p_0 , we can generalize our conclusion for every formula A . By negation of (D3), (D $\Diamond$), PL and (AR) we obtain the Diodor's definitions:

$$\diamond A \leftrightarrow A \vee FA,$$

$$\% A \leftrightarrow A \wedge GA.$$

Now we have the purely temporal characterization of all Diodorus notions. Hence, all modalities involved in the reasoning can be interpreted in a temporal way:

$$(D1): PA \rightarrow PA \wedge GPA,$$

$$(D2): (A \rightarrow B) \wedge G(A \rightarrow B) \rightarrow (A \vee FA \rightarrow B \vee FB),$$

$$(AR): A \wedge GA \leftrightarrow \neg (\neg A \vee F \neg A),$$

$$(P6): \text{If } A \text{ is a thesis, then } A \wedge GA \text{ is a thesis.}$$

Most of them do not need any additional constraints imposed on the structure of time:

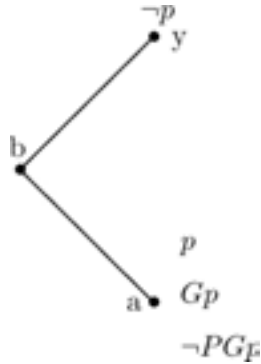
- (D1) requires only transitivity of a temporal relation, which is easy to check in a semantic way,

- (D2) is provable in K_t by PL, because $G(A \rightarrow B) \rightarrow (FA \rightarrow FB)$ is a schema of K_t thesis, hence, it requires no constraints,

- (AR) requires no constraints,

- (P6) does not require any new constraints, because is provable in K_t .

The problem arises when we take into account the premise (P1). It is not as innocent as it appears at the first glance. We shall take any model $(T, <, V)$ and assume that at some moment a (P1) is not satisfied. It means that A as well as GA are true at a , but PGA is not true. From the former we have the A is true at any x such that $a \leq x$. From the latter we obtain that there is not any $y < a$, such that GA is true at y . In order to avoid this we must assume that (Ω) for all x there is an y such that $y < x$. Hence, there is an $b < a$ and GA is not true at b . It means that there is an y such that $b < y$ and A is not true at y . Of course, it is different from any x such that $a \leq x$. It can mean one of two cases. The first one: $b < y < a$, which can be easily omitted by assuming the left-discreteness, i.e. (then, together with the condition (Ω) , the time must satisfy the condition $(\Psi) \forall x \exists y (y < x \wedge \neg \exists z (y < z \wedge z < x))$; if we introduce the relation of the direct predecessor, defined as follows: $x \ll y \leftrightarrow x < y \wedge \neg \exists y (x < z \wedge z < y)$, then the condition will have a form: $\forall x \exists y (y \ll x)$. But it is not enough. The second case concerns the situation when the frame satisfies all these constraints, but the formula is still false. It is in a model of branching time. It follows from the fact that the moment y can be after b , but not before a :

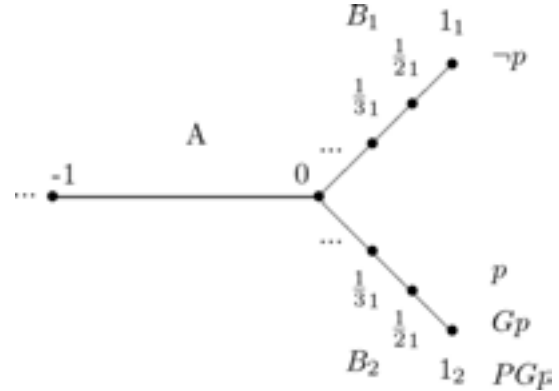


According to this picture, even if the condition (Ψ) is satisfied, then the considered premise is not true. The main problem is whether the structure of time really must be additionally linear in order to be a frame for the set of Prior's premisses? Forward linear structure would exclude such situations like in the diagram.

The answer is: it does not have to be linear. We can define frame that is branched, but does not falsify the premise under investigation. We take the set of numbers $A = \{0, -1, -2, \dots\}$. Next we define the following sets: $B_2 = \{x: x = 1/n_1, n \in \mathbb{N} - \{0\}\}$ and $B_2 = \{x: x = 1/n_2, n \in \mathbb{N} - \{0\}\}$. To these sets belong fractions with a denominator that is a natural number. The only difference between B_1 and B_2 is that their members have different indexes: $1/n_1$ or $1/n_2$. If we take the natural relation to be *smaller than*, both sets have the following properties:

- 1) every member has its direct predecessor (Ψ) ,
- 2) number 0 is a direct predecessor of neither of their members.

Using this construction, we can picture a branched frame which makes the premise (P1) true.



In this frame, every moment has its direct predecessor and every last moment before branching is not a direct predecessor of any other moment. Hence, if the formula $A \wedge GA$ is true at a moment a , then there is b that $b \ll a$ and A is true for all $b < x$, because b belongs only to one branch. Of course, we can generalize this structure of time. Formally speaking, if the frame $(T', <)$ satisfies the following conditions:

- 1) $\forall x \exists y (y \ll x)$,
- 2) $\forall x, y, z (x < y \wedge x < z \wedge \neg y < z \wedge \neg z < y \rightarrow \neg x \ll y \wedge \neg x \ll z)$,

then the formula (P1) is true at all models of the form $(T', <, V)$. The problem whether the formula defines such a class of frames, we shall discuss in another paper, where we also describe the problem of which tense logic is in this sense Diodorean (Jarmużek).

To sum up, we have shown that the theory of Diodor's modalities does not have to be treated as a deterministic one. Moreover, we do not need any more additional tools and assumptions than A. Prior applied. Although many authors claimed that Diodor's conception was deterministic, the conclusion of the paper is that some structures of time deny this view, satisfying at the same time all conditions that Prior's reconstruction imposed.

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Parables

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During his last two years of teaching at Cambridge University, 1945-1947, Wittgenstein accepted the only advisee of his career, Wasfi Hijab. Hijab was Professor of Mathematics at the American University of Beirut. Professor Hijab received a considerable amount of attention in recent years, because he was mentioned prominently in Edmonds' and Eidinow's book, *Wittgenstein's Poker*. Hijab was secretary of the Moral Science Club at the time of the famous meeting between Wittgenstein and Popper.¹

Hijab's tutorials with Wittgenstein were typically spent walking around Trinity fellows' garden. Hijab, Elisabeth Anscombe, and Wittgenstein strolled around deep in discussion. Wittgenstein occasionally told rich, colorful stories. Hijab called these insightful stories "parables." In Hijab's account, Wittgenstein also referred to some of his stories as parables.

Hijab told one especially striking parable to my spouse, Louise, and me at the 2002 Wittgenstein Symposium in Kirchberg am Wechsel. Two months later, Hijab permitted me to make a tape recording of the parable. My main goal in this paper is to get this parable in print somewhere so that it is not forgotten. I have not found it in Wittgenstein's published writings. If you are aware of another source of this parable, please inform me. It is a very insightful story, and much more can be done with it than I will do here. I will present the parable. I will also compare it with other stories that Wittgenstein told. Finally, since traditionally parables contain a moral lesson, I will discuss the moral of this parable ('moral' in the sense that might be used in the context of, e.g., Aesop's Fables).

What follows is a transcription from a tape recording of Wasfi Hijab retelling the parable; the tape was made on 9 October 2002. Hijab began by retelling the fly-bottle story from *Investigations* section 309, "What is your aim in philosophy? — To shew the fly the way out of the fly-bottle." Please notice that an escape metaphor is present in both the fly-bottle story and in the one that follows. On the tape Hijab said:

Wittgenstein sometimes spoke in metaphors and parables. He tried to explain how he was in the *Tractatus* by using the metaphor of the inverted bottle. The fly tries to leave by hitting the glass in the wrong direction. To solve the problem is really to get the fly to reverse its direction and go back the way that it came. That is how you resolve philosophy problems; you ask yourself how you were led into these problems and then if you [can] find the point where you entered the bottle, maybe you will find a way of leaving it. (Hijab Tape Recording 2002)

I used to think that Wittgenstein's way of doing philosophy had not been adopted by contemporary philosophers because of their hostile attitude. I thought they disliked Wittgenstein, because he wanted to put an end to theory formation and argumentation (both of which can be a lot of fun). Instead, he sought clarity, which would make philosophical problems vanish. Now I think that

Wittgenstein's procedures have not been widely adopted, because of a lack of situational awareness. Philosophers do not want to get out of the fly-bottle, because they feel no need to escape; they are unaware that they are in a trap.

The fly-bottle and other parables have an important role in Wittgenstein's method. They serve as reminders to help us recall things that are familiar to us but that we have somehow forgotten. Wittgenstein's procedure in doing philosophy has been compared to a kind of therapy. It can only be effective when sincere puzzlement is present. Our puzzlement is sincere only if we are aware of it and we genuinely want to escape from it. While discussing Wittgenstein's unhappiness about the effectiveness of his work, Gasking and Jackson mention that he regretted the "lack of deep puzzlement" in the work of a well-known philosophical movement. (Fann 1967) In Wittgenstein's view, no answer to a philosophical question, "was any good unless it came to a man when he needed it." There is no point in giving a person a cure, unless he has a disease. In the context of philosophy, people must first be made aware that they have a disease, that they are suffering from a grammatical confusion. Just as a fish may be among the last to discover the existence of water, a philosopher could be among the last to discover that he or she is immersed in confusion. Wittgenstein said that he "hoped to show that you had confusions you never thought you could have." (Fann 1967)

Wittgenstein's procedure is to give us an overview (*Übersicht*) of a portion of language. We obtain an overview by looking at many examples of specific word uses in context. These assembled examples he called "reminders." (*Investigations* §127) We need to be reminded, because the aspects of things that are most important to us seem hidden due to their simplicity and familiarity. "(We are unable to notice something -- because it is always before our eyes.) . . . we fail to be struck by what, once seen, is most striking and most powerful." (*Investigations* §129) However, George A. Paul remarked,

. . . there is no method for "*being struck by*" one fact rather than another. Yet no matter how much detail about a use we may methodically assemble, we may, and commonly do, "fail to be struck by what, once seen, is *most* striking and most powerful." The fly in the fly-bottle may countless times eye the way out — and not be particularly struck by it. (Fann 1967)

Reminders encourage us to look at familiar facts in a new way. For example, Wittgenstein shows us the advantage of looking at meaning as though it were use instead of reference or looking at the statement, "I am in pain," as an expression of pain rather than a description. Reminders such as these help to show us that a route out of the fly-bottle has always been open and available. Following his remarks on the fly-bottle analogy, Hijab continued as follows:

The Parable of the Wall

[Wittgenstein told] another parable that he also tried to use to explain what he was doing. He said, "I will call this a '*parable*,' the parable of the wall."

¹One other person, Stephen Toulmin, was also present at the poker incident. Professor Toulmin was my mentor in graduate school.

Somebody was living in a village, and in that village there was a very high wall. And, nobody had ever crossed the wall. But, there were faint traces on the wall as if there were gates, but nobody has ever opened any of them. One time somebody [viz., Wittgenstein] noticed that there were many holes on these walls, and also he noticed that there were small, shining, glittering keys, golden keys scattered all about. And he tried to apply some of these keys in the right order to some of these holes. And then he found that he could open the gates very easily. But the keys had to be applied in the right order. And then people went around saying that all the gates had been opened, which was not true. And some people said that nothing had been opened, and this was also not true. People around him were fascinated by the small, glittering, golden keys. And they started playing with them. And they forgot that the purpose of the keys was to open the gates. (Hijab Tape Recording 2002)

Wittgenstein's reminders are the keys to resolving philosophical confusions. Of course, it may not seem very exciting to be reminded that words such as 'experience' and 'world' have uses as humble as those of 'table' and 'lamp'. (*Investigations* §97) The things we can do with reminders, namely resolve problem-causing confusions, are exciting; even so, Wittgenstein was certainly aware that the reminders can appear to be dull and ordinary. He wrote, in *Culture and Value*:

The solution of philosophical problems can be compared with a gift in a fairy tale: in the magic castle it appears enchanted and if you look at it outside in daylight it is nothing but an ordinary bit of iron (or something of the sort). (Wittgenstein 1980)

Even golden keys can seem ordinary and uninteresting, if they are commonplace items, lying around everywhere. We might be inclined to pick them up, play with them for a while, become bored, and casually toss them aside. That is what may have been going on, when a participant at this symposium a few years ago said, regarding a paper on the topic of rules, "Oh, that is old hat!"

Notice that Hijab's recollection of The Parable of the Wall is consistent with other Wittgensteinian stories, and it employs similar imagery. For example, it is very similar to the Dummy Door parable reported by Gasking and Jackson:

The Dummy Door Parable

Wittgenstein once described the situation in philosophy thus: "It is as if a man is standing in a room facing a wall on which are painted a number of dummy doors. Wanting to get out, he fumblingly tries to open them, vainly trying them all, one after the other, over and over again. But, of course, it is quite useless. And all the time, although he doesn't realize it, there is a real door in the wall behind his back, and all he has to do is turn around and open it. To help him get out of the room all we have to do is to get him to look in a different direction. But, it's hard to do this, since, wanting to get out, he resists our attempts to turn him away from where he thinks the exit must be." (Gasking and Jackson 1967)

The theme of being held captive in a false prison is present in Wittgenstein's fly-bottle analogy, the Dummy Door Parable, and the Parable of the Wall.

Perhaps the most vivid image in the Parable of the Wall is the people (presumably philosophers) in rapt fascination, playing with the keys that Wittgenstein had used to open gates. These people focused entirely on the keys themselves. They forgot what the keys were good for; they should be reminded that keys are used to open things. This is probably a reflection on scholars, who have focused their attention on portions of Wittgenstein's works. These scholars scrutinized and analyzed small passages from Wittgenstein's writings; they played with them endlessly, but they did not use them to escape from confusions. I certainly have done this. So have we all. The moral of the story is that we should be doing more than simply playing with the keys. Immediately after retelling the Parable of the Wall, Hijab added, "Of course he [i.e., Wittgenstein] was making this remark about some student of his who was writing or publishing and really making use of the keys without really trying to use them properly." (Hijab Tape Recording 2002)

The "playing with keys" metaphor is certainly consistent with Wittgenstein's pessimism about his work being understood. He remarked, in the introduction to the *Investigations*, "It is not impossible that it should fall to the lot of this work, in its poverty and in the darkness of this time, to bring light into one brain or another — but, of course, it is not likely." Wittgenstein felt that he was writing for future generations; he did not expect to be understood by his contemporaries. All accounts indicate that he responded negatively to attempts made by other philosophers to understand his work and write about it. Apparently, he thought that they were merely playing with his keys.

In his novel, *Lila*, Robert M. Pirsig laments that university philosophy departments are really departments of what he calls "philosophology." Philosophologists study philosophy instead of doing it. Similarly, the misguided philosophers in the Parable of the Wall pick up the golden keys and study them in great detail. For Wittgenstein, as it was for Socrates, philosophy is an *activity*. It is something that people should *do*, not something they should *study*. Perhaps this is what Wittgenstein was attempting to convey, when G.E. Moore heard him say that philosophy had been "reduced to a matter of skill." (Fann 1967) Skills pertain to activities.

When I was five or six years old, my parents had to deal with a restless, easily bored child. I often got a bit wiggly at concerts or other public events. My Dad removed his keys from his pocket and gave them to me, so I could play with them. Then, I sat there quietly moving his keys around the key ring and inventing some games I could play with them. Perhaps we should not be concerned about contemporary philosophers playing with Wittgenstein's golden keys. The keys might amuse them, so they will keep quiet and not bother us.

When we become bored and restless ourselves, we can play with those fascinating, golden keys as well. That is what I have done here. Probably, this paper is just another futile exercise in key-fiddling. Even so, I hope it will inspire someone to use Wittgenstein's keys to open some gates that have remained locked for much too long. Meanwhile, some questions remain; for example, why did Wittgenstein say that the keys had to be used *in a certain order*? I shall fiddle with the keys some more and try to find an answer to this question. If I find one, then finally, I might be able to open a gate.

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Time, Credit, & Debt. An Essay in Philosophy of Economics

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Introduction

In this text we want to investigate the relationship between time, credit and debt. The context and the method of our text would be that of the philosophy of economics. First we will give an argument in favor of these relations, after that we will define and explicate crucial concepts, and finally we will draw some interesting conclusions and make recommendations. The time aspect is essential to credit and subsequently the debt aspect; in short credit cannot exist without time. No one will take a credit (loan) unless they want the money now and that is the central time-aspect of credit as just one of possible relations between time and money. Credit then eventually, if not paid, leads to debt and in many cases a debt trap. Thus, precisely we want to investigate how buying now, leads to unpayable future debt.

Note on the method: Our text is primarily written as philosophical text of certain method and as such it is written in a philosophical manner especially in the light of the fact that the subject matter of the text is economical and cultural phenomenon of borrowing, credit and debt. Regarding this particular topic, that means that it starts with deductive argument (or even with a type of a priori argument which nevertheless has a logical structure of *modus ponens*). The main consequence of this approach is that the economic parts and parts regarding social psychology should be regarded as illustrations of the argument stated below and as such they are not meant to exist on their own but are rather logically sufficient in the context of the whole argument.

General (Philosophical) Argument: Credit in Most Cases Leads to a Debt Trap

First part

- (1) If there is an implicit duty to *buy*, and to buy *now*, (metaphors like: buy-now hypothesis, I consume therefore I am, to be is to be a consumer), and it is not possible to buy now, because there is *no money* (scarcity of resources), then a consumer must buy on credit or in short he must *borrow money*.
- (2) There is an implicit duty to buy now (consumerism, commercialism, economism, Bruckner, 2004), and the consumer does not have money.
- (3) So, a consumer must buy on credit.
- (4) A consumer is buying *now on credit* or with borrowed money. The consumer will work in the *future* to pay back his *debt* from the *past*; he will work in the future because he must pay off his debt (explanation of conclusion 3).

Paradox: borrowing money (work) for living – living for paying off debts (working, Bruckner, 2004) Credit gives the consumer (the majority of consumers) the possibility and the duty to spend money that he has not earned yet, and to work for money, which he has already spent. Once when he is in debt, a consumer cannot get out of this circle (the debt trap).

Second part

- If (4), then (5)
- (4) (Explication of conclusion (3))

So, (5) In other words, most consumers are in debt most of the time and this consumer can be defined as a person who is a slave because of their debt (he is owned, and his time also (especially working time) by a "credit lender", a bank for example). Moreover, the consumer's debt will grow in time (because of the trap, of interest on the debt, on the higher risk factor of a debtor, and so on). Or we can say as a general conclusion: credit in most cases leads to a debt trap.

Explication: Definitions, Phenomena and the Model

(1) Consumerism is the movement seeking to protect and inform consumers, the theory that a progressively greater consumption of goods is economically beneficial, and (2) excessive attachment to materialistic values or possessions: "deplored the rampant consumerism of contemporary society". This second definition of consumerism can be conceived as the time period where risk-loving people are in a frenzy "over-consume," forgetting the consequences of their actions. This paper uses only the last definition when referring to consumerism. Thorstein Veblen explicates this describing consumerism as the effects of equating personal happiness with purchasing material possessions (1899). This philosophy of consumerism has brought about a buy-now mentality in the minds of the Western nations and now rapidly the global consciousness. Consumers are no longer acting (if they ever really were) as rational economic beings instead they are purchasing items that are well beyond their means. Through the phenomenon of consumerism, consumers are frequently underestimating their ability to pay back items. They therefore have resorted more and more to the use of credit launching them into a state of permanent debt.

Statistical evidence confirms that consumerism and overbuying is a wide-spread phenomenon as personal debts in the US was up to 20% of their income by the end of 2003 while the average credit card debt in the US in the past decade has risen by 150% (Copeland, 2000). This despite the fact that democratic laws in the US were enacted to combat this over buying by requiring that consumers be told annual percentage rates, potential total costs, and any special loan terms (Consumer Credit Protection Act of 1968). Moreover this is not just an American phenomenon, in the fall of 2003 at least one in five people in Britain resorted to debt to cover basic living costs while the average debt per UK household was around £7,000, excluding mortgages.

Perhaps consumerism can be better understood as a continuum where we are all experiencing some of its affects while a certain percentage experience it to such an extent that it is very noticeable and even deemed a psychological disorder. This phenomenon is now known as compulsive buying behavior and is present in about 15 million Americans (6% of the US population). If you type "help, I am uncontrollable buyer" in some Internet search engine you can even expect to find a site entitled Debtor Anonymous. Sign in and you can be invited to a group meeting of anonymous people in debt or instructed with a 12-step self-help program to stop your urge to shop compulsively. Increased debts on credit cards – "buy now-

pay later" mentality, advertising that is aimed at a younger and younger population, a stressful way of life and a socially accepted way of reducing stress by buying (women), and, lately, growing power of Internet consumption are some of the variables that are identified as culprits and fortifiers of compulsive buying behavior. We can imagine that these same variables are influencing us all to some extent.

Research shows that the impulse to buy something that he/she does not need, which is implicit in an environment of consumerism, is present in all of us while for those with compulsive buying behavior it becomes a compulsion (Roberts 1998). For example, everyone experiences aggressive advertising campaigns during Christmas time and various sales promotions such as discounts, coupons, cash refunds, price packs, contests, games etc. In a period where the need to belong is high, or out of a desire for warm relationships or just to socialize more, people engage in buying for others or buying for themselves to empower their self-esteem and their chance to be accepted. Whereas, compulsive buying is the extreme version motivated by internal anxiety from which shopping and buying is an escape. (see Appendix 1 for more information about compulsive buying behavior).

The Debt Trap: The presence of consumerism combined with a lack of money and an availability of credit leads the consumer to choose credit and leading therefore to a debt trap. This debt model is drawn from the literature on adverse selection in the credit market. Basically, adverse selection occurs in the credit markets because when the supplier of credit, banks and other lenders, charge higher interest rates they are more likely to attract higher risk client. In response to this, lenders will charge less interest to attract lower risk clients and bar from lending to higher risk clients. This was well explained by Nobel Prize winner Joseph Stiglitz in his articles about imperfect information (1983, 2000 for example, also for other articles on adverse selection in the insurance markets see N. Barr 2004). Looking further at the problem of adverse selection a link can be seen through higher interest rates for higher risk clients. The following is a simple model that uses Stiglitz's link as a basis for a simplified iterated loan model:

Model: $(1+r+n*i)^z * K = Y$

Where: Y = The final payment to the lender.

K = The amount of the first loan

z = Number of rounds of lending (were z=1 is the first loan).

n = {0, 1, 2 ... z-1}

r = The interest rate for the first loan

i = The additional interest rate supplement for each new loan due to the higher risk of the debtor (i is always the same rate increase).

Examples:

The first loan: $(1+r+0*i)^1 * K = Y$;
 $(1+r)^1 * K$

The second loan: $(1+r+n\{0,1\}i)^2 * K = Y$; where n{0,1} is the set of 0 and 1 and when the equation is separated we use n=0 for the first multiplicative; and n=1 as the second multiplicative;

The zth loan: $(1+r+0*i) * (1+r+1*i) * K = Y$
 $(1+r) * (1+r+i) * K = Y$
 $(1+r+n\{0,1,2...z-1\}i)^z * K = Y$;
 $(1+r+0*i) * (1+r+1*i) * ... * (1+r+(z-2)*i) * (1+r+(z-1)*i) * K = Y$
 $(1+r) * (1+r+i) * ... * (1+r+(z-2)*i) * (1+r+(z-1)*i) * K = Y$

As you see even by the second round the debtor has incurred a larger amount of debt because of his higher risk (therefore the interest rate premium) and the need to pay back the previous loans. Eventually, the debtor is left without an option to borrow and is trapped in a condition of debt. His or her only recourse is to go to a loan shark (black market loans) with more conditions on repayment and even higher interest rates until based on Stiglitz's theory this market excludes him as well. The debtor is now trapped with a desire to take out more credit to finance his debts but no one to lend to him; they are trapped.

The current economic situation shows the existence of large amounts of debts, as mentioned previously under consumerism, not only individual on the individual level but on the country level as well. In a World Bank survey of 41 countries, each one had large external government debt in the second quarter of 2004; the US had over 1.7 trillion dollars, Italy had 723 billion, Germany 671 billion dollars of debt, etc. (see: "Data from the World Bank, Cross Country Data Tables, C1-External Debt Positions, Q2," 2004 http://www.worldbank.org/data/working/QEDS/sdds_cross_countrytables.html). These debt positions reveal that the countries themselves are in a debt trap only able to pay off the interest and perhaps some debt but never the full amount of debt. Some politicians and economists believe, however, that Europe is in fact over-saving and greater consumerism should be encouraged, but as the statistics illustrates this is clearly not the case. A debt trap exists among European nations as well as in the US on a national level and in many cases on an individual level as well. This type of consumerism, buying now even if it is with loans and without regard to the long-term cost to the individual and nation, should be restrained rather than promoted.

By extension, the relationship between this debt, credit and time, can therefore be seen in that if there is an alternative to buy on credit or not to buy at all, then it is better not to buy. That buying on credit will eventually lead to debt and the acquiescence of your time. Aristotle (Politics 2, 5) states that when a person is buying on credit, they are not free, because he or she is not using their own property, rather someone else's and therefore in bondage to them. There is no personal freedom of choice of a consumer if he buys on credit, so he can no longer be an agent in economic transaction. The Bible confirms this by saying that, "The borrower is servant to the lender" (Prov 22, 7). If a person has property in the form of money or other asset, then they do not need credit and can go on consuming. But, if they need a loan, through the use of another's assets, then it must be paid by working it off in the future. His time, his working time as well as his leisure time by default, is then subject to the desires of the lender. The lender is master over the debtor's time to the extent of the amount of his debt and his ability to pay. In some cases, when borrowing from a black market lender, a debtor's life (and therefore all of his time on earth) can even be held in bondage. He or she is trapped in not only economic debt but a legal, philosophical, and biblical servitude.

Thankfully the debt trap does allow possibilities of escape through legal or moral recourse. Some societies have bankruptcy procedures and there is always the chance of paying back fully the loan through the earnings of the debtor. Other recourses could be the biblical commands for debt forgiveness where every seven years a debtor would be freed, the year of Jubilee where ancestral lands would be returned, or for interest free lending which would eliminate the spiraling debt effects of

increasing interest rates (Deut 15,1 and Deut 23,19). A last recourse could be to default and avoid payment of your loan (generally illegal).

Conclusions, Recommendations and Broader Philosophical Context

Time is an essential condition of loans (descriptive). Credit in economics is a time-bound phenomenon (action). Credit in most cases leads to a debt trap (see the argument). There is tension in the postmodern consumer between pressure from corporations, the market, and consumer society which say "buy now", borrow money, consume, spend or "be irrational" on the one hand, and on the other hand consumer protection agencies and our rational selves which tell us – don't spend, don't borrow, and don't consume if you don't need. There is a need for a kind of freedom from psychological (spiritual), physical, and economic status of debtor (servant). There is also a need to act against the consumer culture, the impulses of now. (Do not take a credit if it is beyond your capabilities to pay back and if the item is unnecessary for living). "Buy Nothing Day" is an informal annual day of protest against consumerism observed by social activists, a day when participants refrain from purchasing anything during one day. Perhaps a more simple way is that the consumer stays within a reasonable budget that would provide for their needs and a few luxuries without resorting to over-consumption and borrowing. Finally, a concept that could help is the biblical Sabbath where one day a week the Israelites were not allowed to work or to buy anything (this is still observed by many Jews, Christians and Muslims). (Deut 5,12)

Another area of research could be to look at who are the owners of the debt, these "masters"? Also, what institutional changes should be made to ensure that people are freed from the debt trap? Is buying inherently good or bad? And finally, what is the nature of compulsive buying behavior? Are some of the characteristics of this behavior in the general population to a certain degree? Perhaps it is another modern disease associated with our alienated sense of self?

There is however a broader context of the problem of time and credit that we addressed. This broader philosophical and analytical context we can call the "money – time relation" (of course beyond classical aphorisms like: "Time is money" (T. Jefferson), or "Money is time" (J. Derrida). Time is a limited resource and as such it is very expensive, but time is also an unlimited preference. Time is closely connected to efficiency as a way of using limited resources to fulfill preferences. In that sense time really is money. "The time value of money" says that any sum of money (cash) received earlier is worth more than a similar sum received later, because the sum received earlier can be invested in the intervening period. Time is money in the sense that: working time is money, and timing is money. Money is time in the sense that: money has a time-value, and money is the objectification of time (objectification of labor, labor is motion, motion is time). So we have two possibilities when time is money: money-time, and time-money, and two possibilities when time isn't money: priceless time, and timeless money. Some applications could be that time utility is created by making products available when customers wish to purchase it. Because some shoppers have time to shop for a new product only on certain weeks in a month, days, time of a day, or even at certain hours, businesses must be open at a certain time. So, it seems correct that – time

is money. At the heart of all business is the exchange, the act of giving up one thing (money, credit, labor, goods) in return for something else. What refers to a product's ability to satisfy human needs and wants is the central focus of marketing – to create utility. Businesses by exchange attempt to provide four kinds of utility: place, time, ownership, and form. Time utility is created by making products available when customers wish to purchase it. Because some shoppers have time to shop for a new product only on certain weeks in month, days, time of a day, or even at certain hours, businesses must be open at a certain time (Ferrell, Hirt 2000). So, once again it seems correct to say that – time is money. Finally, the life of a worker is twice senseless: on one hand he must work for a living and he is incapable to invest. On the other hand, since the essence of capitalism is not so much "accumulation of wealth", but also and necessary accumulation of wealth which is "reproductively employed", it seems quite correct to say that a capitalist is a person "who bets on the future, whose psychological orientation is toward the pursuit of future wealth and property, and so on." (McCraw, 1997:4) Contrary to a capitalist and on the other hand, the worker is oriented toward the past and his own unfortunate personal working history.

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Appendix: main influences and consequences of compulsive buying behavior

PREDISPOSITIONAL FACTORS • Anxiety • Perfectionism • Self-esteem – low • Fantasy • Impulsiveness • Excitement seeking • General compulsiveness • Dependence • Locus of control • Depression (antecedent/consequence)	COMPULSIVE BUYING	PREDECESSOR or CONSEQUENCE Relieving from stress and anxiety Attaining autonomy, competence, control, self-respect Self-confidence, feelings of personal power or low self-esteem after the buying compulsion Fantasies of grandiosity and immunity from the consequences Inability to resist an impulse to buy Excitement from being perpetually on edge and walking a tightrope between control and loss Relieving tension "looking worthwhile in others eyes" Sense of control Feeling initially uplifted than emotional crash and further depression
CIRCUMSTANTIAL FACTORS • Avoidance, coping and denial (defense mechanism) • Isolation • Materialism		Mechanism of avoiding or denying anxiety, anger, fear or other negative emotion usually unrelated to the shopping Attention from the salespersons and feelings of connectedness via the spending process (in less extreme forms of compulsive buying)
FAMILIAL INFLUENCES • Family • Background		Family environment, learned consumption behaviors etc. Family history of compulsive behaviors
SOCIOLOGICAL FACTORS • TV viewing • Peer pressure; dependence • Shopping frequency • Credit card accessibility and use		SOCIOLOGICAL FACTORS Positive correlation, TV viewing increases materialistic ideal; unrealistic view of world Among adolescents and young adults Shopping = entertainment; malls – consumer cornucopia Eliminated need for money to buy something, stimulated spending, greater imprudence
DEMOGRAPHICS FACTORS • Gender • Age • Socioeconomic status		Females in 80-90%, socialized to cope with stress more passively and emotionally } Negative correlation (in some research)

Warum McTaggarts Beweis für die Unwirklichkeit der Zeit fehlschlägt

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In diesem Beitrag möchte ich zeigen, warum McTaggarts Beweis für die Unwirklichkeit der Zeit fehlschlägt. Dazu werde ich, soweit das für mein Ziel erforderlich ist, den Beweis darstellen (1.), die Falschheit jener Thesen, die ich für die entscheidenden Schwachstellen des Argumentationsganges halte, aufweisen (2.), und einige Schlüsse aus dem Scheitern des Beweises ziehen (3.). Diese Schlüsse werden in die Richtung gehen, dass McTaggarts Anliegen, nämlich die Annahme der Unwirklichkeit der Zeit, durchaus plausibel ist, auch wenn sein konkreter Argumentationsgang zurückgewiesen werden muss.

1. McTaggarts Argumentation für die Unwirklichkeit der Zeit

In seinem berühmten Kapitel von *The Nature of Existence* (McTaggart 1927) zur Unwirklichkeit der Zeit („The Unreality of Time“) nimmt McTaggart zunächst jene Distinktion bezüglich der Zeitordnung vor, welche die aktuelle Diskussion des Themas Zeit in der Philosophie maßgeblich geprägt hat: nämlich zwischen jener Zeitreihe, die er die *A-Serie*, und jener, welche er die *B-Serie* nennt.

Die A-Serie fasst die Zeit auf als dynamisches Geschehen, das von der Zukunft über die Gegenwart hin in die Vergangenheit fortschreitet. Die A-Serie sieht also die Gliederung in die Tempi als wesentlich für die Zeit an. In der Zeit sein bedeutet demnach, sich von der Zukunft über die Gegenwart in die Vergangenheit zu bewegen. Charakteristisches Merkmal der A-Serie ist somit die *Dynamik* dieser Zeitreihe. Es gibt keine Permanenz, weder von Zeitpunkten noch von Entitäten in der Zeit. Alles fließt von der Zukunft über die Gegenwart in die Vergangenheit. Demgegenüber steht die B-Serie. Es ist allein die *Früher-Später-Beziehung*, welche die Zeitreihe der B-Serie ausmacht. In der Zeit sein heißt gemäß der B-Serie, zu etwas (anderem) in der Früher-Später-Beziehung zu stehen. Eigentümliches Merkmal der B-Serie ist ihre *Permanenz* oder ihre Statik. Ist ein Zeitpunkt früher bzw. später als ein anderer, oder kommt eine Entität früher bzw. später vor als eine andere, so ist das immer so. Es kann sich nicht ändern, dass ein Zeitpunkt t früher ist als ein Zeitpunkt t' ; und es kann sich nicht ändern, dass ein Ereignis e später als ein Ereignis e' stattfindet.

Nach dieser Distinktion folgt in McTaggarts Argumentationsgang eine wichtige Festlegung: Dass nämlich die A-Serie notwendig oder wesentlich sei für die Wirklichkeit der Zeit bzw. für das in der Zeit sein von Entitäten. Diese Festlegung können wir als These formulieren:

(T1) Ohne A-Serie gibt es keine Zeit.

Zur Begründung von (T1) führt McTaggart zwei weitere Thesen an. Diese lauten:

(T2) Änderung ist notwendig für Zeit.

(T3) Nur in der A-Serie findet Änderung statt.

(T2) ist derart allgemein anerkannt, dass sich für McTaggart jede Erläuterung erübrigt. (T3) ist nach McTaggarts Ansicht erklärungsbedürftig. Somit geht er

daran, (T3) zu begründen, und zwar durch zwei weitere Thesen. Die erste besagt:

(T4) Änderungen sind stets Änderungen von Ereignissen.

Was sich also in der Welt ändert, sind Ereignisse und nur Ereignisse, nicht etwa Dinge, Sachverhalte o.ä. Die zweite These zur Begründung von (T3) lautet:

(T5) Ereignisse können sich nur insofern ändern, als sie sich in der A-Serie von Zukunft über die Gegenwart in Richtung Vergangenheit bewegen.

Die A-Serie aber, und damit kommt man zu jener These - nennen wir sie (T6) -, die nach McTaggart für die Wirklichkeit der Zeit verhängnisvoll ist, muss als widersprüchlich gelten. Kurzum:

(T6) Die A-Serie ist widersprüchlich.

Von jedem Zeitpunkt bzw. von jedem Ereignis in der Zeit muss man, nach der Voraussetzung der A-Serie, sagen, dass es sowohl zukünftig als auch gegenwärtig als auch vergangen ist. Zukünftig, gegenwärtig und vergangen zu sein, sind aber widersprüchliche Bestimmungen. Also führt die Voraussetzung der A-Serie zu einem Widerspruch, was den Schluss legitimiert, diese aus der Wirklichkeit zu verbannen, welche bekanntlich widerspruchsfrei zu sein hat.

Ist aber die A-Serie unwirklich (aufgrund von T6), gleichermaßen aber notwendige Voraussetzung für die Wirklichkeit der Zeit (nach T1), folgt dass die Zeit selbst unwirklich sein muss.

2. Die entscheidenden Schwachstellen in McTaggarts Argumentationsgang

Es wäre durchaus lohnend, (T6) zu rekonstruieren und einer genauen Analyse zu unterziehen. Ich möchte hier jedoch an jenen anderen Stellen ansetzen, die ich für die entscheidenden Schwachstellen in McTaggarts Argumentationsgang halte: Das ist zunächst (T4), die These, dass Änderungen stets Änderungen von Ereignissen sind, und in Folge (T5), dass sich Ereignisse nur insofern ändern, als sie sich in der A-Serie bewegen. „In Folge“ meint hier, dass im Kontext von McTaggarts Ausführungen die Falschheit von (T5) auf jene von (T4) zurückzuführen ist. Da (T3) und in Konsequenz (T1), welche zusammen mit (T6) das Ziel von McTaggarts Beweisgang ausmacht, in ihrer Geltung von den Zentralthesen (T4) und (T5) abhängen, können wir uns in unserer Widerlegung von McTaggart den letzteren zuwenden und daraus alles andere ableiten.

Warum können (T4) und (T5) gemeinsam nicht aufrechterhalten werden? – Meine Antwort ist, dass die Behauptung beider Thesen ein höchst problematisches Verständnis von „Änderung“ impliziert. Es gibt gängige (und plausible) Bestimmungen des Änderungsbegriffs, nach denen (T4) und zugleich (T5) nicht bestehen können. Um dies zu zeigen, führe ich drei mögliche Verständnisse von „Änderung“ an, und führe aus, dass McTaggarts Zentralthesen durch die Akzeptanz irgendeiner dieser gängigen Bestimmungen widerlegt sind.

Wenn dem so ist, ergibt sich daraus ein m.E. entscheidender Einwand gegen McTaggarts Beweisgang zur Unwirklichkeit der Zeit.

Ich beginne mit jenem Verständnis von „Änderung“, welches als der *klassische Änderungsbegriff* (hier: KÄ) in die Literatur eingegangen ist. (Als Quellen sei Plato, *Parmenides*, 138c, sowie Aristoteles, *Physik*, Buch 1, Kap. 5, angeführt.) Nach diesem Begriff geschieht eine Änderung genau dann, wenn (i) es eine Eigenschaft P gibt, (ii) ein Objekt x, (iii) wenn es verschiedene Zeitpunkte, t und t', gibt und (iv), wenn es der Fall ist, dass x zu t P hat und x zu t' P nicht hat (oder umgekehrt). Inwiefern dieser Begriff einer Änderung eine realistische Deutung von Eigenschaften und Zeitpunkten voraussetzt, sei dahingestellt. Klar ist jedoch, dass KÄ die Annahme ganz bestimmter Objekte impliziert, und zwar von Dingen, die zu mindestens zwei verschiedenen Zeitpunkten, t und t', existieren müssen. Eine Änderung nach KÄ setzt voraus, dass es etwas, x, gibt, das die Änderung überlebt. Änderungsobjekte oder *Träger* von Änderungen müssen *persistieren*. Objekte dürfen, um als Träger von Änderungen in diesem Sinn in Frage zu kommen, nicht in einem beliebigen Sinn persistieren. Es genügt nicht, dass sie, etwa in einem Lewis'schen Sinn, *perdurieren* sind: dass sie aus numerisch verschiedenen raum-zeitlichen Teilen oder Phasen bestehen, die durch bestimmte Kontinuitätsbeziehungen verbunden sind. Es braucht, um den Fachterminus für in einem strikten Sinn durch die Zeit identische Dinge zu gebrauchen, *endurer*.

Ereignisse aber sind, was auch immer sie sind, keine *endurer*. Ereignisse sind räumlich und zeitlich ausgedehnt, und bestehen somit aus numerisch verschiedenen räumlichen und zeitlichen Teilen, was ihre „endurance“ ausschließt. Wenn dem so ist, können sie nach KÄ keinesfalls als Träger einer Änderung in Frage kommen. McTaggarts Begriff einer Änderung als Änderung von Ereignissen ist jedenfalls vor dem klassischen Verständnis von Änderungen verfehlt; damit aber auch (T4) und in Konsequenz (T3) und (T1).

Zugegebenermaßen ist das klassische Verständnis von Änderungen nicht das einzig mögliche. Und tatsächlich wird gerade von Philosophen, die gegen den klassischen Begriff einer Änderung und der damit zusammenhängen „endurer“- oder „Substanzontologie“ auftreten, eine begriffliche Alternative ins Treffen geführt.

Freunde einer *perdurier*-Ontologie sind berechtigt zu behaupten, dass auch vor dem Hintergrund ihrer Annahmen der Begriff „Änderung“ eingeführt werden kann. Ich nenne diese Änderungen hier *perdurier*-Änderungen (PÄ). PÄ wären demnach nichts anderes als die Abfolgen raum-zeitlicher Teile oder Phasen. Möglicherweise könnte man unter Voraussetzung dieses Änderungsbegriffs (T4) verteidigen. Ereignisse sind, darin besteht auch in der Literatur ein breiter Konsens, Abfolgen raum-zeitlicher Teile oder Phasen. Wenn wir wie eben vorgeschlagen den Änderungsbegriff einführen, spricht nichts mehr dagegen, Änderungen als Änderungen von Ereignissen aufzufassen. Deuteten wir z.B. die Aufführung einzelner Sätze als Phasen eines Symphoniekonzerts, wäre der Übergang von einem Satz zu einem anderen nach PÄ jeweils als Änderung des Konzerts zu verstehen.

Diese Strategie hat jedoch auch ihre Schwierigkeiten. Die eine ist, dass nach (T4) nicht nur verlangt wird, dass sich Ereignisse ändern, sondern noch mehr: dass sich nur Ereignisse ändern. Man müsste also nur Ereignisse als Objekte solcher PÄ annehmen. Selbst wenn dieser (für *perdurier*-Ontologien sehr gewagte) Kunstgriff

gelänge, wäre es aus einem anderen Grund auch bei Akzeptanz dieses Änderungsbegriffs um McTaggarts Beweis geschehen. Und zwar deshalb, weil bei Akzeptanz von PÄ (T5) falsch wird. Ereignisse können sich, so sie sich im Sinne der *perdurier*-Änderungen ändern, nämlich auf ganz verschiedene Weise ändern, wie es eben der Abfolge ihrer Phasen entspricht. Ereignisse wären somit in ihrem Änderungsvermögen nicht auf die Bewegung in der A-Serie angewiesen, wie (T5) das behauptet. Ist (T5) falsch, fällt aber (T3) ebenso, und in Konsequenz (T1).

Eine dritte Möglichkeit, „Änderung“ zu bestimmen, wird für gewöhnlich in Ergänzung zum klassischen Änderungsbegriff vorgeschlagen, um doch auch mit KÄ Ereignisse als änderungsfähig zu erweisen. Es ist dies der Begriff einer „Änderung im relationalen Sinn“. *Relationale Änderungen* (RÄ) eines x bestehen im Wechsel von Eigenschaften von x, deren Zukommen zu seinem Träger von dem Träger äußerlichen Umständen abhängt: Wenn ein Fußballspiel in der ersten Halbzeit langweilig, in der zweiten aber spannend, in der Nachspielzeit schließlich dramatisch wird, kann man durchaus sagen, dass sich das Fußballspiel, wunderschönes Beispiel für ein Ereignis, ändert. Diese Änderung aber, und darin erweist sie sich als relational in eben eingeführtem Sinne, ist von dem Ereignis äußeren Umständen abhängig: Dass es nämlich von Beobachtern auf verschiedene Weise betrachtet wird. Es gibt Autoren, die meinen, dass sich Ereignisse, wenn überhaupt, dann nur auf diese relationale Art ändern können.

Lässt man nun Änderungen in diesem Sinne zu, kann man (T4) u.U. retten, nämlich dann, wenn man zusätzlich behauptet, dass alle Änderungen relationale Änderungen sind, und dass sich nur Ereignisse relational ändern können. Ich will diese Zusatzannahmen hier nicht weiter diskutieren. Im Hinblick auf McTaggarts Beweisgang möchte ich aber darauf hinweisen, dass bei diesem Rettungsversuch von (T4) wiederum (T5) widerlegt wird. Nimmt man RÄ als adäquaten Änderungsbegriff, sind nämlich Ereignisse in ihrer Änderungsfähigkeit nicht mehr auf eine Bewegung in der A-Serie angewiesen.

Ich komme damit zu meinem Ergebnis: Akzeptiert man (irgendeine) gängige Verständnisweise von „Änderung“, sei es KÄ, PÄ oder RÄ, lassen sich die Zentralthesen von McTaggarts Argument für die Unwirklichkeit der Zeit, nämlich (T4) und (T5), nicht aufrechterhalten. Mit (T4) und/oder (T5) fällt aber wie gesagt auch (T3) und (T1), das ist jene These, die gemeinsam mit (T6) den Gehalt von McTaggarts Beweisgang ausmacht.

Auszuschließen ist natürlich nicht, dass es eine Rekonstruktion von „Änderung“ geben könnte, welche die Zentralthesen als haltbar erscheinen lassen. Solange eine solche aber nicht in Sicht ist, kann man dabei bleiben, McTaggarts Beweisgang aufgrund der gezeigten Schwächen seines Änderungsbegriffs als widerlegt zu betrachten.

3. Ist die Zeit somit wirklich?

Welche Schlüsse kann man aus dem Scheitern von McTaggarts Beweisgang ziehen? Gegner der Wirklichkeit der Zeit werden zu Recht darauf hinweisen, dass allein aus dem Scheitern eines Beweises für die Unwirklichkeit der Zeit nicht deren Wirklichkeit folgt. Natürlich müssen auch die Freunde der Wirklichkeit der Zeit Gründe für ihre Position vorbringen. Im Folgenden möchte ich im Anschluss an die vorangegangenen Überlegungen einige Minimalbedingungen für die Angabe solcher Gründe

formulieren. Wenn wir uns weiter im terminologischen Kontext McTaggarts bewegen, worüber eigentlich aus allen Lagern ein gewisses Einverständnis herrscht, lassen sich hier für die Freunde der Wirklichkeit der Zeit (erschöpfend) zwei Alternativen ins Auge fassen: Sie können versuchen, die Wirklichkeit der Zeit in der A-Serie zu verankern, oder sie können auf die B-Serie ausweichen.

Was wären die Minimalbedingungen für Freunde der Wirklichkeit der Zeit, die ihr Glück in der A-Serie versuchen? Erstens muss (T6) widerlegt werden und, gegen McTaggart, gezeigt werden, dass die A-Serie keinen Widerspruch enthält. Es gibt derartige Ansätze, um nur jenen Jonathan Lowes zu erwähnen (vgl. Lowe 1998, 91). Ob Lowe Recht hat oder nicht, möchte ich hier allerdings nicht entscheiden. Selbst wenn wir aber Lowes Meinung teilen, müssen wir eine zweite Schwierigkeit lösen, nämlich den Begriff „Änderung“ so formulieren, dass bei Beibehaltung von (T2) „Änderung ist notwendig für Zeit“ (T3) „Nur in der A-Serie findet Änderung statt“ gilt, und damit (T1) folgt: Ohne A-Serie gibt es keine Zeit. Die Rettung von (T3) und in Folge von (T1) bei Beibehaltung von (T2) hat aber nicht nur ein terminologisch – konstruktives Problem, sondern auch ein apologetisches. Und damit bin ich bei der dritten Schwierigkeit der Rettung der Wirklichkeit der Zeit über die A-Serie. Gibt es doch auch unter Freunden der Wirklichkeit der Zeit gewichtige Stimmen gegen die Thesen (T1) und (T3); etwa von jenen, welche im Gefolge Russells die A-Serie für durchaus verzichtbar halten, und zwar zugunsten jener Reihe, die McTaggart die B-Serie nennt (vgl. u.a. Tegtmeier 1997). Ob diese drei Schwierigkeiten zu beheben sind, kann ich hier nicht untersuchen.

Ich möchte vielmehr das Stichwort „Ausweichen in die B-Serie“ aufgreifen und die zweite Alternative für den Erweis der Wirklichkeit der Zeit ins Auge zu fassen. Genannt sei hier lediglich eine Konsequenz eines solchen Ausweichens, allerdings eine zentrale und unverzichtbare. Und diese besteht darin, dass dabei der Früher-Später-Beziehung die gesamte Last der Zeit-Konstitution überantwortet wird. Fragen wir uns also, unter welchen Voraussetzungen diese Beziehung diese Anforderung erfüllen kann.

Zunächst muss es die Früher-Später-Beziehung geben. Und schon hier stoßen wir auf ernst zu nehmende Schwierigkeiten: Die Früher-Später-Beziehung kann es, das scheint unbestreitbar, nicht an einem einzigen Zeitpunkt bzw. an einem einzigen zeitlichen Ereignisteil geben. Sie muss vielmehr zwischen zwei verschiedenen bestehen. Das aber setzt voraus, dass (mindestens) zwei verschiedene Zeitpunkte bzw. zeitliche Ereignisteile existieren müssen. Das wiederum impliziert ein sehr spezielles Verständnis von Zeit, bzw. vom Verhältnis zwischen Zeit und Existenz, nämlich jenes, das in der Literatur als *äternalistisch* bezeichnet wird. Existenz darf nicht an Gegenwart hängen. Alle Zeitpunkte bzw. alle Ereignisse, egal wann sie stattgefunden haben, stattfinden oder stattfinden werden, sind gleich real. Der Äternalismus aber steht dem *Präsentismus* entgegen, nach dem der Gegenwart hinsichtlich Existenz eine bevorzugte Stellung zukommt. Nur Gegenwärtiges existiert, Vergangenes nicht mehr, Zukünftiges noch nicht. Ich kann hier nicht die Brisanz der Festlegung auf Äternalismus bzw. Präsentismus für eine Ontologie ausführen. Ich habe das an anderer Stelle getan (u.a. Kanzian 2004). Für unseren Kontext mag der Hinweis genügen, dass die Annahme der Früher-Später-Beziehung auf äternalistische bzw. anti-präsentistische Voraussetzungen verpflichtet.

Natürlich könnte man sich auch auf den Standpunkt zurückziehen, dass man die Früher-Später-Beziehung nicht als Relation im eng realistischen Sinn versteht, sondern eher als „dünne“ oder „formale“ oder „epiphänomenale“ Beziehung. Dann aber geht dieser ontologische Sonderstatus auch auf jene Phänomene über, die eigentlich durch die Früher-Später-Beziehung in ihrer Wirklichkeit konstituiert werden sollten. Und hier ist die Zeit nach Annahme von B-Serien-Theoretiker an erster Stelle zu nennen.

Ich komme also zum Schluss, dass trotz der Widerlegung des Beweisgangs McTaggarts zum Aufweis der Unwirklichkeit der Zeit auch die Annahme des Gegenteils mit schwerwiegenden Problemen konfrontiert ist. McTaggarts Anliegen ist also keinesfalls als erledigt zu betrachten.

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Better Learning from One's Case

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Could someone understand the word 'pain' who had never felt pain? - Is experience to teach me whether this is so or not? And if we say 'A man could not imagine pain without having sometime felt it - how do we know? How can it be decided whether this is so or not? (Wittgenstein, 1953, par. 315)

I shall analyze the first question Wittgenstein raises. Call S the sentence "Only someone who felt pain can understand the word 'pain'"

According to Hacker¹, S is neither an empirical statement, nor a grammatical truth. If S were true, we would learn how to use words in virtue of private ostensions. S allegedly implies an unacceptable reliance on private ostensive definition. My purpose is to show that S is close to being a grammatical truth, and that this does not imply private ostensive definitions².

1.

Wittgenstein believed in first-person authority (FPA) concerning one's psychological states. I don't *know* that I have certain mental states, I experience them and doubting about them has no place in the language-game (Wittgenstein 1953, par. 246). Self-ascriptions of mental states are not *grounded*. Since there is no ground for such ascriptions, there can be no doubt, no discovery of any fact that could confirm or disconfirm my sincere utterance "I am in pain".

This raises the problem of third-person ascriptions. The usual Wittgensteinian answer is that I am entitled to make such ascriptions on the basis of other people's behaviour. This answer leads to a simplistic picture of the problem of the asymmetry between first- and third-person psychological ascription, according to which I need criteria in order to ascribe pain to other people, and such criteria are provided by their painful behaviour (Wittgenstein, 1953, par. 290), whereas in my own case I need no evidence.

The reason why this picture is simplistic is that it allows the following possibility:

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A person displays a typically painful behaviour. Everybody who sees her from a distance believes she is in pain. When they come closer to her, they surprisingly discover that she exclaims "I feel joyful". Doubts about sincerity are excluded. In such a situation, there is a patent conflict between first person authority and behavioural evidence: one must choose between

- (a) ascribing pain, based on behavioural evidence; and
- (b) ascribing joyfulness, based on FPA

Option (a) is the behaviouristic one. According to it, one needs, at least in some cases, to doubt whether one has a

certain mental state, since one may be mistaken in self-ascriptions of mental states. One should even refrain from ascribing mental states to oneself until one receives the confirmation of other people. This is a consequence that Wittgenstein would not have accepted, on pain of embracing a full-blown behaviourism.

On the other hand, if (b) is chosen *for the reason that everyone has always FPA about his/her mental states*, behavioural evidence is dispensable from the (correct) ascription of mental states to other people. In order to ascribe any mental state to a person, we would have to wait for an explicit avowal. Wittgenstein could not have accepted such a view either, and not only for the trivial reason that one might lie about one's experiences. The concept of "pain-behaviour" would be empty: any kind of behaviour would be compatible with any kind of mental state. Such a situation would render impossible the teaching of the use of the words "I am in pain". It would be a miracle how children learn they are in pain, or other persons are in pain: they could not be taught in which circumstances making such ascriptions is appropriate, because there would be no such circumstances and no correct use of the word 'pain'. (My criteria for ascribing pain to another person would be only her avowals "I am in pain"; and since such avowals are made by her without obeying any criteria, my ascriptions of pain to her would be, in the end of the matter, criterionless).

Should we invoke at this point a spontaneous accord between first- and third-person ascriptions of mental states? Should we say that the statement "There is a general agreement between my self-ascription of a mental state M and other persons' ascription of M to me" is a grammatical one? Such a solution would be *ad hoc* and cannot exclude THE PUZZLE as a logical possibility.

It can be replied that first-person ascriptions of mental pain are not statements, but culturally elaborated expressions of the instinctive expressions of pain (Wittgenstein, 1953, par. 244). They are not true or false; they are avowals (*Ausserungen*). Claiming a correspondence between them and third-person ascriptions is problematic: for third-person ascriptions *describe* the painful behaviour of the third person, whereas the avowals made by the third person are a *part* of this behaviour. (We do not contradict an avowal because we disagree with it; rather, we do not contradict an avowal because there is nothing there to contradict).

This does not affect my point. First, the thesis that *all* self-ascriptions are avowals is neither true, nor can it (I hope) be ascribed to Wittgenstein. Imagine that someone else says about me "L.K. is in pain". I reply "This is true: I am indeed in pain". It is hard to see how anyone could hold that my reply lacks any definite truth-value and is a mere exclamation. If we consistently believe that all self-ascriptions of mental states are not statements but *Ausserungen*, we should admit that there is no possibility of agreement or of disagreement between first and third-person ascriptions. This is however counterintuitive: I do not see how anyone could deny that the utterance "I have a toothache", as pronounced by me, and the utterance "L.K. has a toothache", as pronounced by someone else who observes my behaviour, do express the same content.

¹ We do not check a person's medical history in order to assess her mastery of the word 'pain'. And "We do not have a rule that prohibits saying of a person that he know what 'pain' means, if, although he uses it correctly, he has never suffered pain" (Hacker, 1990, p. 270).

² Wittgenstein's later views on this issue oscillated (Wittgenstein, 1967, par. 267).

Shall we say that only *some* of the first-person ascriptions of mental states are avowals? This obliges us to specify the precise criterion of distinguishing those self-ascriptions of mental states that are avowals from those which are statements. (Is the more calm tone of voice on which one utters the words "I am in pain" a decisive criterion for an utterance's qualifying as a statement? Or is the utterance "I am in pain", uttered on a calm voice, simply a sign of a *less intense* form of pain than the same words uttered while groaning?). The more fundamental problem is that if one could specify a criterion for distinguishing between first-person *avowals* and first-person *statements*, the very legitimacy of first-person avowals would be questionable. Why not give up the custom of avowing our experiences in the way we do? Once *some* first-person *statements* of mental states are accepted, one cannot help but consider these statements as an even more elaborate refinement of the instinctive reactions of expressing pain! Why do we not train ourselves so as to *ascribe* mental states to ourselves based on behavioural criteria and instead continue to *avow* them? Once it is accepted that *some* of our first-person ascriptions of (occurential) mental states have the full status of statements, one is obliged to answer why not *all* first-person ascriptions have this status. Therefore: THE PUZZLE remains a genuine puzzle

2.

I shall attempt to prove that something close to S is a grammatical statement. I believe that the sentence T:

"Someone who has felt pain will, other things being equal, better understand the word *pain* than someone who has never felt pain"

is grammatical. In order to see this, we only need to pay attention to the fact that *pain* is a family-resemblance concept. My argument is that T appears absurd only if *pain* is considered as a concept whose application is governed by strict boundaries, if it is possible to find a necessary and sufficient condition for some behaviour to be considered as painful behaviour.

Let's start with the following picture: a child has hurt herself and cries. The parents tell her that she is feeling pain. Later on, when the child displays some form of painful behaviour, she remembers the first circumstance in which she felt pain and avows "*I am in pain*". Or perhaps the child first sees someone else displaying a painful behaviour and the parents tell her "That person feels pain"; later on, the child avows "I am in pain". It is immaterial which one of the above two possibilities holds: the child does not learn the meaning of the word "pain" from her own case, since she would not be able to use such a word if she had not been taught by others the meaning of "pain". Later on, the child recognizes other people feeling pain, and can correctly ascribe pain to them. Whether and when, and with what intensity, the child felt pain in the past, is completely immaterial for her grasping of the meaning of "pain".

This picture of displaying and recognizing pain is a simplistic one. And the reason why it is simplistic is that it relies on the tacitly accepted pre-established harmony between displaying pain and being ascribed pain by other people. *If this simplistic picture were correct, then it would indeed be the case that having felt pain is irrelevant to one's understanding of 'pain'*. If this simplistic picture were true, then it would be false that one learns a psychological word from one's own case and, moreover, no one could

improve one's understanding of a psychological word from one's own case. The reason is that one would never use the word *pain* in circumstances in which other people would not ascribe pain to one.

In order to realize that this picture is simplistic, one needs to remember THE PUZZLE. It is possible to exclaim "I feel pain" and elicit, on behavioural evidence, the reaction "No, you don't". To assume that in such a situation the entourage *must* be right is to assume that there are clear-cut criteria for ascribing pain (or, for that matter, any other occurrential mental state). Indeed, other people must respect criteria in ascribing pain to someone, whereas an individual in isolation needs not, according to Wittgenstein, use such criteria. (It is possible, of course, to obey the criterion of one's own behaviour, but this is not what happens most of the time. If one obeyed behavioural criteria in ascribing pain to oneself most of the time, one would lose the FPA - since criteria can only be public and to ascribe mental states to oneself based on public criteria is to give up FPA).

What I hold is that it is possible that such a conflict between FPA and third-person ascriptions is possible, and it is, moreover, possible that it can be solved in favour of the FPA. That is, it is possible that a person who claims that he is in pain *despite* apparently painless behaviour may convince other people of the genuineness of his pain-avowals. But the only conclusion that follows is that *ascription of pain that is not based on the established criteria may be more accurate than ascription of pain based on established criteria*. To dismiss *a priori* such a possibility is to assume that pain has clear-cut criteria of ascription and that whatever does not conform to these criteria does not count as genuine pain. Obviously, the criteria can only be public (which does not mean that any ascription of pain based on public evidence obeys the established criteria). But since, as I claimed, it is possible that a third-person ascription be wrong and be proved wrong by a first-person avowal, it follows that *it is possible for one correctly to use the word 'pain' based on one's experience of pain*.

This is not to deny that 'pain' must be used according to some criteria, if it is to be used correctly in a third-person ascription. Rather, this means that one's experience of pain may contribute to a better understanding of 'pain'. There is a distinction between

(1) We learn psychological word by private ostension and

(2) We learn how to use a psychological word in virtue of experiencing a certain state.

(1) is false, if by it we mean that experiencing a mental state is enough for using the word 'pain' correctly. But (2) is true: it means that experiencing a mental state, even if at first unrecognized by others, may result in changing the criteria for pain-ascription. To deny (2) is to ignore the *dynamical* status of the criteria for pain ascription. To accept (2) is not to claim that the word 'pain' can be better used in the absence of criteria rather than according to criteria; it means that the criteria of using and understanding the word 'pain' may evolve, change, and this change may be the result of experiences and self-ascriptions of pain that are not immediately so recognized. Thus: according to my interpretation, it makes sense to say "This is the first-time I am feeling a toothache and so I can better understand what 'toothache' means". According to Hacker, such a statement is meaningless. What I hold is that such a way of speaking is acceptable precisely because it does

not depend on any private ostension: it only depends on FPA. If we fail to make the distinction between FPA and private ostension, we could not ascribe any mental state to ourselves until other people ascribed it to us, and our own experiences would be irrelevant to our understanding of psychological words. This is the thesis that I tried to reject.

Therefore: someone who has felt pain and has a good memory of having felt pain may better understand the word 'pain', provided she can convince other people that s/he felt or feels pain. (Of course: good memory plays a crucial role: otherwise we would have to analyze a more radical thesis: "Only someone who is feeling pain *right now* can understand the word 'pain'").³

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Die Einheit der Zeit

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„Die Zeit fordert das Nachdenken heraus durch Fragen, die sich daran knüpfen und nicht ganz leicht zu beantworten sind.“ Eine erste Gruppe von Fragen betrifft eher die Physik der Zeit: Ist die Zeit linear? Wenn ja, handelt es sich um eine offene oder um eine geschlossene Linie? Ist die Zeit asymmetrisch? Wenn ja, hat sie eine Richtung; gibt es einen Zeitpfeil? Eine zweite Gruppe von Fragen betrifft eher die Metaphysik der Zeit: Was ist eigentlich die Zeit? „Ist sie eine Beziehung? eine Beziehung zwischen Gegenständen? oder zwischen Namen oder Zeichen für Gegenstände?“ Die Frage, der ich im Folgenden nachgehen will, hält die goldene Mitte zwischen beiden Gruppen von Fragen: Was bedeutet es eigentlich, wenn wir von *der* Zeit sprechen?

1. Zeitliche Aussagen im Tempus Präsens

Man kann allen zeitlichen Aussagen den Satz-Operator „Es ist der Fall, dass“ voranstellen. Da dieser Operator redundant ist, stellt er keine Herausforderung für die Zeitlogiker dar. Das bedeutet indessen nicht, dass er metaphysisch uninteressant wäre. Zeitlogisch und metaphysisch interessanter ist jedoch zweifellos der Satz-Operator „Es ist jetzt der Fall, dass“. Er gehört zu einer kleinen, aber wichtigen und philosophisch überaus ergiebigen Klasse von Ausdrücken, zu den sog. Indikatoren. Was sind Indikatoren? In erster Näherung können wir sagen: Ausdrücke, die etwas in Abhängigkeit von ihrem Gebrauch bezeichnen. So ist z.B. der Term „ich“ ein Indikator, weil er sich auf die Person, *von der er gebraucht wird*, bezieht; und die Wendung „wirkliches Soundso“ ist einer, weil sie alle Soundso aus der Welt, *in der sie gebraucht wird*, unter sich begreift. Entsprechend ist der Jetzt-Operator ein Indikator, weil er sich auf die Zeitstelle *seines Gebrauchs* bezieht.

Diese Bestimmung des Jetzt-Operators zieht folgende Einmaligkeitsthese nach sich: Was jetzt der Fall ist, von dem ist es immer der Fall, dass es jetzt der Fall ist. Denn jetzt ist eine einmalige, noch nie da gewesene und nie mehr wiederkehrende Zeitstelle. Wenn „p“ jetzt der Fall ist, so kann es noch nie anders gewesen sein, als dass „p“ jetzt der Fall ist; denn es war ja noch nie jetzt. Und wenn „p“ jetzt der Fall ist, so wird es auch nie mehr anders sein können, als dass „p“ jetzt der Fall ist; denn es wird ja nie mehr jetzt sein.

Anders als „Es ist der Fall, dass“ ist „Es ist jetzt der Fall, dass“ nicht redundant. Um das einzusehen, müssen wir zwischen der Zeit, zu der ein Aussagesatz gebraucht wird, und der Zeit, relativ zu der man ihn bewertet, unterscheiden. Die erste Zeitstelle gehört zur Handlungsseite von Sprache, zur sog. Pragmatik; diese Seite betrifft all das, was jemand mit sprachlichen Zeichen irgendwann und irgendwo zu irgendeinem Zweck anstellt. Die zweite Zeitstelle gehört zur Inhaltsseite von Sprache, zur sog. Semantik; diese Seite betrifft alles, was mit sprachlichen Zeichen gemeint ist bzw. was sie darstellen. Auf der Grundlage der Unterscheidung von Gebrauchs- und Bewertungszeitstelle und unter Voraussetzung der Einmaligkeitsthese lässt sich leicht ausrechnen, dass der Satz „Es ist jetzt der Fall, dass ich in Kirchberg bin“, jetzt gebraucht, aber relativ zum Jahr 2000 bewertet, wahr sein muss. Wenn ich indessen den Satz „Es ist der Fall, dass

ich in Kirchberg bin“ – ohne das Wort „jetzt“ – jetzt gebrauche, aber relativ zum Jahr 2000 bewerte, so ist er falsch. Damit haben die beiden Sätze „Es ist jetzt der Fall, dass ich in Kirchberg bin“ und „Es ist der Fall, dass ich in Kirchberg bin“, jetzt gebraucht, aber relativ zum Jahr 2000 bewertet, verschiedenen Wahrheitswert. Da der Satz-Operator „Es ist der Fall, dass“ redundant ist, müssen demzufolge auch die beiden Sätze „Es ist jetzt der Fall, dass ich in Kirchberg bin“ und „Ich bin in Kirchberg“, jetzt gebraucht, aber relativ zum Jahr 2000 bewertet, verschiedenen Wahrheitswert haben. So kommen wir zu unserem ersten Theorem:

Theorem 1. „ $p \leftrightarrow$ es ist jetzt der Fall, dass p “ ist nicht zeitlogisch allgemeingültig, sondern falsifizierbar.

Zeitlogisch allgemeingültig soll hier und im Folgenden ein Aussagesatz heißen, der sich an jeder Gebrauchszeitstelle relativ zu einer beliebigen Bewertungszeitstelle als wahr erweist. Sicher konterkarieren wir unser Theorem, wenn wir verlangen, dass wir zur Ermittlung der zeitlogischen Allgemeingültigkeit eine Aussage nur an ihrer Gebrauchszeitstelle zu bewerten haben. Es gilt nämlich das folgende Theorem:

Theorem 2. „ $p \leftrightarrow$ es ist jetzt der Fall, dass p “ ist, an einer beliebigen Zeitstelle seines Gebrauchs bewertet, wahr.

Aussagen, die an jeder Zeitstelle als Gebrauchs- und Bewertungszeitstelle genommen wahr sind, schlage ich vor, „gebrauchsgültig“ zu nennen. Gebrauchsgültigkeit ist zwar nicht dasselbe wie Allgemeingültigkeit, hängt aber eng mit ihr zusammen. Der Zusammenhang lässt sich wie folgt aussprechen:

Theorem 3. α ist zeitlogisch gebrauchsgültig gdw. $\neg$ Es ist jetzt der Fall, dass $\neg\alpha$ ist zeitlogisch allgemeingültig.

Dieses Theorem ist erkenntnistheoretisch bedeutsam. Es erlaubt uns nämlich, die zeitlogische Gebrauchsgültigkeit indirekt zu axiomatisieren. Wenn es uns gelingt, die zeitlogisch allgemeingültigen Formeln zu axiomatisieren, können wir dieselbe Axiomatik verwenden, um auch alle zeitlogisch gebrauchsgültigen Formeln abzuleiten. Dazu brauchen wir ein zeitlogisches Theorem, das mit dem Jetzt-Operator beginnt, nur um das Anfangsvorkommnis dieses Operators zu kürzen.

2. Zeit-Operatoren

Was ich bisher informell dargestellt habe, lässt sich natürlich formal präzisieren und in einer nach rigiden Regeln gebauten Kunstsprache ratifizieren. So förmlich möchte ich heute allerdings nicht werden. Für meine Zwecke reicht es aus, den Gebrauch der drei wichtigsten Zeit-Operatoren „Es ist jetzt der Fall, dass“, „Es war der Fall, dass“ und „Es wird der Fall sein, dass“ zu reglementieren:

Regel für „Es ist jetzt der Fall, dass“

- (a) Ist α ein Satz, so auch $\ulcorner$ Es ist jetzt der Fall, dass $\alpha\urcorner$.
Man kürzt „Es ist jetzt der Fall, dass“ durch „J“ ab.
- (b) $\ulcorner J\alpha\urcorner$ ist, an einer Zeitstelle u gebraucht und an einer Zeitstelle t bewertet, wahr gdw. α ist, an u gebraucht und an t bewertet, wahr.

Regel für „Es war der Fall, dass“

- (a) Ist α ein Satz, so auch $\ulcorner$ Es war der Fall, dass $\alpha\urcorner$.
Man kürzt „Es war der Fall, dass“ durch „P“ ab.
- (b) $\ulcorner P\alpha\urcorner$ ist, an einer Zeitstelle u gebraucht und an einer Zeitstelle t bewertet, wahr gdw. es gibt eine Zeitstelle t' vor t ($t' < t$), derart dass α , an u gebraucht und an t' bewertet, wahr ist.

Regel für „Es wird der Fall sein, dass“

- (a) Ist α ein Satz, so auch $\ulcorner$ Es wird der Fall sein, dass $\alpha\urcorner$.
Man kürzt „Es wird der Fall sein, dass“ durch „F“ ab.
- (b) $\ulcorner F\alpha\urcorner$ ist, an einer Zeitstelle u gebraucht und an einer Zeitstelle t bewertet, wahr gdw. es gibt eine Zeitstelle t' nach t ($t < t'$), derart dass α , an u gebraucht und an t' bewertet, wahr ist.

Das Symbol „ $<$ “ ist ein um 90 Grad gedrehtes, serifenloses „v“. Es soll an das Wort „vor“ erinnern, das eine Beziehung zwischen Zeitstellen ausdrückt. Da wir es offen lassen, wie diese Beziehung im Einzelnen beschaffen ist, bewegen wir uns im Rahmen der sog. minimalen Zeitlogik. 1995 hat Alexander Gerber in seiner Heidelberger Dissertation *Zeit und Zeichen* eine vollständige Axiomatisierung der Zeitlogik mit diesen drei Operatoren angegeben. Sein Axiomensystem bestand aus den Axiomen und Schlussregeln der minimalen Zeitlogik, angereichert um die Axiome „ $Jp \leftrightarrow \neg J\neg p$ “, „ $J(Jp \rightarrow p)$ “, „ $J(p \rightarrow q) \rightarrow (Jp \rightarrow Jq)$ “ und „ $Jp \rightarrow (\neg P\neg Jp \wedge \neg F\neg Jp)$ “ sowie um die Schlussregel, nach der mit α auch $\ulcorner J\alpha\urcorner$ ableitbar ist.

3. Zwei Einheitsformeln

Um uns der begrifflichen Bestimmung dessen, was unter Einheit der Zeit zu verstehen ist, zu nähern, wollen wir uns überlegen, was unter einer Linie zu verstehen ist. Aus traditioneller Sicht weisen Linien weder Verschmelzungen noch Verzweigungen auf; sie sind verschmelzungs- und verzweigungsfrei. Diese beiden „sprechenden“ Begriffe lassen sich unter Zuhilfenahme der $<$ -Relation wie folgt definieren:

Definition 1. Verschmelzungsfreiheit

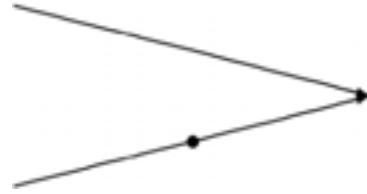
$<$ ist verschmelzungsfrei auf T gdw. für alle $t, t', t'' \in T$ gilt: wenn $t < t'$ und $t' < t''$, dann $t < t''$ oder $t' < t$ oder $t = t'$.

Definition 2. Verzweigungsfreiheit

$<$ ist verzweigungsfrei auf T gdw. für alle $t, t', t'' \in T$ gilt: wenn $t'' < t$ und $t'' < t'$, dann $t < t'$ oder $t' < t$ oder $t = t'$.

Theorem 4. Die Verschmelzungsfreiheit der $<$ -Relation spiegelt sich in der Formel „ $Fp \rightarrow (Pp \vee P\neg p)$ “ wider.

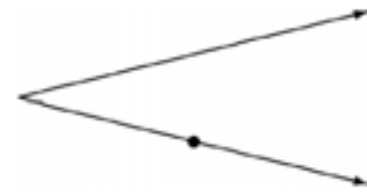
Beweis: Folgendes Diagramm stelle eine Zeitordnung mit in Pfeilrichtung verlaufender Zeit dar.



Stellen wir uns vor, dass „ $Fp \rightarrow (Pp \vee P\neg p)$ “ an der mit dem Punkt markierten Stelle gebraucht wird. Der (wo auch immer gebrauchte) Satzbuchstabe „ p “ sei, an dieser Stelle bewertet, wahr und überall sonst falsch. Dann ist die an der markierten Stelle gebrauchte Formel, irgendwo links oben bewertet, falsch. Also passen Diagramm und Formel nicht zueinander. Trifft die Formel zu, weist die Zeit keine Verschmelzungen auf. QED

Theorem 5. Die Verzweigungsfreiheit der $<$ -Relation spiegelt sich in der Formel „ $PFp \rightarrow (Pp \vee P\neg p)$ “ wider.

Beweis: Folgendes Diagramm stelle eine Zeitordnung mit in Pfeilrichtung verlaufender Zeit dar.



Stellen wir uns vor, dass „ $PFp \rightarrow (Pp \vee P\neg p)$ “ an der mit dem Punkt markierten Stelle gebraucht wird. Der (wo auch immer gebrauchte) Satzbuchstabe „ p “ sei, an dieser Stelle bewertet, wahr und überall sonst falsch. Dann ist die an der markierten Stelle gebrauchte Formel, irgendwo rechts oben bewertet, falsch. Also passen Diagramm und Formel nicht zueinander. Trifft die Formel zu, weist die Zeit keine Verzweigungen auf. QED

Aus traditioneller Sicht reichen Verschmelzungs- und Verzweigungsfreiheit nicht aus, um eine Linie zu beschreiben. Um die zur vollen Linearität (siehe Definition 4) fehlende Eigenschaft bestimmen zu können, wollen wir uns folgendes Diagramm vornehmen:



Jede dieser Linien ist verschmelzungs- und verzweigungsfrei. Dennoch stellt das Diagramm nicht eine, sondern zwei Linien dar. Eine Zeitordnung, die im Bild einer *einzigen* Linie veranschaulicht werden kann, darf keine derartigen Zeitinseln aufweisen, sondern muss verinselungsfrei sein. Dieser Begriff lässt sich wie folgt definieren:

Definition 3. Verinselungsfreiheit

$<$ ist verinselungsfrei auf T gdw. für alle $t, t' \in T$ gilt: wenn weder $t < t'$ noch $t' < t$ und auch nicht $t = t'$, dann gibt es ein $t'' \in T$, derart dass $t'' < t$ und $t'' < t'$, oder ein $t'' \in T$, derart dass $t < t''$ und $t' < t''$.

Theorem 6. Die Verinselungsfreiheit der $<$ -Relation spiegelt sich in der Formel „ $Jp \rightarrow (Pp \vee P\neg p \vee Fp \vee F\neg p)$ “ wider.

Beweis: Folgendes Diagramm stelle eine Zeitordnung mit in Pfeilrichtung verlaufender Zeit dar.



Stellen wir uns vor, dass „ $Jp \rightarrow (Pp \vee Pp \vee Fp \vee Fp \vee Pp \vee Pp)$ “ an der mit dem Punkt markierten Stelle gebraucht wird. Der (wo auch immer gebrauchte) Satzbuchstabe „p“ sei, an dieser Stelle bewertet, wahr und überall sonst falsch. Dann ist die an der markierten Stelle gebrauchte Formel, irgendwo auf der unteren Linie bewertet, falsch. Also passen Diagramm und Formel nicht zueinander. Trifft die Formel zu, weist die Zeit keine Verinselungen auf. QED

Um uns davon zu überzeugen, dass wir in der Verinselungsfreiheit die einheitsstiftende Eigenschaft der <-Relation vor uns haben, wollen wir den traditionellen Begriff von Linearität betrachten:

Definition 4. Linearität

< ist linear auf T gdw. für alle $t, t' \in T$ gilt: $t < t'$ oder $t' < t$ oder $t = t'$.

Dieser Begriff vereinigt in sich die drei im Voranstehenden definierten Freiheiten:

Theorem 7. < ist linear auf T gdw. < ist verschmelzungs-, verzweigungs- und verinselungsfrei auf T.

Wie wir von geraden und gekrümmten sowie von in sich zurücklaufenden (geschlossenen) und nicht in sich zurücklaufenden (offenen) Linien sprechen können, so können wir auch von einfach und mehrfach ausgefranten Linien sprechen. Unsere anfängliche Behauptung, Linien wiesen weder Verschmelzungen noch Verzweigungen auf, ist einer begrifflich fehlgeleiteten Anschauung zuzuschreiben. Begrifflich fehlgeleitet war sie, insofern sie sich statt am Begriff der Verinselungsfreiheit an dem der Linearität orientierte. Wenn wir Haare als natürliche Beispiele für Linien nehmen, sind sich spaltende Haare Beispiele für ausgefrante Linien. So gesehen ist eine Linie mit Verschmelzungen und Verzweigungen zwar bis zur Unkenntlichkeit ausgefrant; aber solange sie verinselungsfrei ist, ist sie immer noch *eine* Linie. Insofern macht die Verinselungsfreiheit die Einheit einer wie auch immer sonst beschaffenen Linie aus. Wie lässt sich diese Eigenschaft in der Sprache der Zeitlogik ausdrücken? Schon E. J. Lemmon vermutete, dass auch die kombinierte Ausdrucksstärke von P- und F-Operator nicht ausreicht, um diese Frage zu beantworten. Dank des J-Operators sind wir in einer aussichtsreicheren Situation. Nach Theorem 6 spiegelt sich die als Verinselungsfreiheit verstandene Einheit der Zeit in der Formel „ $Jp \rightarrow (Pp \vee Pp \vee Fp \vee Fp \vee Pp \vee Pp)$ “ wider. Halten wir ferner fest:

Theorem 8. „ $Jp \rightarrow (Pp \vee Pp \vee Fp \vee Fp \vee Pp \vee Pp)$ “ ist falsifizierbar, aber gebrauchsgültig.

Beweis: Die Falsifizierbarkeit dieser Formel ergibt sich aus dem Beweis von Theorem 6. Ihre Gebrauchsgültigkeit ergibt sich daraus, dass mit „J p“ natürlich auch „p“ selbst, beides an der Zeitstelle des Gebrauchs bewertet, wahr sein muss. QED

Auf syntaktischem Wege ergibt sich obige Einheitsformel (indirekt) aus der Gerber-Axiomatik. Darin ist die Formel „ $J(Jp \rightarrow (Pp \vee Pp \vee Fp \vee Fp \vee Pp \vee Pp))$ “ ableitbar. Da Gerbers Axiomensystem korrekt ist, ist diese Formel zeitlogisch allgemeingültig. Daher greift Theorem 3 und wir können aus der zeitlogischen Allgemeingültigkeit der abgeleiteten

Formel auf die zeitlogische Gebrauchsgültigkeit der Einheitsformel schließen.

Da diese Formel unter Benutzung des Indikators „J“ formuliert ist, gibt sie die Einheit der Zeit allerdings mit einer gewissen subjektiven Tönung wieder. Denn der Bezugsgegenstand eines Indikators ist in dessen Gebrauchskontext zu finden. Zu einem solchen gehört aber nicht nur die Zeitstelle des Gebrauchs, sondern auch das Subjekt, das den Indikator gebraucht. Es ist deshalb eine wichtige Entdeckung, dass die Einheit der Zeit auch indexfrei ausgedrückt werden kann. Das lässt sich mit Hilfe des folgenden Satz-Operators bewerkstelligen:

Regel für „Es ist manchmal der Fall, dass“

- (a) Ist α ein Satz, so auch „Es ist manchmal der Fall, dass α “.
Wir kürzen „Es ist manchmal der Fall, dass“ durch „M“ ab.
- (b) „ Ma “ ist, an einer Zeitstelle u gebraucht und an einer Zeitstelle t bewertet, wahr gdw. es gibt eine Zeitstelle t' , derart dass α , an u gebraucht und an t' bewertet, wahr ist.

Theorem 9. Die Einheit der Zeit spiegelt sich in der Formel „ $Mp \rightarrow (Pp \vee Pp \vee Fp \vee Fp \vee Pp \vee Pp)$ “ wider; diese Formel ist falsifizierbar, aber nicht gebrauchsgültig.

Beweis: Folgendes Diagramm stelle eine Zeitordnung mit in Pfeilrichtung verlaufender Zeit dar.



Stellen wir uns vor, dass „ $Mp \rightarrow (Pp \vee Pp \vee Fp \vee Fp \vee Pp \vee Pp)$ “ irgendwo auf der unteren Linie gebraucht wird. Der (wo auch immer gebrauchte) Satzbuchstabe „p“ sei, an der mit dem Punkt markierten Stelle bewertet, wahr und überall sonst falsch. Dann ist die an irgendeiner Stelle auf der unteren Linie gebrauchte Formel, an derselben Stelle bewertet, falsch. Also passen Diagramm und Formel nicht zueinander. Trifft die Formel zu, weist die Zeit keine Verinselungen auf. Da die an irgendeiner Stelle auf der unteren Linie gebrauchte Formel an derselben Stelle auch als Bewertungszeitstelle genommen falsch ist, ist sie nicht bei jedem Gebrauch wahr. QED

Damit können wir die Einheit der Zeit sowohl indexikalisch als auch indexfrei ausdrücken. Welche Ausdrucksweise verdient den Vorzug? Die Antwort hängt davon ab, ob man die Zeit auf lange Sicht ohne den indexikalischen J-Operator beschreiben kann. Kantianern steht mit der These von der Zeit als reiner Form *unserer* Anschauung ein solches Argument zur Verfügung. Doch die Allgemeine Relativitätstheorie hat die Glaubwürdigkeit dieser These unterminiert. Welche der beiden Ausdrucksweisen den Vorzug verdient, muss aber zum Glück erst dann entschieden werden, wenn man die Frage zu beantworten sucht, ob es eine oder mehrere Zeiten gibt. Falls das letztere zutrifft, ist keine der beiden Formeln zeitlogisch allgemeingültig. In diesem Fall ist die indexikalische der indexfreien Einheitsformel überlegen. Denn ist sie auch nicht allgemeingültig, so ist sie doch wenigstens bei (jedem) Gebrauch wahr.

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“Time Flies”.

On Time Metaphors and Their Possible Consequences

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1. Introduction

There is much talk and literature about time. My frequent impression has been that people were attributing features to time that actually were features of something else. That is, I felt that they often were speaking metaphorically about time and were doing so in an objectionable way.

For instance, modern Western life often is said to be pressured “linear, mechanical clock time”, while premodern or non-Western life was or is less hurried, agreeing with “cyclical time” or some other “forms of time” (cf., e.g., Geissler 1999). I should think it is not time, not even clocks that pressure us, but rather shared demands of being on time and producing things efficiently, or desires of engaging in many activities. Any harm done by an attribution of that pressure to time itself? The use of the time jargon may just add some lofty importance or poetic charm.

Or is there possibly more at stake? Certain richly suggestive metaphors, like “time is money”, have indeed, for good or bad, contributed to the character of modern life (cf. Lakoff and Johnson 1980). In an intriguing article, J. Schummer (2000) argues that certain “forms of time” – or, rather, “forms of time consciousness”, metaphorically indicated as “linear progressive” or “cyclical” – can stand in the way of an appropriate approach to our environmental problems.

Several questions can be raised here and will be discussed. Many metaphors of time do not seem to shed much light on the nature of time. Do they then not impair our understanding of reality? Given the welter of metaphors of time, is it at all clear what can be said literally about time or about time consciousness? As concerns Schummer’s claim, is it actually metaphorical conceptions of *time* or rather some other sorts of beliefs that may be impediments? And, more academically, does Schummer’s metaphorical description of those forms of time consciousness help in understanding the situation in question?

2. Metaphorism of Time

We readily understand someone’s reply “I don’t have time”, though it is elliptical speech. It also is slightly metaphorical: “having time” is a somewhat misleading suggestion of “time is money”. “Time heals all wounds” is more clearly metaphorical, time being no medication. “Time just flew by” is a figure of speech for someone’s subjective time experience.

Often, our statements concerning time are meant very literally: e.g. “we only have twenty minutes left to catch the train”. They refer to our public time regime of clocks, calendars etc. Despite its conventional features, it forms an objective frame of reference: different conventional time systems are easily convertible. Inasmuch as it influences our experience of time, our time consciousness possesses quite some objective content.

In some statements, ‘time’ is used literally, but in one of its specific meanings. E.g., “in Napoleon’s time” refers to the historical period in question.

Identifying temporal metaphors, it would seem, presupposes that one has clarified what can be said literally of time, before one even begins to investigate their possible misleading or even harmful aspects. (There can be detrimental effects of language usages which need not involve metaphors; witness everyday scolding or the demagogical rhetoric of totalitarian regimes (cf. Klemperer 1947)).

3. The Structure of Time

What then can be literally predicated of time? An at least partial answer could be: the objective features of time. Partial, because the distinctions literal/metaphorical and objective/subjective do not coincide.

Yet, given the debate among philosophers about the nature of time, the question, thus approached, will not be easily settled. For some, time is something in itself; for others, there only are temporal relations between things and events; for still others, time are itself purely subjective or an illusion. Philosophers also are divided on questions of the “flow”, “direction” or “beginning” of time. For many, such expressions just are metaphorical.

Many, though, agree on a few structural characteristics of time. First, time is the order of before and after of events, including their possible simultaneity, and of their duration. Second, we divide time into the modes of past, present (now) and future.

Yet, even these two types of characteristics raise questions, especially regarding their compatibility. The first coincides with the conceptualization of time, common in everyday life and also in science, as a one-dimensional linear manifold. On it, there seems to be no place for a privileged *now*. As Carnap related, Einstein was deeply worried by the fact that the important difference of the *now* from past and future does not occur in physics. I should say that the *now* cannot appear in physics, since its theories describe (relations between) possible events, thus including actual events, but not distinguishing them. An experimental physicist, though, knows quite well that he is pushing a button now.

The discrepancy between the two types of characteristics has led to much discussion, especially consequent on McTaggart’s (1908) arguments, which seemed to make the problem disappear. He argued that the characteristics were incompatible and that the idea of an event having successively the “dynamical” properties of future, present and past was even contradictory. He concluded that our usual notion of time was self-contradictory and time itself an illusion. If his arguments were correct, which many doubt, then all statements about time would be metaphorical, even in a fictional sense.

The “dynamical” element finds special expression in the idea of the “flow or passage of time”. It has struck me that the direction of this “motion” is often left unclear (and

that the literature concerned, excepting cognitive science, does not seem to mention this fact). There is a strong argument for regarding the "flow of time" as a metaphor without any real objective content. What would the speed of this flow be? Would it not be: 1 second per second. Yet, this is nonsense and would presuppose a second time, which would also "flow", and so on.

Thus, this metaphor at least encumbers a sound view of reality. Reality is process. In that metaphor, this character of process is wrongly projected on "time itself". Specifically, "flow" is a spatial image. Much of our talk of time ("a long time", etc.) makes use of spatial metaphors. Bergson (1922) is famous for having pointed out how this spatialization of time impedes a proper understanding of time and time experience.

Could there be time without change? Surely, our perception and measurement of time is dependent on processes of change. Yet, they are equally dependent on the permanence of things (e.g., hands and wheels of a clock). Also, it seems to me conceivable that one could speak of time, though not perceive or measure it, even in a static, unchanging world.

My brief discussion of controversies about the status and possible objective characteristics of time shows that it is difficult to establish a literal meaning of 'time' by means of them. There also has been the question of whether some of the characteristics are not rather subjective properties of our experience or consciousness of time.

4. Metaphorism of Time Consciousness

Our subjective time experience displays sundry peculiarities and often fools us (cf. Draaisma 2001). The first days of vacation pass slowly, while the whole vacation appears short in retrospect. Such incorrect estimations, often metaphorically expressed, may of course have adverse practical consequences.

The idea of the "flow of time" also seems to be mainly tied to subjective experience. As mentioned, cognitive scientists clearly distinguish between the two possible directions (cf. Evans 2003), of course with the experiencing subject as point of reference. They speak of the "moving time" mapping in expressions like "Christmas is coming up on us", and of the "moving ego" mapping in expressions like "we passed the deadline". These are metaphors – mappings from a source, 'motion', to a target, 'time' – though hardly the most basic ones. Cognitive scientists debate what can count as the primary time metaphor. A primary metaphor expresses a direct correspondence relation between simple, universal human experiences, in contrast to a complex or compound, culture-dependent metaphor. The debate is focussed on the choice between conscious experience of change and that of duration. V. Evans (2003: 76) concludes that "while metaphor theorists have assumed that what is literal and inherent about time relates to an awareness of change, a broad range of evidence suggests that the subjective experience of time may in fact ultimately relate to our experience of duration." Since the choice is between metaphors, Evans should have said "relatively literal".

Finally, I note that the standard view of metaphors as mappings of knowledge from the source domain to the target domain is strongly epistemological. (There are other views, for instance, the interaction view.) Yet many metaphors, also those of time, clearly have quite non-epistemological functions.

5. Time Consciousness and Environmental Problems

Our perception of time and our perception of the world no doubt are intimately related. I note here that our experience of duration is not dependent on perceptions of the world *outside* our body.

Of what kind is that intimate connection? Some assert, as does J. Schummer (2000), that time consciousness colors or co-determines all perceptions, feelings, actions and expectations, and vice versa. In particular, he claims that certain forms of time consciousness impede an adequate approach to global environmental problems and that these, in turn, can lead to certain sorts of irritations and distortions of time consciousness. It is important to ask here what the specific content of a time consciousness is.

Time, for Schummer, is a universal structuring achievement, ordering all of our contents of consciousness as simultaneous or before and after and as belonging to the past, present or future. Thus, the structural characteristics discussed above are regarded by him as characteristics of our time consciousness.

Yet, according to Schummer, our time consciousness can have additional ordering structures, issuing from various further regularities in experience and leading to different "time structures". He distinguishes two teleological structures, the linear-progressive and the linear-degressive one, the cyclical structure, and the structureless form. Furthermore, there is the distinction between unlimited and limited time, which can enter into combinations with the just-mentioned forms. I think that all of these "time structures" will count as complex metaphors for cognitive scientists.

Schummer notes that we have no problem living in a plurality of time structures. For instance, the model of linear-limited time is present in our life project, that of cyclical time in all sorts of routines.

There is thus no reason – nor does nature give us any reason – for selecting the one "correct" time structure. This motivates Schummer's central claim that any absolutization or universalization of one time structure will carry the cost of blindness concerning the other time structures.

Such universalizations, he says, are mainly due to strong expectations, future-oriented basic moods. Global and relatively irreversible environmental problems impose on us an inevitable future perspective. This engenders irritations of time consciousness, for instance the fear that we shall live shorter than expected. This may also distort it, as in the negative utopia of a catastrophe model, which absolutizes the model of a linear limited time. Positive utopias, the model of natural cycles or that of unlimited growth, when absolutized, lead to problem suppressions and other illusions.

I would agree that an all-embracing doom thinking, an absolute belief in the all-healing power of natural cycles or an absolute belief in a technology-based permanent growth, as well as the respective associated time metaphors, will hamper a realistic assessment and handling of our environmental problems. In this sense, certain time metaphors could have disastrous consequences.

Yet, are these dependencies really mediated by conscious enriched time structures, and does one

comprehend things better when one is told so by Schummer? The first question seems to me to be one for psychology and neurophysiology. As concerns the second, I doubt that Schummer's metaphoricism is helpful. Abstractly speaking, it is plausible that time structures, endowed as they are with a greater generality, are more readily susceptible to universalization than patterns of particular processes.

Which time consciousness, then, is appropriate for environmental problems and, as Schummer puts it, for environmental ethics? His view so far implies: avoid universalizations, do not get carried along by basic moods, be aware of the plurality of time structures. In line with H. Jonas, Schummer is especially critical of the universalization of the linear-progressive form. At the last minute, he advocates a not yet mentioned form, namely an unlimited linear-constant or linear future-open time structure, specifically for the preservation of the necessary conditions of life, pled for by Jonas.

6. Conclusions

Metaphors enliven conversation and stories. Much of our metaphorical talk of time is apt or innocuous. Yet, when judged by an interest in the objective nature of time, much of it can be considered as misleading or false. Of course, most of it is not meant to explain the nature of time, but serves quite different purposes.

To what extent and in what way someone's entertaining particular metaphors of time might influence perceptions and decisions of that person seems to me to be largely a question of empirical research. No doubt, someone's belief in permanent progress or someone's belief in inevitable catastrophes will influence the way the person handles affairs. Yet, Schummer's use of forms of time consciousness in his analysis of this influence is not particularly enlightening.

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Wittgenstein und musikalischer Ausdruck

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Bei der Beschreibung von Musik gebrauchen wir oft mentale Prädikate; z.B. sagen wir: „Diese Melodie ist traurig“. Auch können wir Musik mit Hilfe von Ausdrucksbenehmen begleiten oder beschreiben, das normalerweise als Evidenz für die Zuschreibung mentaler Prädikate dient. Eine lange musikästhetische Tradition ist der Frage nachgegangen, auf welche Weise musikalischer Ausdruck einen Zusammenhang zwischen Musik und Seelischem herstellt. Wittgenstein greift diese Tradition auf, wenn er in seinen späten Notizbüchern oft die Ähnlichkeit von Musik mit expressivem Benehmen kommentiert und etwa schreibt: „Ein Thema hat nicht weniger einen Gesichtsausdruck, als ein Gesicht“ (Wittgenstein ⁸1999, 523), oder: „Diese musikalische Phrase ist für mich eine Gebärde. Sie schleicht sich in mein Leben ein. Ich mache sie mir zueigen“ (Wittgenstein ⁸1999, 553). Zwar berührt Wittgenstein in Passagen wie diesen die Frage nach musikalischem Ausdruck nur. Doch andererseits bildet die grammatische Untersuchung mentalen Vokabulars ein zentrales Thema seines späten Philosophierens, wie zahlreiches relevantes Material v.a. im zweiten Teil der *Philosophischen Untersuchungen* und in den letzten *Notebooks* belegt. Im Folgenden will ich einen von Wittgenstein selbst angedeuteten Aspekt dessen entwickeln, wie im Ausgang von seinen metapsychologischen Überlegungen neben Unterschieden auch Ähnlichkeiten zwischen dem normalen Gebrauch mentaler Prädikate und deren Anwendung auf Musik ermittelt werden kann und so die Frage nach dem Zusammenhang von musikalischem Ausdruck und Ausdrucksbenehmen innerhalb einer am späten Wittgenstein orientierten Methodologie zu behandeln ist.

Die Ausführungen und Notizen des späten Wittgenstein zur Philosophie der Psychologie bilden einen komplexen Diskussionszusammenhang, innerhalb dessen sich gleichwohl einige Schwerpunkte ausmachen lassen. Einen davon bildet die Untersuchung von sogenannten „Gesetzen der Evidenz für das Seelische“. Wittgenstein bezeichnet damit allgemeine Regeln für den Umgang der spezifischen Evidenz, auf die wir unsere Zuschreibung von mentalen Prädikaten stützen: also die Regeln dafür, auf Evidenz welcher Art wir achten; für wie sicher wir sie halten; inwieweit wir Schlüsse daraus ziehen; wie wir reagieren, wenn sich die Evidenz als trügerisch erwiesen hat, usw. Wittgenstein zu Folge weisen die Evidenzregeln für das Seelische charakteristische Besonderheiten auf. Eine dieser Besonderheiten, mit der wir uns im Folgenden beschäftigen wollen, besteht in der „unendliche[n] Vielfältigkeit des Ausdrucks“ (Wittgenstein 1998 ff., ms. 173, 39r). Ausdruck von Seelischem tritt in unendlicher und immer neuer Nuanciertheit auf, und eine winzige Bewegung eines Gesichtsmuskels kann von entscheidender Bedeutung dafür sein, wie ich den Anderen verstehe. Damit hängt für Wittgenstein zusammen, dass die „[...] wichtigen feinen Abschattungen des Benehmens [...] nicht vorhersagbar“ (Wittgenstein 1998 ff., ms. 173, 39v) sind.

In folgender Passage überträgt Wittgenstein diese Charakterisierung von Ausdrucksbenehmen auf musikalischen Ausdruck:

Die menschlichen Variationen des Lebens sind unserm Leben wesentlich. Und also eben der Gepflogenheit des

Lebens. Ausdruck besteht für uns [sc. in] Unberechenbarkeit. Wüßte ich genau wie er sein Gesicht verziehen sich bewegen wird, so wäre kein Gesichtsausdruck, keine Gebärde vorhanden. — Stimmt das | aber? — Ich kann mir doch ein Musikstück das ich (ganz) auswendig weiß immer wieder anhören; & es könnte auch auf «von» einer Spieluhr gespielt werden. Seine Gebärden blieben für mich immer Gebärden obgleich ich immer weiß, was kommen wird. Ja, ich kann sogar immer wieder überrascht sein. ([i])n einem bestimmten Sinne.)

Aber man nennt doch etwas „abgedroschen“. — Und man sagt „Diese Melodie ist immer neu“ — wäre es also möglich, daß uns jene genau berechenbaren Gebärden immer neu vorkämen? Wie soll ich's sagen? Das ist sicher: eine steife, «eine» puppenhafte Gebärde ist für uns keine Gebärde. (Wittgenstein 1998 ff., ms. 137, 67 a/b)

Wittgenstein bezieht sich hier auf musikalischen Ausdruck, um Ausdrucksbenehmen besser zu verstehen. Dabei formuliert er das Problem, dass im Fall von musikalischem Ausdruck durch das wiederholte Hören einer Aufnahme Vorhersehbarkeit eintritt und der Ausdruck dennoch erhalten bleibt. Nachdem dies aber nicht etwa als Unterschied zwischen musikalischem und gewöhnlichem Ausdruck, sondern als Einwand gegen die ursprüngliche Beschreibung des Ausdrucksbenehmens selbst eingeführt wird, scheint eine Qualifizierung des Begriffs „Unvorhersehbarkeit“ nötig. Wittgenstein führt nun Phänomene wie puppenhaften Ausdruck als Gegenbild zu einer berechenbaren, aber immer neu erscheinenden Gebärde ein. Der Begriff „Unvorhersehbarkeit“ wird so auf das Phänomen eingeeengt, dass eine genuin ausdruckshafte Gebärde (sowohl musikalischer als auch gewöhnlicher Natur) auch dann immer wieder neu erscheint, wenn sie reproduziert wird.

Durch diese Präzisierung ist nun der Einwand von Wittgensteins Interlokutor gegen die Charakterisierung von sowohl musikalischem als auch gewöhnlichem Ausdruck als unvorhersehbar entkräftet. Darüber hinaus sind die von Wittgenstein angeführten Beispiele der genauen Kenntnis eines Musikstückes, das in seinem Verlauf trotzdem immer wieder überrascht, und des Gegenbildes der puppenhaft wirkenden Automatenmusik dazu geeignet, den spezifizierten Begriff von Unvorhersehbarkeit als zutreffende formale Beschreibung unseres Umgangs mit Musik zu etablieren. Es könnte entgegnet werden, dass dies auf Kosten der Brauchbarkeit des Begriffes „Unvorhersehbarkeit“ für Ausdrucksverhalten geht, da dieses gewöhnlich ohne jeglichen Rekurs auf eine Reproduktion identifiziert wird. Doch kann ich auch dann sinnvoll sagen, dass mir Ausdrucksbenehmen trotz günstiger epistemischer Ausgangsposition neu vorkommt, wenn ich vom Benehmen einer Person rede, die ich gut kenne und von der ich in einer gegebenen Situation vorhersagen kann, wie sie reagiert. Wenn dieser Begriff von Unvorhersehbarkeit nicht als allgemeines Kriterium für die Zuschreibung von Ausdruckhaftigkeit gebraucht werden kann, liegt das daran, dass in einer ungünstigeren epistemischen Ausgangsposition – wenn ich etwa die andere Person weniger gut kenne – bereits diese Ausgangssituation das folgende Verhalten für mich unvorhersehbar macht. Daraus folgt aber nicht, dass die oben spezifizierte Art von

Unvorhersehbarkeit nicht ein Charakteristikum seelischer Evidenz wäre.

Der diskutierte Einwand benennt aber dennoch einen wesentlichen Unterschied zwischen unserer musikalischen Praxis, für die Reproduktion (zumindest in Form von wiederholter Ausführung der gleichen Notation) wesentlich ist, und Ausdrucksbenehmen, in dem Reproduktion normalerweise keine Rolle spielt. Entsprechend ist Ausdrucksbenehmen in eine bestimmte Situation eingebettet, in der es tatsächliche (oder auch nur vorgetäuschte) seelische Zustände des Subjekts des Benehmens sichtbar macht. Musik dagegen ist durch die Praxis von Notation und Reproduktion von einer solchen unmittelbaren Mitteilungssituation losgelöst. Wenn nun also sowohl unser Umgang mit Musik als auch mit Ausdrucksbenehmen von der Evidenzregel der Unvorhersehbarkeit geleitet ist, ist diese Parallele logisch unabhängig von anderen Evidenzregeln der Art, dass mich jemandes Ausdrucksverhalten über seinen seelischen Zustand informiert bzw. dass musikalischer Ausdruck *keinen* Rückschluss auf die mentale Situation des Komponisten zulässt.

Wir kommen nun zum Begriff der *Feinheit*, den Wittgenstein, wie wir gesehen haben, bezüglich von Ausdrucksbenehmen eng mit dem der Unvorhersehbarkeit verbindet. Wittgensteins Beispiel der Spieluhr legt folgende Anwendung dieses Begriffs auf musikalischen Ausdruck nahe: Die Spieluhrversion eines Stückes, die mechanisch und puppenhaft klingt, unterscheidet sich von der Aufnahme eines menschlichen Interpreten in feinen Tempoveränderungen, Lautstärkemonifikationen etc. – in denjenigen interpretatorischen Lizenzen also, die wesentlich für die Expressivität einer Aufführung sind. Der relative Begriff „Feinheit“ kann hier von größeren, nämlich sinnentstellenden oder einfach falschen Modifikationen abgegrenzt werden. Wenn Wittgenstein daneben, wie wir gesehen haben, im Zusammenhang mit der Evidenz des Seelischen von den „*wichtigen* feinen Abschattungen des Benehmens“ spricht, so ist es naheliegend, „wichtig“ als „sinnrelevant“ zu verstehen und derart auf den Fall von Musik zu übertragen, dass die genannten interpretatorischen Modifikationen wichtig sind, weil sie den Ausdruck maßgeblich beeinflussen, während andere Modifikationen diesbezüglich irrelevant sein können: eine Tempoveränderung, die an einer bestimmten Stelle – etwa dem Höhepunkt einer Melodie oder dem Ende einer Phrase – den Ausdruck maßgeblich verändern, kann an einer anderen Stelle unauffällig bleiben, ebenso wie die Bewegung eines Gesichtsmuskels im Zusammenhang einer bestimmten Gebärde entscheidend sein kann und in anderem Zusammenhang gleichgültig.

Dieses von Wittgensteins Beispiel der Spieluhrmusik nahegelegte Verständnis von der Feinheit musikalischen Ausdrucks bedarf nun aber einiger Diskussion. Die Bedeutsamkeit von relevanten Feinheiten, könnte man zunächst kritisieren, ist nicht geeignet, um Ausdrucksbenehmen und musikalischen Ausdruck zu charakterisieren, da sie auch in Sprachspielen vorzufinden ist, die bei Wittgenstein als Gegenbild zum Sprachspiel vom Seelischen fungieren – etwa in naturwissenschaftlichen Kontexten. Gerade Sprachspiele mit einer Art von Sicherheit, wie sie etwa in der Mathematik oder der Physik besteht, sind doch um der *Genauigkeit* willen, die in diesen Sprachspielen möglich ist, darauf angewiesen, alle denkbaren Feinheiten zu berücksichtigen. Außerdem können auch hier wichtige von unwichtigen Feinheiten unterschieden werden. Wenn z.B. auf eine Reihe von Messwerten eine exponentielle Funktion angewendet wird,

hat eine identische Abweichung bei geringen Messwerten weniger drastische Folgen als bei hohen Messwerten.

In die Richtung derjenigen Präzisierung des Begriffes „Feinheit“, die erforderlich ist, um diesem Einwand zu begegnen, weist folgende Bemerkung Wittgensteins:

Ich glaube, es ist eine wichtige und merkwürdige Tatsache, daß ein musikalisches Thema, wenn es in (sehr) verschiedenen Tempi gespielt wird, seinen *Charakter* verändert. Übergang von der Quantität zur Qualität. (Wittgenstein 1999, 554)

Die auftretenden Veränderungen im genannten mathematischen Beispiel sind rein quantitativ; nichts in diesem Beispiel entspricht der qualitativen Veränderung des Themas in Wittgensteins Beispiel (wobei die Rede von *sehr* verschiedenen Tempi unnötig vorsichtig erscheint). Wichtige Feinheiten in Musik und Ausdrucksbenehmen, so können wir festhalten, sind gerade deswegen wichtig, weil sie qualitative, nämlich ausdrucksmäßige Veränderungen erzeugen und nicht nur irrelevante, weil rein quantitative Modifikationen.

Ein weiterer, naheliegender Einwand gegen den oben skizzierten Begriff musikalischer Feinheiten besagt, dass Spieluhrmusik insofern nicht ausdruckslos ist, als schon in der Komposition Ausdruckswerte vorgegeben sind. Wir können uns aber ohne weiteres Kompositionen vorstellen, die als solche puppenhaft wirken. Solche Stücke verwenden Klischees, sie sind schülerhaft. Wir können uns auch ein Computerprogramm denken, das mit Hilfe des Regelwerks von Kompositionslehren und eines Zufallsgenerators schulmäßige Stilkopien erzeugt. Das Regelwerk kann dann auch Ausdruckswerte vorgeben – etwa für einen Symphonie-Kopfsatz ein heroisches Haupt- und ein lyrisches Seitenthema. Ein derartiges Computerprogramm ist nun angewiesen auf ein Manual, das ihm für jeden im Regelwerk vorgesehenen Ausdruckswert kompositorische Mittel angibt.

Um den Status derartiger Fälle in unserer Musikpraxis zu verstehen, müssen wir bedenken, dass diese Praxis von einer Asymmetrie zwischen dem Schaffen musikalischen Ausdrucks und dessen Verstehen geprägt ist. Wir alle sind mehr oder weniger in der Lage, bestimmte Musiksprachen zu verstehen, während wenige von uns musikalischen Ausdruck innerhalb dieser Sprachen zu erzeugen vermögen. Offensichtlich muss der Komponist das jeweilige musikalische Idiom viel besser und expliziter kennen als der Hörer. Insofern setzt die Fähigkeit zu komponieren, obwohl der Komponist in aller Regel als Hörer die Musiksprache bereits beherrscht, einen Lernprozess voraus, der dem Erlernen einer Fremdsprache vergleichbar ist. Der Anfänger in einer Fremdsprache ist in seiner Ausdrucksfähigkeit auf die Vereinfachungen eines Wörterbuchs beschränkt, während der Fortgeschrittene sich zunehmend freier ausdrücken kann. Und das nicht nur, weil sein Wortschatz größer ist; er kann auch besser damit umgehen, weil er weiß, welche Nuancen ein Wort der Fremdsprache ausdrückt und welche nicht, etc. Analog dazu können wir den Unterschied zwischen Kompositionsschüler bzw. –programm und fähigem Komponisten beschreiben: Während sich der Komponist frei ausdrücken kann, sind Schüler und Programm auf schematisch verkürzte Regelwerke angewiesen.

Die Regelwerke sind nun aber nicht deswegen defizitär, weil die Regeln, denen die musikalische Praxis folgt, nicht alle ihre Anwendungen bestimmen würden.

Vielmehr ist diese Praxis so komplex, dass sich die Autoren von Kompositionslehren notwendig auf einen kleinen Ausschnitt oder, in anderer Betrachtungsweise, auf die Beschreibung einer einfacheren als der tatsächlichen Praxis beschränken müssen.

Um diesen Unterschied zwischen Praxis und Regelwerk genauer zu formulieren, will ich eine technische Begrifflichkeit zu Hilfe nehmen, die Nelson Goodman in *Languages of art* einführt. Goodman unterscheidet Symbolsysteme mit Hilfe der syntaktischen wie semantischen Eigenschaften *Differenzierung* und *Dichte*. Differenziert ist eine Syntax, wenn innerhalb ihrer jedes *token* insofern klar einem *type* zuzuordnen ist, als es nicht zwischen zwei beliebigen *types* immer einen weiteren *type* geben kann; semantische Differenzierung besteht entsprechend darin, dass in gleicher Weise jede Referenz einem syntaktischen *type* zugewiesen werden kann. Dicht hingegen ist eine Syntax, wenn es zwischen zwei *types* immer einen weiteren gibt; für semantische Dichte gilt Analoges auf der Ebene der Referenzobjekte.

Wittgensteins Rede von der unendlichen Variation und Feinheit lässt sich in Goodmans Terminologie als syntaktische wie semantische Dichte der musikalischen Praxis formulieren; musikalische Gestalt wie Ausdruck lassen sich in jeweils syntaktisch und semantisch relevanter Weise verfeinern. Kompositionsprogramm und Schüler hingegen sind auf ein Regelwerk angewiesen, das hinsichtlich musikalischen Ausdrucks syntaktisch und semantisch differenziert ist. Das Regelwerk vereinfacht also die dichte Praxis einer bestehenden musikalischen Sprache zu einem differenzierten System.

Wir haben nun einen logischen Unterschied zwischen der Produktion von ausdrucksvoller und puppenhafter Musik formuliert. Wie aber kann der Zuhörer einem Stück anmerken, ob es der dichten Praxis oder der differenzierten Schulversion der Praxis entspringt? Wenn ein Schüler oder ein Automat einer Manual-Regel zur Erzeugung von Ausdruck folgen, ist die resultierende Stelle allein durch die semantische Differenzierung des Manuals bestimmt. Wie diese Stelle im Rahmen des Kontinuums möglichen Ausdrucks verstanden wird, in dessen Kontext sie der Hörer sieht, der sie von der dichten Praxis aus betrachtet, bleibt von der Regel unbestimmt; es ist dem Zufall überlassen. Dem *einzelnen* musikalischen Element kann man dann freilich nicht ansehen, ob es im Rahmen der dichten oder der differenzierten Praxis entstanden ist. Doch wird man im Verlauf des musikalischen Kontexts kaum konsistent diejenigen Elemente, die ursprünglich vom Zufall bestimmt sind, als sinnhafte, für den Ausdruck relevante Feinheiten verstehen. So werden die aus der differenzierten Praxis resultierenden Stücke, eben weil sie auf Grund der vorausgesetzten Differenzierung in vielerlei Hinsicht vom Zufall bestimmt sein müssen, *ungelenk* erscheinen.

Wir können uns einen analogen Fall in Bezug auf Ausdrucksbenehmen vorstellen: Wie die musikalische Praxis ist auch dieses syntaktisch und semantisch dicht; wenn nun ein Automat konstruiert wird, der Ausdrucksbenehmen nachahmen soll, muss diese Praxis künstlich differenziert werden. Um das Benehmen des Automaten weniger roboterhaft erscheinen zu lassen, kann das vorgegebene differenzierte Bewegungsmuster durch einen Zufallsgenerator gewissermaßen verwischt werden. Und doch wird das Benehmen eines derartigen Automaten insgesamt immer noch mechanisch und un gelenk erscheinen, weil die Feinheiten seines Verhaltens nicht durch Ausdruck, sondern durch Zufall bestimmt sind und daher nicht dauerhaft als in derjenigen semantischen Dichte aussagekräftig betrachtet werden können, die wir von menschlichem Ausdrucksbenehmen gewohnt sind.

Im Vorangegangenen haben wir, einer relevanten Passage Wittgensteins folgend, formale Ähnlichkeiten zwischen musikalischem und gewöhnlichem Ausdruck behandelt. Die Erörterung von Zusammenhängen zwischen Musik und Ausdrucksverhalten hat, wie eingangs angedeutet, eine lange Tradition. In dieser Tradition wird oft versucht, die Anwendung mentaler Prädikate auf Musik und damit ein grammatisches Phänomen zu *begründen* – z.B. durch die Auffassung, Musik sei *eigentlich* eine Form von Ausdrucksbenehmen des Komponisten oder des Interpreten. Dagegen versuchen Überlegungen wie die hier angestellten, die Anwendung mentaler Prädikate auf Musik als gegeben zu betrachten und in ihren grundlegenden Zügen zu beschreiben, was vom Standpunkt einer Wittgensteinschen Methodologie aus als Vorteil erscheinen muss¹.

Literatur

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1 Mein herzlicher Dank gilt Marcello Stamm (München/Hobart), Erasmus Mayr und Tom Feese (beide München). Die von Wittgenstein ausgehende Behandlung musikästhetischer Fragen werde ich in meiner Masterarbeit (LMU München, Wintersemester 2005/06) vertiefen.

Wittgensteins *Tractatus* im Lichte der Linguistic und der Pictorial Turns

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Die von Gustav Bergmann Mitte des 20. Jahrhunderts mit dem Ausdruck 'linguistic turn' bezeichnete neueste philosophische Revolution wurde, wie Bergmann das festhält, von Ludwig Wittgensteins *Logisch-philosophischer Abhandlung* mit initiiert. "Of late philosophy has taken a linguistic turn. At least this is true of a large and, by general agreement, significant part of all philosophical activity that went on in the English-speaking countries during the last one or two generations. (...) The causes of this linguistic turn or, if you please, the roots of the movement (...) are many, in part diffuse and anonymous as well as very complex. Yet the influence of three men, Moore, Russell, and Wittgenstein, stands out." (Bergmann 1952: 417). Richard Rorty übernahm 1967 die Formulierung von Gustav Bergmann und machte sie mit seinem Sammelband bekannt. "The phrase 'the linguistic turn' which Bergmann uses [in Bergmann 1964: 177] and which I have used as the title of this anthology is, to the best of my knowledge, Bergmann's own coinage" (Rorty 1967: 9.)

Bekanntlich gilt Wittgenstein als Initiator der analytischen Philosophie des 20. Jahrhunderts. Sein "Tractatus Logico-Philosophicus (1922) is a paradigmatic exercise in logical analysis, resting on the assumption that 'A proposition has one and only one complete analysis' (Wittgenstein 1922, 3.25)." Dieser Gedanke sei im Wiener Kreis zu einem philosophischen Programm weiterentwickelt worden, das nach 1945 analytische Philosophie genannt wurde. "It is (...) in the explicitly anti-metaphysical context of logical positivism that there occurs the transition from 'philosophical analysis', conceived of as an important method of inquiry, to 'analytical philosophy', which restricts genuine philosophy to analysis, as in Gustav Bergmann *A Positivistic Metaphysics of Consciousness* (Bergmann 1945: 194), which is, I think, the first explicit use of the term 'analytic philosophy'" (Baldwin 1998: 225).

Richard Rorty und Thomas Baldwin finden also beide bei Gustav Bergmann die erste Verwendung der Ausdrücke 'linguistic turn' resp. 'analytical philosophy', die beide auf eine sprachanalytische Wende in der Philosophiegeschichte des 20. Jahrhunderts verweisen.

Ich möchte also hier nicht viel Zeit mit dieser ersten These meines Vortrages verbringen, lediglich festhalten, dass Ludwig Wittgenstein mit seiner *Logisch-philosophischen Abhandlung* 1921 als Initiator der sprachphilosophischen Wende der Philosophie des 20. Jahrhunderts gilt.

Weniger allgemein anerkannt dürfte meine zweite These sein, dass er mit demselben Werk genauso als der Initiator einer zweiten philosophischen Wende gelten könnte, nämlich der 'pictorial turn', die laut ihren Vertretern spätestens im letzten Jahrzehnt des 20. Jahrhunderts erfolgt sein soll (vgl. Mitchell 1992 und Mirzoeff 1999). Ich möchte meinen Vortrag der Begründung dieser zweiten These widmen.

Wittgensteins so genannte 'Bildtheorie der Sprache' findet sich in den Sätzen 2.1-3.01 der *Logisch-philosophischen Abhandlung*. Der Ausdruck Bildtheorie

wird zwar von Wittgenstein selbst nicht verwendet, hat sich jedoch in der Literatur über ihn durchgesetzt. Die Bedeutung dieser Bildtheorie ist damit insofern angegeben, dass (1) diese 'Bildtheorie der Sprache' eine Einführung in die 'Sprachtheorie' - ein Ausdruck, der von Wittgenstein in der *Logisch-philosophischen Abhandlung* ebenfalls nicht verwendet wird - des Buches ist und (2) deshalb auch vor dieser Sprachtheorie (3.1-4.11) steht. So wird, um ein Beispiel herauszugreifen, in dem Wittgensteins *Logisch-philosophischer Abhandlung* gewidmeten Sammelband der von Otfried Höffe herausgegebenen Reihe 'Klassiker Auslegen' 2002 über die "von Wittgenstein im Tractatus entworfene Bildtheorie gedanklicher und sprachlicher Repräsentation" (Vossenkuhl 2001: 112) gesprochen, somit also die 'Bildtheorie des Tractatus' als auf Gedanken und Sätze Bezogenes aufgefasst.

Liest man den Text Wittgensteins etwas genauer, erweist sich, dass wesentlich mehr über 'Bild' gesprochen wird als diese eine Satzreihe. Bild taucht in sehr unterschiedlichen Zusammenhängen auf und keinesfalls nur als Einführung in die 'Sprachtheorie'.

Um eine prominente Stelle herauszugreifen: Im Satz 6.54, im vorletzten Satz also vor dem berühmten Schlusssatz mit der Aufforderung zu schweigen, behauptet Wittgenstein, dass das, was nicht gesagt werden könne, sehr wohl gezeigt und gesehen werden könne. Was im Zusammenhang meines Vortrages so viel heißt, dass in der *Logisch-philosophischen Abhandlung* genau dort, wo der Sprache ihre Grenze gezogen wird, dem Zeigen und Sehen und also dem Bild, das ja gezeigt und gesehen wird, ein Ort zugewiesen wird.

"Die Logik ist keine Lehre, sondern ein Spiegelbild der Welt", (6.13) heißt es im Text, den Wittgenstein logisch-philosophische Abhandlung genannt hat - und niemals 'Tractatus logico-philosophicus' - und deren erster Satz "Die Welt ist alles, was der Fall ist" lautet. Eine philosophische Abhandlung, deren Hauptproblem - wie das also der Titel deutlich hervorhebt - die Logik ist, definiert diese als Spiegelbild der Welt, also Spiegelbild von dem, was der Fall ist. Eine zentrale Stelle, die nur dann hinlänglich erklärt werden kann, wenn man der Frage nachgeht, was hier unter Bild verstanden wird.

Die Formulierung, die Logik spiegle die Welt wider, wird von Wittgenstein in der *Logisch-philosophischen Abhandlung* bereits an einer früheren Stelle verwendet. Inmitten einer aufwändigen Diskussion über Satzform und logische Operationen stellt Wittgenstein die Frage: "Wie kann die allumfassende, weltspiegelnde Logik so spezielle Haken und Manipulationen gebrauchen?", und gibt auch gleich die Antwort darauf: "Nur, indem sich alle diese zu einem unendlich feinen Netzwerk, zu dem großen Spiegel, verknüpfen." (5.511) Keinesfalls sind also die logischen Einzeldiskussionen des Textes um der Diskussion der in ihnen behandelten Fragen willen da, sondern um der Darstellung dieses "unendlich feinen Netzwerks", einer Darstellung, die freilich der Text selbst, also die *Logisch-philosophische Abhandlung*, ist.

Folgt man der Spiegelmetapher weiter zurück, gelangt man zur Auslegung des Begriffs Satz: "Der Satz

kann die logische Form nicht darstellen, sie spiegelt sich in ihm. Was sich in der Sprache spiegelt, kann sie nicht darstellen. Was sich in der Sprache ausdrückt, können wir nicht durch sie ausdrücken. Der Satz zeigt die logische Form der Wirklichkeit. Er weist sie auf." (4.121) Diese Stelle spricht die zweite These meines Vortrages aus: In der *Logisch-philosophischen Abhandlung* wendet sich Wittgenstein vom Paradigma der Sprache ab und dem Paradigma des Bildes zu. Nicht darum geht es ihm, was im Satz ausgesagt wird, sondern um die Form, die sich in ihm zeigt.

Bild kann in der *Logisch-philosophischen Abhandlung* als Modell aufgefasst werden. Dies legen eine Notizbuchaufzeichnung Wittgensteins vom 29. 9. 1914, die mit einem Zeitungsbericht über eine Unfallsrekonstruktion in einem Gerichtssaal mithilfe eines Modells das Auftauchen der Bild-Idee zu erklären scheint, und Sätze wie 2.12 "Das Bild ist ein Modell der Wirklichkeit", nahe. Mit dieser Auffassung wird das Konzept des Bildes innerhalb des Textes zweifellos erweitert. Ebenfalls ist es ein interessantes Gedankenexperiment, den Hinweis Wittgensteins im Satz 2.12 so zu verstehen, dass man im Text das Wort 'Bild' mit dem Wort 'Modell' ersetzt und den Sinn des so entstandenen neuen Textes zu begreifen versucht. Ich möchte bei der 'Interpretation' des Textes jedoch nicht so weit gehen. Ich begnüge mich mit der Feststellung, dass mit dem Modellbegriff das Konzept des Bildes eine neue und heuristisch nutzbare Facette erhält.

Die Konzept Bild wird in der *Logisch-philosophischen Abhandlung* durch den Begriff 'Form' eingeführt (2.014-2.0212 bzw. 2.022ff): die Bilder der Welt, die wir entwerfen, bestehen aus in verschiedenen Sachverhalten geordneten Gegenständen, dessen "Möglichkeit des Vorkommens in Sachverhalten" dessen Form genannt wird. Wittgenstein redet weiters nicht nur über Form, sondern über 'logische Form' (2.18 etc.), 'Form der Abbildung' (2.15 etc.), 'Form der Darstellung' (2.173 etc.), 'Form der Welt' (2.026) und 'Form der Wirklichkeit' (2.18). An der soeben zitierten Stelle hieß es, der Satz könne die logische Form nicht darstellen, sie spiegele sich in ihr. Die hier nahe gelegte Unterscheidung zwischen etwas - hier die Form oder die 'logische Form' - darstellen und spiegeln - und im weiteren Verlauf von 4.121 zeigen und aufweisen - erweitert die Anzahl der Funktionen entschieden, mit denen wir zu Bildern gelangen können. Mit Form haben wir also genauso wie mit Modell ein heuristisches Konzept, dessen Bedeutung im Zusammenhang meines Vortrages ganz genau dieses ist: Sie ist da, um die Einsicht in etwas zu ermöglichen, das Wittgenstein emphatisch und geheimnisvoll das Mystische und die Philosophie nannte.

All das, was abgebildet, dargestellt und gezeigt wird, bzw. was 'sich zeigt' und 'sich spiegelt', gehört dem Bild an, auch dann, wenn es in der Sprache oder in der Logik geschieht. So analysiert Wittgenstein das Wesentliche der Bildhaftigkeit des Satzes von der Form aRb, den wir als Bild empfinden (4.012f.), und bestimmt sein Wesen in der Abbildung (4.016).

Die physikalische Beschreibung der Welt liefert je nach zugrunde gelegtem Erklärungsmodell verschiedene Bilder (6.341ff.). Wittgenstein erwähnt namentlich die Mechanik von Isaac Newton und Heinrich Hertz - bezieht sich also nicht auf Albert Einsteins Theorie, obwohl das jahreszahlmäßig durchaus angebracht wäre, hatte doch Einstein seine Relativitätstheorien 1905 resp. 1915 publiziert. Worum es Wittgenstein geht, ist nämlich nicht die aktuell bessere Theorie zu preisen, sondern genau um

den Nachweis, dass physikalische Theorien ein mehr oder weniger feines Netzwerk sind, dass sie die Welt einfacher oder weniger einfach beschreiben (6.342).

Bild taucht also in der *Logisch-philosophischen Abhandlung* in verschiedenen Zusammenhängen auf, aus denen ich hier fünf Beispiele anführte: als Vertreter des Unsagbaren, als zentraler Wesenszug der Logik und des Satzes, als Synonym mit Modell, als eine der Bedeutungen von Form, als Name für die physikalische Weiterklärung. Ein weiterer - und keinesfalls der einzige oder gar 'wichtigste' - Zusammenhang seines Vorkommens ist die als 'Bildtheorie' bekannte Satzreihe. Versucht man den Stellenwert des Konzeptes Bild in der *Logisch-philosophischen Abhandlung* zu bestimmen, lässt sich die These aufstellen, dass Wittgenstein mit ihm einen zentralen Begriff gefunden hat, der zum Verstehen der Sprache hinführt um über sie hinaus dorthin zu gelangen, wo laut Wittgenstein die Möglichkeiten der Sprache enden.

Der Ausdruck 'pictorial turn' stammt von W. J. T. Mitchell, der 1992 einen Text mit diesem Titel in der Zeitschrift *Artforum* veröffentlichte. Mitchell führt den Ausdruck in Anlehnung an Richard Rortys Ausdruck 'linguistic turn' ein. So beginnt er seinen Text mit der Behauptung "Richard Rorty has characterized the history of philosophy as a series of 'turns' in which 'a new set of problems emerges and the old ones begin to fade away.'" (Mitchell 1992: 89) Ein Hinweis in diesem Text zeigt, dass die Beurteilung von Ludwig Wittgensteins Rolle in der 'pictorial turn' weiterer Diskussionen bedarf - zu denen ich mit diesem Vortrag beitragen möchte. "I would locate the pictorial turn", schreibt Mitchell 1992, "in the thought of Ludwig Wittgenstein, particularly in the apparent paradox of a philosophical career that began with a 'picture theory' of meaning and ended with the appearance of a kind of iconoclasm, a critique of imagery that led him to say, 'A picture held us captive. And we could not get outside it, for it lay in our language and language seemed to repeat itself to us inexorably' (Wittgenstein 1953, I: 115). Rorty's determination to 'get the visual, and in particular the mirroring, metaphor out of our speech altogether' echos Wittgenstein's iconophobia, and the general anxiety of linguistic philosophy about visual representation. This anxiety, this need to defend 'our speech' against 'the visual', is, I want to suggest, a sure sign that a pictorial turn is taking place" (Mitchell 1992: 89).

Zusammenfassend möchte ich also festhalten, dass Wittgenstein mit dem selben Werk als Initiator zweier Wenden im 20. Jahrhundert gelten könnte und zwar einer Wende zu und einer Wende weg von der Sprache oder der Sprachphilosophie. Das Ziel meines Vortrages war auch ein zweifaches. Erstens wollte ich Argumente anführen, die diese Abwendung von der Sprachphilosophie hinreichend begründen, und zweitens wollte ich zeigen, dass zwar mit der Verleihung von reißerischen Titeln nicht unbedingt der Sache selbst gedient wird, zugleich aber mit diesen Benennungen - in meinem Vortrag ging es um 'linguistic turn' und 'pictorial turn' - philosophische Tendenzen bezeichnet werden, die - trotz der in diesen Titeln angezeigten 'Wenden' - gleichzeitig und parallel - so etwa in Ludwig Wittgensteins *Logisch-philosophischer Abhandlung* - als Teil einer langen Tradition betrieben werden können.

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The Role of Time for Personal Agency: William James and Alfred Schütz

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Introduction

This paper deals with the interconnection between time and personal agency in the works of William James and Alfred Schütz. Schütz amply refers to James's philosophy and psychology, but even from a systematic point of view it is fruitful to relate them to each other. William James explores a theory of time reaching back to his notion of the present. The immediate experience of the present endows it with a reality of its own, making thoughts and actions conducted in the present *real events*. Alfred Schütz's theory of time analyses the mental phenomenon of intentionality and the capacity of human thought to reach back to the past as well as to grasp future objects. Both thinkers end up with a compatibilist point of view with reference to the freedom of the will. Although the past to a certain extent determines the configuration of our present intentional acts, these acts can be regarded as conducted freely in the sense of pragmatic efficiency, as they are capable to make a real difference in the future.

1. William James on Time and Personal Agency

1.1. James's Theory of Time as an Account of the Present

In the chapter on the "Perception of Time" in his 1950 *Principles of Psychology*, William James primarily deals with an account of the present which is supposed to serve as a paradigm "of all conceived times" (James 1950, I, 606 f., 631). For James, the present moment is always mingled with the past and the future: "*The knowledge of some other part of the stream, past or future, near or remote, is always mixed in with our knowledge of the present thing.*" (James 1950, I, 606). This leads him to his concept of the so-called "*specious present*". One wonders: "Where is it, this present? It has melted in our grasp, fled ere we could touch it, gone in the instant of becoming." (James 1950, I, 608). Due to its transitory and vague nature the present moment can be regarded as a 'deceptive' phenomenon.

But despite its "specious" character, James shows that the present is more than an empty gap between present and future. Rather, he states that "the relation of *succession* of one end to the other [i.e. past and future, FK & AB] is perceived. We do not first feel one end and then feel the other after it, and from the perception of the succession infer an interval of time between, but we seem to feel the interval of time as a whole, with its two ends embedded in it." (James 1950, I, 606). Thus, the present turns out to be an immediately felt *continuous relation* or transition between a past and a future datum. The idea of continuity traces back to James's famous theory of the "Stream of Thought", later on called "Stream of Consciousness" that exposes the five characteristics: personality, intentionality, selectivity, novelty and continuity (James 1950, I, 224). The feature of the continuous transition of consciousness causes the so-called "retrospective and prospective sense of time" (James 1950, 606 f.). Within each perception of an intended object there lingers "the echo of the objects just past, and [...] the

foretaste of those just to arrive." (James 1950, I, 606.) For the most part, consciousness is made up by so-called "transitive states" mainly represented by verbs and particles within our languages. There are no discrete points of time or strictly individual drops of experience, but there is a "smotherover" of present, past, and future episodes into each other, building a rich complexity which is henceforth experienced as present. Seen this way, each object we perceive within time has a "halo", a "fringe" made out of former acts of the perception of other objects and those which are yet to come into mind, continuously sliding into each other (James 1950, I, 271).

James's account of the present has at least two important consequences. First, past experiences are still present within each novel act of perception. The past is infiltrated into the present consciousness and determines the way in which we experience any present object: "[O]ur mental reaction on every given thing is really a resultant of our experience of the whole world up to that date. [...] Every brain state is partly determined by the nature of [its] entire past succession." (James 1950, I, 234). The present is influenced and to a certain extent *determined* by the past. (James 1975, 101 ff.).

Second, due to the fact that the present is a directly experienced phenomenon, for James the radical empiricist, the present may well claim a sort of *reality* of its own – simply because it can be immediately experienced. Accordingly for James time is something that is directly perceived, its perception is a sensation instantiating a case of "knowledge by acquaintance." (Myers 1986, 147).

1.2. William James on Time, Agency and Free Will

James's psychological account on time and personal consciousness can be called a *compatibilist stance*: Due to the continuity of consciousness, our present choices are always *pre-determined by our past*. Nevertheless, the present moment is real in itself, because it provides the only time frame we directly experience as a sensible reality, and in the range of which we actually make our decisions and act. James combines, on the one hand, the real experience of free choice we enjoy in the present moment with a modest determinism, on the other hand, that holds on the level of the structure of experience itself. Because due to the continuity of the Stream of Consciousness, the present is always influenced by and entrenched in the past.

In his *Principles of Psychology*, James the psychologist laid considerable emphasis on the problem of the freedom of the will which he understood as the question of voluntary attention (James 1950, e.g. I 403 ff, et al., especially 562-579). Meanwhile, from a more philosophical point of view, in his philosophical essay "The Dilemma of Determinism", James dealt with the questions of time and determinism within the abstract framework of monism and pluralism, asking whether the universe of experience may be "a one or a many" (James 1975, 117 ff., Perry 1998, 198 f.).

Seen from a *monist* perspective the world is pre-determined by absolute providence. The only true point of

view is that of a *timeless all-knower*, be this an absolute spirit, an omniscient god or a single abstract principle. From this metaphysical standpoint of eternity, time is not real, but a transitory illusion.

On the other hand, there is the *pluralist* attitude to reality that can also be called a *pragmatist* stance. It regards reality as an open universe allowing real chance and possibilities to prevail. For the pluralist and the pragmatist as well, every single human being, living here and now, *is real* – despite its mortality and despite its limited point of view, because our *Lebenswelt* is the sole reality given us to guard. According to James's abovementioned radical empiricism, everything directly experienced and acted upon *is a reality*. This is why our *Lebenswelt* structured by time *is real* (James 1979, 139).

Thus not only James the psychologist but also James the pragmatist and pluralist philosopher proves to be a *compatibilist* when he states "The belief in free-will is not in the least incompatible with the belief in Providence" (James 1979, 138.). Even if the monist perspective is true, it only provides an entirely abstract metaphysical point of view, whereas the pluralist and pragmatist perspective mirrors our common sense understanding of the everyday *Lebenswelt* we directly experience and in which we regard ourselves as real agents within the flow of time.

2. Alfred Schütz on Time and Personal Agency

2.1. Time Provides the Form of Consciousness

Similarly to William James's pragmatist form of compatibilism, the philosopher and sociologist Alfred Schütz who worked on James's philosophy supports a compatibilist theory of freedom as well. In what follows we will analyse in which respect also Schütz's compatibilism is closely intertwined with his conception of *time*.

According to Schütz's internalist theory of subjective time, our decisions are intentional products of our past experiences. Schütz borrowed the notion Stream of Consciousness from James and Husserl. For Schütz, one important feature of the Stream of Consciousness is that it supplies the basis for what he calls in line with Husserl *Erlebnisse* (e.g. Husserl 1986). These *Erlebnisse* count as inner episodes in the consciousness of person A. For Schütz the interesting class of these episodes is the one grasped by attention. In this case Schütz speaks of experience. As experiences the episodes are well ordered. This is why Schütz uses a Kantian notion of time to describe the order of inner episodes. That means time is a necessary condition for a person A's having experiences. One cannot experience x without experiencing x after y and before y. Furthermore a necessary condition for the applicability of these temporal relations is their embeddedness in a logically prior continuum of time. Of course Schütz differentiates subjective and objective time ('Weltzeit'). But for the purpose of this paper only the former is important. Therefore whenever the term 'time' is used we only refer to subjective time.

2.2. Intentionality and the Two Dimensions of Time

As indicated above, for Schütz, time provides the form of our inner episodes – namely experiences – that consist in a continuum of temporal relations of the form *x-before-y* or *y-after-x*. It is exactly this kind of relations that Schütz refers to when introducing the metaphorical expressions for the two directions of time, *Vergangenheitshorizont*

(horizon of the past) and *Zukunftshorizont* (horizon of the future). Whereas the latter belongs to the realm of action, the former is the realm of reflection and "sense" (Schütz 2003, 88ff.).

The notion of *Zukunftshorizont* plays a key role for Schütz's theory of action. Actions are guided by decisions, and decisions are to be described in intentionalist terms. One salient feature of intentional terms is their grammatical form as verbal expressions in the first person singular: *I like x, I hope x, I think x, I will x, I believe x, I prefer x* and so on. Note that intentions are defined as mental states of a person. And as such their form is temporal. In the latter case they are directed to the future. Their respective intentional object – the x – can be anticipated in the future. Due to that, the respective intentional objects motivate us to make decisions. For to make decisions and to execute actions we must have not only intentions – but they must also get activated or actualized.

This brings in the other dimension of time – the *Vergangenheitshorizont*. A person's consciousness is not only directed to the future, but is also fed by the past. For Schütz, *action* is always directed towards the *Lebenswelt*. Like for James the pragmatist, the *Lebenswelt* is the reality *per se* for Schütz.

Schütz claims that in the course of our lives we are always bound to certain live-contexts we have to cope with. He implies that for every situation we encounter we have an internalized social structure at our disposal. This structure is built out of so-called *types* – abstract social objects that are constituted of rules and serve as guiding lines for actions. Schütz supports the thesis that the existence of types is the reason why we create the idealizations of *Und-so-weiter* (and so forth) and *Ich-kann-immer-wieder* (I can again and again) (Schütz, 34) That means our consciousness is always in progress, assuming that the events encountered before will repeat themselves again. In this way, a person's present intentions are engendered and prefigured by his or her past experiences.

2.3. Freedom, Determinism, and Time

If all of our decisions are determined by our previous introduction into a certain *social practice* that is exemplified by the so-called *types*, what then happens to our freedom in agency? How can it be that we act freely while being determined? Obviously this is the crucial question for *compatibilism*. Cause compatibilists are committed to the claim that determinism and free will are compatible. Schütz does not use the term 'determinism' in a naturalistic way, but employs it as a term for social internalization. This is why with respect to Schütz, it is appropriate to speak of a *social determinism* rather than of determinism in general.

For Schütz, our intentions (as temporal inner episodes) are products of our previous confrontations with certain social contexts. A person 'imports' a social structure by means of importing social types that conveyed to him of her the respective relevant rules. Since the structure of our consciousness is essentially composed out of our past experiences of the *Lebenswelt*, we face two seemingly conflicting propositions. In the *Zukunftshorizont* we make decisions that are free, at least as far as they are regarded from the first person perspective. Remember that intentions are expressible in the first person singular. But in contrast, in the *Vergangenheitshorizont* we remember our past experiences and so recognize ourselves as determined by our environment.

If we now take it for granted that all our decisions – as intentions – are directed to future intentional objects, and if we furthermore assume that these decisions are determined by our social environment, we come to the *prima facie* conclusion that we are entirely determined, and that no freedom of the will is left. But obviously this interpretation does not do full justice to Schütz. Schütz' theory does neither allow a hard incompatibilism nor a soft one. Rather, we claim that Schütz is a *compatibilist* who definitely allows freedom of the will to prevail.

3. Conclusion: The Role of Time for James's and Schütz's Pragmatist Compatibilism

Schütz in his theory of types endorses at least a certain kind of determinism – a *social determinism*. According to this, we come to our decisions by getting introduced to social rules. This makes deciding a kind of rule following. But decisions expose two more features as well. First they are directed to the future, and second they take place in the form of acts that are expressible in certain verbs in the first person singular. And here a reference to Pragmatism comes into play. In order to understand this idea it is helpful to look at P.F. Strawson's famous argument from "Freedom and Resentment". Strawson claims for the case of reactive attitudes – like gratitude, admiration, resentment etc. – that we cannot get rid of them, even if we knew that determinism were true.

This comes close to a pragmatic solution of a metaphysical quandary that is along the same lines with William James's. We simply cannot change our *Lebenswelt practice* of acting freely and understanding ourselves as real agents – even if we knew determinism to be true. One can compare this also with Dennett's position in *Elbow Room*.

Schütz's theory proceeds in a similar direction. He would certainly claim that although we are determined by social contexts we nevertheless decide from the perspective of the first person singular. So at least our decisions seem to be free *to us*. This obviously is not a mere illusory and seeming freedom, but it is a motivation that leads into *real action*. And this means – for pragmatists – nothing less than something is *real*, because being real means *being directly experienced* and having *real effects*. So in the very act of deciding as if we were free we eventually engender freedom's reality. This is a pragmatist compatibilism that both William James and Alfred Schütz support.

As we argued in this paper, for both William James and Alfred Schütz, time plays a crucial role for their pragmatist form of compatibilism. According to William James's psychology, our present consciousness is determined by our past experience, the past leaking into our decisions for the future. From the perspective of his pluralist and pragmatist philosophy our temporal *Lebenswelt* and time itself are real. Even if it were true that from a metaphysical point of view our actions are determined, we nevertheless have a perfect right to regard ourselves as free agents in a malleable and open *Lebenswelt* in which our actions make a real difference for the future. Being determined on any metaphysical level is thus compatible with being free on the pragmatic level of our everyday *Lebenswelt* that is the only reality that is given us to guard.

Schütz's account embraces two dimensions of time and ends up with a compatibilist perspective as well. According to Schütz's theory of social types, we are determined with regard to the 'Vergangenheitshorizont' whereas according to his theory of intentionality we are free agents with reference the 'Zukunftshorizont'.

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The Conceptual Basis of a Biological Dispute about the Temporal Order of Evolutionary Events

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1. Introduction

Each trait of any biological organisms was novel at some time during the evolution of life on earth. If one conceives a trait as a structure that serves a function, the question arises whether novel structure and function arise simultaneously, whether structure arises first, or whether even novel functions precede novel structures (which will turn out to be less odd than it sounds). From the fossil record, only the evolution of structure can be learned, and the question for biologists is where to locate the onset of functionality of newly evolved structures. Moreover, the record is so fragmentary that reconstructions of processes leading to the emergence of novelties are usually highly speculative. Consequently, differences in the account of evolutionary novelty are not justified by reference to the scarce empirical data but by embedding the explanation in a theoretical framework: Proponents of the adaptationist program, *i.e.* evolutionary biologists following the neo-Darwinian paradigm of the "Modern Synthesis", favor the priority of novel function over novel structure. On the other side, the advocates of an evolutionary developmental biology ("evo-devo") insist that structure always has priority and appears before a new function can establish itself. Both approaches seem to be based on sound arguments and tenable premises. If so, why do they differ in the account of the order of evolutionary events? The arguments of both sides will be reconstructed in order to identify the point of disagreement. I will demonstrate that much of the dispute depends on the use of two different concepts of structural novelty.

2. The Concept of Function to be Applied

Before I can begin to discuss the topic of novelty, an agreement has to be made about the concept of function to be applied. In philosophy of biology there is an extended discussion about an adequate explication of this concept. With respect to my present topic, one of the two basic conceptions would yield a trivial result since it rules out the priority of function over structure by definition. This is the etiological account, whether in the version of Wright (1973) or of Millikan (1984): Both allow to ascribe functions on the causal history of a structure only, restricting function ascriptions to structures that were already selected in the evolutionary process. As a consequence, no novel structure can ever have an etiological function and the adaptationists view could not even be formulated consistently. Therefore, etiological concepts of function obviously cannot be used in reconstructing the present topic as a non-trivial debate. Instead, the systemic account of functionality has to be used: The function of a component of a biological system is to be regarded as its possible contribution to any biological capacity of the system. This systemic concept is based on the account given by Cummins (1975). It must be restricted to applications within biological (and technical) systems, which is done here by stipulation since it is not the concept itself which is to be inquired. I have presented a non-stipulative account of systemic functions elsewhere (Krohs 2004).

3. The Adaptationist View

"Adaptationism" is used as a label for a wide spectrum of positions that claim, for different reasons, that evolution should be understood in terms of adaptation processes only (Godfrey-Smith 2001). Mayr tries to solve the problem with evolutionary novelties within such an adaptationist framework. After giving a more general definition of evolutionary novelty in terms of more than quantitative, *i.e.*, qualitative difference with respect to previous structures, he tentatively restricts the concept to "any newly acquired structure or property which permits the assumption of a new function" (Mayr 1960, 351). On the first glimpse, this looks as if the priority of novel structure and novel function would be clearly on the side of the structure. However, at the end of his paper, Mayr concludes that "[t]he emergence of new structure is normally due to the acquisition of a new function by an existing structure" (*ibid.*, 377). So he clearly states the priority of the novelty of function over that of structure. Having a macroscopic understanding of structure, Mayr does not classify changes of molecule structure as structural changes. He is looking for changes such as the acquisition of feathers or even of the eye, the example Darwin himself was most worried about. Mayr nevertheless chooses different examples to support his view, like the evolution of the second, muscular stomach of birds by differentiation of the ancestor's stomach into two structurally different compartments.

Macroscopic structural changes are brought about neither by single point mutations nor by very unlikely salutatory macromutations. Instead, new structures are acquired gradually, by long series of the selection of micromutations. Mayr addresses as the main problem of adaptationism "to explain how a sufficient number of small mutations can be accumulated until the new structure has become sufficiently large to have a selective value" (*ibid.*, 357). Darwinism would usually expect any functionless evolving novel structure to be eliminated by natural selection in an early stage. In the following, he discusses several possible explanations, but we may concentrate on the last, which is the crucial one. Here, a primary change of function is supposed to have induced the evolution of a novel structure. An existing, functional structure assumes a second, novel function, without (major) interference with the original function (*ibid.*, 364). In the first version of Mayr's scenario, the structure duplicates in the next evolutionary step, but multiplication alone is not counted as novelty. The crucial step is the following adaptive process: Since the first copy of the structure is sufficient to maintain the original function, the second is not required to support this first function any longer and may change its structure in a way to serve the new function to a greater degree. This process of adaptation finally shall lead to a new structure – which has to be regarded as being homologous to the initial structure. In a second version of the scenario, Mayr changes the order of the steps: the structure first duplicates due to some mutation, and then both structures assume a second function. From here on, the evolutionary process equals that of the first version: one of the structures adapts to the novel function. In a third alternative, two different structures serve the same function, only one assumes a second function and then

adapts completely to its new role, undergoing a qualitative change of structure.

To draw the conclusion from Mayr's scenario: Every novel function occurs with an old structure only. This structure initially assumes the novel function without any morphological change (although duplication may be involved), due perhaps to a changed environment, a new niche, or changed organization of the organism as a result of changes of other characters. Only then, the old structure adapts in an evolutionary process, the final state being qualitatively different from the initial one. But before a novel structure can arise, a novel function has to occur.

4. The Developmental View

Evolutionary developmental biologists dispute the adaptationist view that novel function precedes novel structure. They insist that any real evolutionary novelty is first a novel structure that may assume a novel function only afterwards. The appearance of feathers in evolution, which Mayr has mentioned without following it up, is a standard example used to foster this view. The occurrence of a novelty shall be explained not by reference to function but by investigating the developmental mechanisms that generate the new structure (Müller and Wagner 1991). Consequently, one asks for "a theory of the origin of feathers ... that is independent of hypotheses about their presumed ancestral function" (Prum 1999). The two most important preconditions for the evolution of feathers are found in a novel keratin as the material feathers consist of, and in the feather follicle as the structure that gives rise to feather growth (Brush 1996). The focus on developmental processes leads to a different account of evolutionary mechanisms than the one known from adaptationism: Novelty is regarded as being based not only on genetic changes but on epigenetic ones as well, e.g., on the influence of the environment on the developing structure. In addition to the mutations of a keratin gene, changes in developmental processes are necessary to produce the follicles and, hence, the novel structure of feathers.

Novelty of structure is explained here without reference to function, whether novel or old. That this is based on considerations of development is an important difference with respect to adaptationism. However, although the plausibility of the "structure-first" view depends on the consideration that a minor change in a developmental pathway may bring about a significant morphological change in the sense of a novel structure, it is compatible with an interpretation that locates the basis for the changes of the developmental process in micro-mutations only, in the same mechanism that is referred to in adaptationism (Müller and Wagner 1991, 245). Obviously, not only the different views about the evolutionary mechanism are responsible for the different opinions about the priority of novel structure and function.

Brush as well as Prum refer to the first follicle producing the first feather. Thus, although not referring to the function of the feather itself, they refer to the follicle as serving a certain function, that of (proto-)feather production. Looked at it in this way, the scenario is not primarily about the feather but about the follicle as an evolutionary novelty. Here the novel structure and the novel systemic function may have appeared simultaneously. However, such simultaneity is still in contrast to Mayr's view of the priority of function. In addition, this single example does not mean that, in the developmental perspective, structure and function were to appear always simultaneously. According to the developmental view,

appearance of novel structures is always possible before appearance of any novel function.

5. Concepts of Novelty as Affecting Results on the Discussed Priority

We have seen that the adaptationist view claims that novel functions precede novel structures, whereas the developmental view claims the opposite (and may as well allow for a simultaneous appearance of novel structure and function). Since both views were reconstructed with reference to the same, systemic concept of function, this difference does not depend on different views on functions. The concept of structure does not seem to be problematic as well. In addition it could be shown that neither the interpretation of empirical data nor the differing views about evolutionary mechanisms are crucial for the respective positions. Ending up with different results about the inquired order in time, both sides may rather be talking about different innovative processes and perhaps different classes of them. Remember that Mayr did not reconstruct feather evolution as the developmental biologists did. There was no overlap in examples.

Let us have another look at the very concept of evolutionary novelty. Mayr, as was already pointed out, counts as a novelty any new structure that differs not just quantitatively but qualitatively from its evolutionary predecessor. The border between quantitative and qualitative change may not be clearly defined, but fuzziness of this boundary is not crucial here. However, since adaptationists see novel structures as always being derived from other characters, a structural novelty, though of a different kind than the old one, is always homologous to the latter. In contrast, proponents of the developmental view are restructuring the concept and explicitly confine structural novelty to characters that are completely new and not homologous to any other structure (Müller and Wagner 1991, 243). It is clear that, in this case, the novel structure must appear first, before it can assume any function. At least, function cannot precede the presence of a structure that bears it.

The adaptationist and the developmentalist perspective are using different concepts of novelty, fitting to the different cases they are talking about: novel structures that are homologous to evolutionary older ones in the first case, non-homologous novelties in the other. Supposing that homology is defined properly, any single case of an evolutionary novelty will belong to exactly one of the two cases. Due to a lack of data, it might often be unknown to which sort a special case belongs. But what can be said is that, with homologue novelties, a novel function may(!) precede a novel structure, while with non-homologue novelties it may not. The differences between the views discussed concern at first the different concepts of novelty. There is no inversion of the order in time between both approaches with respect to the very same novelty, but a shift of focus from one sort of novelties to the other. It remains to be shown for each novelty to which sort it belongs, and it might even turn out that all are belonging to only one sort and that the other concept is empty. This would settle the dispute in favor of the one or the other side, but this is not a conceptual issue but a task for empirical science.

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Mathematics: Time and Eternity

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1. Introduction.

It is obvious that some mathematical investigations emerge from the consideration of time. Mathematics or logic, e.g. a temporal one, is sometimes "about time". But, time's entry point to mathematics is rather an internal mathematical time as a condition for the creation of mathematical knowledge. It is possible to study some other related problems concerning the temporality of this knowledge. The importance of taking into account the temporal change of mathematical truth has been appreciated and known since the works of L. E. J. Brouwer and his school or at least since Kripke's semantics on posets.

2. Are Mathematical Concepts Eternal?

The history of mathematics is a great laboratory for verifying and for proving correct some philosophical statements on the nature of mathematical knowledge. Many mathematical concepts or theories are believed to be "atemporal" in the sense of possessing the same logical core (G. Frege) in their meaning. The presence of such core seems necessary for e.g. understanding ancient mathematics. The presence of that core can be the necessary condition for a Platonic ontology of mathematics. However, it is very hard to estimate whether the contemporary means are adequate for understanding old mathematical theory. The cumulative model of the development of mathematical knowledge tries to facilitate this.

At the same time one can detect many differences between ancient and modern mathematics. Are they caused by the change of meaning? Do central notions of ancient mathematics differ so much from contemporary ones? And there is also a certain freedom in choosing concepts central to mathematical theories. For example the concepts of an element and a set are not necessary to describe the category of sets. The wherewithal for one description can vary from another (F.W. Lawvere). For a correct description of a mathematical change we need to notice that mathematical theories are created and get their understanding in a kind of "hermeneutical horizon". It can be illustrated with a historical example.

The hermeneutical horizon is a kind of intuitive, not quite self-conscious "context" containing many presuppositions and presumptions related to the object of mathematical enquiry. These are, for instance, Platonic presumptions about the existence of the object manifest in the strict, but not always explicitly formulated methods of enquiry. The body of these methods is what I call the "Platonism as a method of mathematical enquiry", cf. (Król 2002).

L. E. J. Brouwer pointed out some of those methods: the use of classical negation, the law of excluded middle, etc. Further examples are the scopes of classical quantifiers, the use of impredicative definitions, the possibility of construction of metalanguage to "look from the outside" at the objects described in a formal theory and at the theory itself.

One favorite example of eternity in mathematics is Euclidean geometry. What would show that mathematics is

unchangeable better than Pythagoras' theorem? The theories become more and more "exact" but the logical core, which manifests itself in some basic intuitions concerning the "rigidity" and "regularity" or symmetry of infinite Euclidean space, is essentially the same. What is being changed is the unfolding degree of exactness of the description of intuition rather than the intuition itself. Description in the modern theory is sometimes viewed as independent from intuition, being formal, but it still can be interpreted by the same ancient intuitive model. That model is alive as one can see from non-formal explanations of Pythagoras' theorem in elementary school.

Geometry begins in antiquity from the one stated in Euclid's *Elements*. The non-euclidean geometries developed from it in the 19th century with the works of Bolyai, Lobatchevski, Klein, Riemann, in projective geometry, etc. Euclidean geometry has been enriched by new explicit axioms such as Pasch's axiom or Hilbert's order. There are different formulations of Euclidean geometry as in Hilbert or Tarski. That development has changed our former conviction that Euclidean geometry is the only one possible and that it is the theory of real space itself. However, the intuitive base of Euclid's geometry as the theory of a rigid, infinite Euclidean space has been basically unchanged.

However, the true story about Euclidean geometry is quite different. This story would have been extremely interesting for Kant, I suppose. It appears that the geometry in Euclid's *Elements* starts as a constructive project which essentially is a kind of non-euclidean geometry. Justification for that statement together with a broad comparison of the central concepts of ancient and modern mathematics is given in (Król 2005a).

Greek mathematics had one and only principle in the times of Pythagoras: the number. The Pythagoreans supposed at first that it is possible, for every single thing, to give a numerical description of its essential qualities. In particular, it is possible to describe geometrical lines, surfaces and their correlations "at once" in terms of numbers. If a side of a square is a number then a diagonal of the square is not, and vice versa: if a diagonal is a number then the side is not a number at all. A number for Greeks was solely a natural number bigger than number 1. A number was a multitude of monads. The absolutely indivisible 1 was not a number, but the principle of number.

The discovery of incommensurability of a side and a diagonal of a square was the discovery of mutual irreducibility of that which is arithmetical and that which is spatial or geometrical. For Greeks the proof of the incommensurability was not an indirect proof, contrary to modern reconstructions using the law of excluded middle. The proof was direct: it was to show that the diagonal is not a number at all. If a side is a number then a diagonal is an odd and even number at the same time. The mathematical reality has broken into two mutually irreducible realms: geometrical and numerical.

It became clear that it is impossible to introduce metrics in geometry, since natural numbers are too weak to describe the whole geometrical reality. The quest for metrics is authenticated in the *Elements* by 6 different theories of proportion. Theaetetus' theory from book X was

the first exact treatment of the kinds of incommensurable magnitudes.

In (Król 2005a) I have shown with ancient mathematical methods that Theaetetus builds the classification with reference to a single and uniquely determined line, the so-called "basic line". Some qualities of the classified lines are not universal, i.e. when we change the basic line, all lines change their classified qualities.

To explain interesting pre-suppositions of ancient geometry, I develop a theory that considers the change of the basic line. This mathematical theory creates the second, unwritten part of book X. Theaetetus showed that there are infinitely many types of lines in geometry. Thus, a finite classification of the lines is not possible. Theaetetus tried to describe all the mathematical family of lines which can be built from a single given basic line by means of an appliance a roller and a pair of compasses.

We can see now the fundamental difference between ancient and modern Euclidean geometries in respect of the modern intuitive base for Euclidean geometry it is the absence of the notion of the infinite and continuous 3-dimensional "Euclidean" space. It is replaced by Plato's First Principle: the Infinite Dyad of that which is Great and Small. We can imagine the Dyad as an indefinite plastic or "pulsating" spread, a place, which is "ready" to accept and hold only the allowed constructions. Moreover, there are no infinite surfaces or infinite straight lines or lines as asymptotes. The scenery for geometry to play itself out is quite different.

The Dyad does not spread to the infinity. The lines in Euclid's *Elements* are not our infinite straight lines but rather sections which can be "prolonged" constructively. The same is true about surfaces. The infinite concepts as well as non-constructive spatial "places" (topoi) are banned from *Elements*. There is no global metrics on the Dyad. The ancient mathematicians tried to establish such metrics, but because of the incommensurability problem it was impossible to obtain.

The lengths of lines, fields, volumes etc., were not numbers. The continuum (*syneches* in Greek) was not a set of points. The points were not parts of their continuum (cf. book VI of Aristotle's *Physica*). The theorem of Pythagoras has been understood in different manner.

We cannot explain the details here, but there is some historical evidence outside *Elements* explaining the absence of the notion of Euclidean space in there. For example, Heron from Alexandria (3rd century A.D.), a late commentator, tried to improve some of the proofs and when Euclid puts a point on the other side of an already construed figure Heron changes the place of the point so that the figure contains it. It is because "there is no place [outspread] out of the figure".

The lack of a metrics resulted in the indefinableness of all places in space. It was necessary to practice geometry constructively as a temporal creation from definite "elements".

Our infinite Euclidean space is "ready-to-use": all "places" are already present. This space is considered from the point of view of eternity. On the other hand, ancient mathematicians had to choose only some "parts" of the continuum: they considered only those parts which they could grasp by strictly determined methods of construction. Their continuum was viewed from the point of view of a human being and was temporal.

It does not mean that they did not have the notion of infinite, "vacuous" space or infinite straight line, cf. historical evidence from Aristotle or Democritus in (Król 2005a). It only means that such notions were banned from *Elements* as unclear and non-evident.

The classification of book X forms a non-Euclidean model of geometry, i.e. in this model it is possible to construct an infinite number of lines parallel to a given one that are different from it. I describe a connection with another model used to prove the independence of the axiom of continuity in Hilbert's version of Euclidean geometry.

As for Platonism as a method of mathematical inquiry, Theaetetus' classification of the incommensurable lines is one of the first examples of the use of mathematical notions with an infinite scope. A non-evidence of these notions is the main reason that ancient mathematicians did not formulate the problem of change of the basic line. Moreover, the famous theorems from book XIII resulting in the statement that there are only five regular polyhedra are not covariant with respect to the change of the basic line.

In (Król 2005a) I have shown that Brouwer's basic intuition of mathematics is simply restoration of Plato's protology, i.e. his unwritten science of the One and the Dyad. A paradox of interpretation: Brouwer is regarded as an arch-antiplatonist in mathematics.

In (Król 2005a) I also reconstruct the hermeneutical horizon for ancient arithmetic. Plato emerges as an inventor of the concept of a set similar to the modern one. It is because the intuitive structure of "one over many" is involved. Cantor in a way similar to what Plato did for number defines a set as "<<every Many>>", which can be thought of as One, i.e. every totality of elements that can be united into a whole by law". After works presented by Theaetetus, Plato accepted two kinds of the "one over many structure": "one over definite many", i.e. ideal number, and "one over indefinite many".

However, this intuitive frame or model is not at all unique. The notion of 3-dimensional, infinite "Euclidean" space forms an intuitive base for our understanding the mathematics in Euclid's *Elements*. To understand ancient mathematics correctly it is necessary to reconstruct the same logical core of the concept's content. The reconstruction of the hermeneutical horizon is indispensable. The reconstruction even for mathematics should be based on historical sources. It all shows that mathematical notions can vary.

We see the possibility of different "intuitive models" of understanding Euclid's geometry which are not uniquely determined. For more than 2000 years Euclid's *Elements* were understood in a non-genuine way within variable intuitive frames. The difference between them is, in general, an intuitive conception of mathematical time. The differentiation between time and eternity goes back to antiquity and was important for ancient mathematics, cf. (Becker 1927).

Reconstruction of the hermeneutical horizon is also possible for formalized modern mathematics and can result in the discovery of new mathematical theories; see my lecture at JAIST (Król 2005c). My lecture at the symposium of the Polish and Russian Academies of Sciences in Warsaw in July 2004 (Król 2005b) contains description of possible consequences of the hermeneutical problem of mathematics in physics. In my doctoral thesis (Król 2002) I have shown certain connection between the

internal ontology of mathematics and the hermeneutical structure "being-in-the-world" as described by Heidegger. The "presential way of being" of the subject is not the non-genuine way of being. It is also the condition for mathematical enquiry and the creation of mathematical knowledge.

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Time and the Experience of Voluntary Action

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In this paper we examine the relation between *time and the concept of agency*. The main focus relies on studies conducted by Patrick Haggard et al. on the *temporal binding effect*. The authors argue for a *reciprocal attraction* between the awareness of actions and the awareness of further effects of these actions in the subjective perception of time if actions are performed voluntarily. We link the experimental results with philosophical discussions of agency. We argue that Haggard et al.'s results favor a predictive model of agency¹. Central for this concept of agency is a) that agents have access to intentions as integrative parts of actions, b) that these intentions point forward in time by aiming at goals, and c) that agency is an experience rather than a reconstruction. This understanding of agency is contrasted with D. Wegner's interpretation of agency as reconstructive perceptual illusion.

1. Time and the Experience of Voluntary Action

Time is a phenomenon that turns out to be inevitably twofold. On the one hand it can be measured and can be segregated in temporal portions like hours, minutes or seconds; on the other hand time is experienced subjectively. The same amount of "objective time", e.g. five minutes, is perceived differently if you are sitting on a dentist's chair or watching an exciting movie. The subjective experience of time contains phenomena like duration, simultaneity, succession or temporal order that can be very different from their objective physical equivalences. Experimental findings suggest that the notion of time derives from elementary temporal experiences that depend on neuro-computational capacities. (Pöppel 1997) Therefore, in psychological research time can be described as objectively measured as well as subjectively experienced.

The well-known Libet-experiments offered a way to investigate time as a factor involved in the generation of voluntary actions. His experimental method opened the possibility to relate judgements about phenomenal aspects of action preparation with the corresponding psychophysical events. His method using a clock hand to estimate the time at which mental experiences arise integrated the first person perspective into cognitive neuroscience. Under this aspect his results offered interesting data about temporal relations between events involved in action generation. The temporal gap between the two relevant physiological parameters - the readiness potential as a neurological index of motor preparation (RP) and movement onset² - was much larger than the gap between corresponding phenomenal events W and M³. The succession of neural events seems to be temporally

compressed in the conscious awareness of those events in subjective time. (Haggard & Libet 2001, 55)

2002 Haggard et al. presented a series of experiments where they focused on this phenomenon of subjective time dilation using the "Libet-clock". Subjects were instructed to judge the onset times of four different events, initially presented alone to gain baseline data:

In the voluntary condition subjects judged the onset time of a voluntary key press.

In the TMS⁴ condition they judged the time of a muscle twitch produced by electrical stimulation of the motor cortex.

In the sham TMS condition subjects estimated the time of an audible click made by TMS applied to the parietal cortex without motor activation.

In the auditory condition the onset time of a tone had to be noted.

In the crucial operant condition the voluntary key press, TMS induced key press, and sham TMS were followed by the tone after 250 ms so that the later event (tone) was causally linked to the first. On half of these trials subjects judged the onset times of their key press, on the other half they judged the time of the consequent tone. Interestingly, when the tone was causally linked to the key press, subjects judged the keypress to occur later in time and the tone to occur earlier in contrast to the single event baseline, but only if the keypress was performed voluntarily. Thus, conscious awareness of the action was perceptually shifted towards the consequent tone whereas conscious awareness of the tone was shifted earlier towards the preceding action. No such effect could be observed if the tone was preceded by involuntary TMS-induced movement. On the contrary, the two events were shifted apart: Awareness of the involuntary movement was shifted back in time whereas awareness of the tone was shifted ahead in time - away from the keypress.

The authors conclude that intentional actions elicit perceptual binding in subjective time between voluntary actions and their sensory consequences. Voluntary actions and their effects shift closer in perceived time. Like mentioned above, temporal gaps in subjective time can differ from temporal gaps of physical events in objective time. Further the authors propose the existence of a specific mechanism of the CNS that binds together voluntary actions and subsequent effects. According to the authors this perceptual association is modulated by temporal contiguity and temporal predictability. (Haggard/Clark 2003)

The strong influence of intentions on the perceived relation of events in subjective time may enhance the experience of agency. The authors speculate that the proposed mechanism helps to discriminate between events that can be linked to our own causal agency and events that may be externally triggered. The absence of conscious intentions before perceived effects (TMS condition) changes the perception of events as they shift apart in

¹ For avoiding confusions it should be noted that in this context "predictive" does not allude to a deductive nomological account of action explanation. "Predictive" means that the agent is able to say what action he will perform on the basis of her intentions and that generally she is not massively wrong in identifying the real intentions of her actions.

² Movement onset was measured by detecting the electrical activity in the muscles involved.

³ Subjects reported either when they first became aware of the will to move (W-judgement) or they judged the time at which they experienced the movement as actually beginning (M-judgement).

⁴ Transcranial Magnetic Stimulation

subjective time and "may be the conscious correlate of repudiating agency". (Haggard 2002, 384)

Based on these results and methodology Wohlschläger et al. investigated the onset of actions in subjective time when these events derive from different "agents". Subjects viewed a response lever and a clock hand while the response lever was pressed either by the subjects themselves at a time of their own choice (*self*), by the experimenter (*other*) or automatically by a solenoid⁵ (*machine*). In all conditions the closure of the lever was followed by a tone 250 ms later.

The results showed that the perceived times of action onsets were similar in conditions *self* and *other*. In both conditions the action was perceived as occurring later in subjective time than it actually was (shifted towards the tone), whereas the perceived onset time of the physically comparable *machine* event was judged substantially earlier.

The authors interpret the similarities between the onset of actions in the stream of subjective time for *self* and *other* as an indication that the temporal perception of our own actions is fundamentally similar to the temporal perception of other peoples' actions. The onset times of actions performed by a *machine* are perceived differently from actions that are performed by entities perceived as intentional agents.

2. Consequences for the Philosophical Discussion of Agency

Our common sense suggests that causes precede effects in a timely manner and that prior intentions to act are the causes of following physical actions. This ascription of causal power to mental antecedents of actions is an integrative component of our self-concept as agents.

It was Hume who doubted this concept of agency. According to him causes and effects are discovered through experience when we find that particular events are constantly conjoined with one another. There is no "hidden essence" between causes and effects but rather the perception of constant conjunctions. If event A is constantly conjoined with the following event B we draw the conclusion of causation by inference that A causes B.

For Hume this model of causality is universally applicable. It is not limited to the unanimated world of objects but it is valid for human agents as well. Thus, the experience of will is nothing else than a feeling which results from the same mental processes that people generally employ in the perception of causality. (A Treatise of Human Nature, 2.3.1.4)

This implies that people might experience conscious will independently of the actual causal connections between their thoughts and actions. The real causes of man's actions might be others as he believes they are; and this wrong conception of the causal path arises due to the experience of a constant conjunction between prior thoughts and following actions on the one hand and the consequent inference of a causal connection on the other.

Lately Wegner developed a model of the will reminiscent of Hume's approach. (Wegner 2002) He claims that the real causal mechanisms underlying behaviour remain largely unknown to ourselves. According

to him our experience of will is based on a reconstructive model. Ex post we do infer conscious experiences of our own intentional actions in order to explain what we have done.

As explained above, Haggard et al.'s experiments strongly indicate an intentional binding process. Thus, the presence of an intention to carry out an action seems to have a fundamental structuring influence on our conscious experience of action determining the time course of our perception of actions. Recent findings point in a similar direction. They show that we perceive the onset time of action more closely to the following effect not only when actions are self-generated but also when they are other-generated. Interestingly they differ if a non-intentional agent, e.g. a machine, carries out the action. (Wohlschläger et al. 2003a and 2003b)

From these results several interesting points for the philosophical discussion of agency can be made. First, the conclusion can be drawn that our experience of acting and of its effects arises together with our preparation for acting. When we aim at bringing about a specific action we anticipate the action and its effects intentionally. The anticipation is essential for our experience of agency since through it we know what we are doing or going to do. If we lack this anticipatory action knowledge we feel estranged from our own actions and will not experience ourselves as agents any longer. Thus, an agent understands her actions by knowing the underlying intentions of what she does. We exclude the possibility that agents could be gravely wrong about why and how they come to certain intentions and decisions.

We can even make a step further and claim that the agent must have a special first person access to her intentions. If my intentions to act shall count as mine it must be the case that I am in an intimate epistemic contact with them. This understanding of agency differs fundamentally from Wegner's model. For Wegner the first person view is not essential for the analysis of agency because (generally) the real causes of human actions are not intentions of the agent but events which might better be detected from the third person point of view.

Secondly, the intentional binding effect suggests that there exists a real connection and a specific temporal relation between motor preparation, conscious experience, action and effect. If actions of non-intentional agents are perceived temporally different than events related to intentional agents we can ask whether these findings undermine Hume's general understanding of causation. He did not distinguish between a concept of agency relevant for conscious actions and a concept of causality relevant for unconscious actions or non-conscious causal events. There is just one single model of causation which the mind employs for all forms of causation.

The intentional binding effect however suggests that we distinguish between conscious actions and other forms of causation. The observed phenomenon of subjective time dilation is probably essential for our experience of agency. In conscious actions the action is tagged with an 'I' as the source of action. In the philosophy of action the intuition that we, as agents, bring about our actions gave rise to the concept of agent causality. It is the thesis that agents can be the cause of their own action. The relation between the agent and the action cannot be reduced to relations between (mental and/or bodily) events. Agent causation is appealing to some philosophers "because it captures the way we experience our own activity. It does not seem to me (at least ordinarily) that I am caused to act by the

⁵ I fact, the response lever was depressed by the experimenter using a hidden switch.

reasons which favour doing so; it seems to be the case, rather, that I produce my own decisions in view of those reasons..." (O'Connor 1995, 196)

It is not our aim to dwell on this problem here any further. Probably Haggard et al.'s findings cannot produce a final argument for or against agent causality. But it should be noted that the intentional binding effect can be taken as an argument that a distinction between causal processes involving conscious agents and merely natural causal processes seems to be reasonable in the light of both folk psychological assumptions and neurological functioning.

Finally we turn our attention to the understanding of others. There are several accounts for explaining and understanding other people's actions. According to the "covering-law" model of explanation all explanations must pass a predictive test. Any adequate explanation has to contain in its explanans sufficient information for being able to predict the phenomenon that has to be explained. (Hempel 1965) Thus, the agent's intentions, beliefs and desires serve merely as a predictive basis of her action from a third person point of view.

For causal theories of action instead the reason of an agent to perform an action is only then an explanatory reason if it is the cause of the action for which it is a reason.

The problem of these accounts seems to be that they neglect the aspect that actions are undertaken by an agent. They do not give us a principle that underlies the self-understanding of actions since the relation of the agent herself to her action is factored out.

Whatever the merits of such approaches might be for our understanding of actions, on the basis of Haggard's and Wohlschläger's results it seems more likely that normally we do not understand other people's actions by virtue of such approaches but by conceiving their actions the way we understand our own. In understanding what others do, we consider them to be agents like ourselves – persons who intend to perform actions and try to carry them out from a first person point of view. If "the attribution of intentionality depends on the presence of an action effect that can be regarded as the realization of the content of an intention" (Wohlschläger et al. 2003, 714) then the first person point of view seems to be indispensable for capturing actions in an adequate way. We understand other people's actions by putting ourselves in the other's position and "simulating" thereby their actions as if they would be our own. (Lenzen 2005) It is hard to see how causal theories of action or covering law models can account for it.

3. Conclusion

Haggard et al.'s experiments favour the view that our intentions to act are neither retrospective illusions based on a conception of causality constructed by our mind nor conceived properly as mere causes of actions. Rather, the ability to predict intentions and effects by seeing actions from a first person perspective seems to be a necessary condition of the self-understanding of human beings as agents. Thus, intentions for actions should be seen to be essentially subjective, that is accessible to the agent. There is no reason to believe that we are fooled by our mind which makes us only believe that we do what we intend but in fact other unseen causes determine our actions. The phenomenology of voluntary actions points in this direction at least.⁶

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Relations and Objects: A New Analogy Between *The Philosophy of Logical Atomism* and *Tractatus Logico-Philosophicus*

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It is a well-known fact that TPLA by Russell is influenced by Wittgensteinian *stimuli*. In the brief foreword to the first three lectures, Russell states his debts with some well-known words (Russell 1918, p. 160). It is far less known that those words are almost literally taken from the third lecture. In their original context, the debt appears to be quite specific and to concern an issue that is *prima facie* surprising: theory of relations and its connections with theory of types. Why is this issue surprising? We know that Russell and Wittgenstein debated for a long time about some aspects of the theory of relations; but these aspects are usually identified with those relations involved in the theory of judgement, as Russell had expounded it in the unpublished "Theory of Knowledge" (Russell 1982).

On the contrary, the context of the quoted acknowledgement in the third lecture is radically different: Russell is going to talk about predicate semantics, its ontological commitments and the importance of a correct understanding of such notions, in order to catch the philosophical significance of theory of types. In particular, one feature is common to relations (and properties too, since properties are conceivable as monadic relations) and their linguistic counterparts and is fundamental for the theory of types: relations have in their essence the class of objects of which they can hold, predicates are essentially connected with the class of names which can saturate them and the mirroring of these combinatorial properties between relation and predicate is a necessary condition for the semantic connection between them. It is not *prima facie* clear what is Wittgensteinian here, insofar as we look at the Tractarian or pre-Tractarian theory of relations. This theory is notoriously difficult. However, it seems quite sure that Tractarian relations and their elusive linguistic counterparts do not have features similar to those which TPLA gives to relations and predicates.

In this paper, we suggest a plausible solution to this puzzle. We proceed by theoretical comparison, since historical reconstruction seems powerless here. We compare theory of relations and predicates in TPLA and theory of names and objects in the TLP.

Russell expounds the following thesis immediately after the mentioned acknowledgement to Wittgenstein.

Understanding a predicate is quite a different thing from understanding a name. By a predicate, as you know, I mean the word that is used to designate a quality such as red, white, square, round, and the understanding of a word like that involves a different kind of act of mind from that which is involved in understanding a name. To understand a name you must be acquainted with the particular of which it is a name, and you must know that it is the name of that particular. You do not, that is to say, have any suggestion of the form of a proposition, whereas in understanding a predicate you do. To understand „red“, for instance, is to understand what is meant by saying that a thing is red. You have to bring in the form of a proposition. You do not have to know, concerning any particular „this“, that „this is red“ but you have to know what is the meaning of saying that anything is red. You have to understand what one

would call "being red". The importance of that is in connection with the theory of types. (Russell 1918, p. 182)

In the TLP we do not find any dichotomy between two categories of designators whose semantic features are different. On the contrary, this dichotomy is clearly purported in the Russellian excerpt above. Thus, it is problematic to understand in which sense this theory is Wittgensteinian, insofar as Russell pretends it is Wittgensteinian.

Our proposal is that the semantics for predicates in TPLA is analogous to the Tractarian semantics for names, *i.e.* the only kind of linguistic expressions which the TLP admits as designators. If this is the case, then it is possible to make sense of the acknowledgement. In fact, the semantics for relations was the real novelty in this phase of development of Russell's thought. The semantics for names – apart from the trickier issue of the concrete identification of proper names – is still grounded in the notion of knowledge by acquaintance: a long-term Russellian theme. This is not the case for predicate semantics. Therefore, it is plausible that Russell declares his debt about what was actually new.

Let us draw the comparison. Concerning objects, which are the meaning of names, Wittgenstein wrote:

2.01231 If I am to know an object, though I need not know its external properties, I must know all its internal properties. (Wittgenstein 1921)

Thus, the knowledge of an object does not require to know, for any other object, if it is connected or not in an actual fact with the first one (these are its external properties). On the contrary, we need to know which other objects *can* be combined with it (its internal properties). The analogy with the TPLA excerpt is strong: in order to understand the word "red", I do not need to know, for any particular, if it is red or not, but I need to know what can be said to be red.

Obviously, a difference is apparent as the analogy : the comparison between the knowledge of an entity and the understanding of a linguistic expression could seem hazardous. However, this difference is only specific to the quoted excerpts. Both the authors have corresponding theses on three different levels: ontology, semantics and syntax. We can qualify these three connected sub-theses with quite traditional labels:

- (i) on the ontological level, both Russellian relations and Wittgensteinian objects have essential combinatorial properties; Wittgenstein calls these combinatorial properties "logical form" of the objects;
- (ii) on the syntactical level, both Russellian predicates and Tractarian names have analogous combinatorial properties, *i.e.* they are essentially connected with the propositions where they can occur;
- (iii) on the semantic level, the two linguistic categories share a sort of "context principle", such that they have meaning only in the context of a proposition.

Regarding Russell, many formulations suggest this exegesis. However, the Russellian inclination to alternate syntactical and ontological lexicon with great freedom makes it difficult to quote a specific passage. This freedom in itself partially legitimates our extensive exegesis. Nonetheless, look at this excerpt from "The logical atomism", a later essay, notoriously close to TPLA on these themes:

Attributes and relations, though they may be not susceptible of analysis, differ from substances by the fact that they suggest a structure, and that there can be no significant symbol which symbolizes them in isolation. (Russell 1924, p. 172)

Relations, in this Russellian ontology, are simples (*i.e.*, they can not be further analysed), but are different from substances (*i.e.*, the particulars which are the meanings of names), insofar as they suggest a structure: thus, our analogy is legitimate on the ontological level. Moreover, nothing can symbolize them standing alone: thus, the Russellian predicates respect the semantic context principle.

On the Wittgensteinian side, it is not difficult to show that the TLP maintains not only the quoted thesis about the independence and not-independence of objects on the ontological level, but also that:

1) names have meaning only in the context of a proposition (the semantic thesis), as Wittgenstein explicitly affirms in a well-known, Fregean flavoured section (Wittgenstein 1921, T 3.3);

2) names, mirroring the logical form of objects, are essentially connected with the propositions which can include them (the syntactical thesis). It is not by chance that this last point is developed by Wittgenstein in the sections commenting the context principle in 3.3. They are quite famous, thus I can avoid to analyse them here.

I quote only a previous section, which states the connection between the two levels of non-independence (ontological and syntactical). The syntactical non-independence of words is here a parenthetical comment to the non-independence of objects:

2.0122 Things are independent in so far as they can occur in all *possible* situations, but this form of independence is a form of connexion with states of affairs, a form of dependence. (It is impossible for words to appear in two different roles: by themselves and in propositions.) (Wittgenstein 1921)

The only remaining asymmetry is determined by Russell's reference to the "understanding" of names and relations. Under this only point of view, one may legitimately think that Tractarian names are more close to Russellian names of particulars than to predicates. In fact, though knowledge by acquaintance of the designated object is not required, it is plausible that in order to understand a Tractarian name we only need to know which object is its meaning, without any need to know the logical form of name and object. It is surely a tricky issue involving the possibility of seeing Russell and Wittgenstein as precursors of the so-called direct reference theories. We can avoid facing this issue, renouncing to pose the comparison on this particular level, which perhaps Wittgenstein would have ignored as merely psychological. The relevant semantic level is not the understanding of meaning of names, but the general conditions under which a name can be a name of an object. On this level, the comparison is successful. According to the TLP, a name can be a name of an object

under this necessary (though not sufficient, insofar as there are many objects sharing the same form) condition: a name has to mirror the logical form of the object ("signalizing form" principle).

The TPLA semantics for predicates provides for a similar necessary condition. Is it sufficient too? Though TPLA tells us nothing about this aspect, it is theoretically plausible that this condition is not sufficient, as the corresponding condition concerning Tractarian names is not sufficient either. In fact, it is plausible that there exist different predicates, which designate different relations, but are nonetheless connected with the same class of propositions. We can use the Russellian example: the predicate "red" does not designate the same monadic relation that the predicate "green" designates; nonetheless, the predicates "red" and "green" can be in the same class of propositions.

Thus, also on the semantic level, the analogy seems convincing. The exclusion of the "understanding" issue does not affect the other levels. Russell himself often faces the semantic level with a lexicon compatible with the Tractarian point of view. *E.g.*:

[...] the relation of a predicate to what it means is different from the relation of a name to what it means. (Russell 1918, p. 233)

We have legitimated the comparison on all the levels which seem relevant: ontology, syntax, semantics.

Now, we should pass to theory of types, insofar as Russell claims that his Wittgensteinian theory of relations is important in order to catch the philosophical significance of theory of types. I have not the time to enlighten here the connection between theory of relations and theory of types in TPLA. In general, I propose that the connection is deeply similar to the way in which theory of types is grounded on the combinatorial properties of objects – through the notion of "propositional functions" - in the relevant Tractarian section.

I leave this aspect aside and draw some brief conclusions. The main problem concerns Russell and his interpretation of Wittgensteinian suggestions. Russell claims in TPLA to adopt this theory of relations because of certain Wittgensteinian suggestions. However, he seems to misunderstand something and underestimate something else. It is difficult to trace the limits to his misunderstanding and underestimation, since we do not dispose of adequate historical sources. We do not know what Wittgenstein thought of these issues before 1914. Therefore the historical reconstruction is unavoidably speculative. Anyway, Russell adopts ontological, syntactical and semantic theories about relations and predicates strongly similar to the corresponding Wittgensteinian theories about names and objects. These Russellian theories are built on a core thesis: relations and predicates have determinate combinatorial properties. However, this theory of relations does not seem to determine the logical syntax as a whole. Russell develops only those consequences which are pretheoretically required by the theory of types and the anti-paradoxical aims of it. The remaining picture is not clarified. The respective role of objects and relations – having so different ontology and semantics – is quite obscure. About theory of types, Russell does not seem to see that the Wittgensteinian tool is strongly uneconomical, when conceived as a tool for the foundations of theory of types.

On the Wittgensteinian side, the shown comparison can give some integrative contribution to a vexata

quaestio: which is the ontological role of universals? This contribution is only integrative, because of the already mentioned difficulties in giving a persuasive account of the dependence relations between Wittgensteinian suggestions and TPLA. Anyway, it seems that Russell applied to properties and relations what Wittgenstein refers to objects. And this transfer seems undeclared and quite natural from Russell's point of view. Obviously, one can imagine many ways to fill the historical gaps in such transition. However, a quite natural way to give an account of the transition is to admit that Tractarian objects are not as extraneous to universals as it has been often thought.

In 1983, Merrill and Jaakko Hintikka (Hintikka 1982) proposed that both universals and particulars are objects, though their names function in a different way. A recent proposal by Pasquale Frasca (Frasca 2004) claims that all objects have to be conceived as phenomenic *qualia*, therefore as universals. We do not aim to discuss here difficulties and problems in such proposals. From our limited point of view, we can only remark that both these proposals are a plausible basis to make sense of the strong analogy with TPLA we tried to show here.

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Ästhetik und Logische Form: Wittgensteins Haus

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1. Hinführung

Mein Ideal ist eine gewisse Kühle. Ein Tempel, der den Leidenschaften als Umgebung dient, ohne in sie hineinzureden. (VB, 453, 1929)

Die Arbeit an der Architektur ist Wittgenstein wichtig: Nicht nur beginnen die *Philosophischen Untersuchungen* mit Szenen vom Bau, durchziehen architektonische Beispiele Wittgensteins Spätwerk und hat er über seine Auseinandersetzung mit Raum sowie Material, Farbe und Form um 1938 eine eigene Vorlesung gehalten. Sondern Wittgenstein hat auch von 1926-28, ausgehend von Paul Engelmanns Skizzen, für seine Schwester Margarethe Stonborough-Wittgenstein selbst ein Stadtpalais entworfen (zu dem Bau vgl. v.a. Leitner 1973; ders. 2000 und Wijdefeld 1993). In diesen Jahren ging Wittgenstein völlig in seiner Arbeit an dem Haus auf, was sich vielleicht in einem Brief an John Maynard Keynes mitteilt: „My Dear Keynes, I've just finished my house that has kept me entirely busy these last two years. [...] Enclosed you will find a few photos of my house and hope you won't be too much disgusted by its simplicity“ (Letter 126, CL 224).

Wie ein monolithischer Block in der Avantgarde der 1920'er Jahre stemmt sich Wittgensteins nüchterner, strenger und höchst eigenwilliger Bau in der Kundmannsgasse 19 gegen jeden architekturtheoretischen Zugriff. Müssen wir ihn aber deshalb philosophisch, als „hausgewordene Logik“ (Stadler 1982a, ders. 1982b), deuten? Oder aber als einen Versuch, abstrakte logisch-philosophische Konzepte in eine architektonische Formensyntax zu übertragen, wie es in der Literatur nahezu *unisono* erklärt wird? - Eine Fährte, die vielleicht durch eine Notiz von Georg Henrik von Wright gelegt wird: „Its beauty is of the same simple and static kind that belongs to the sentences of the *tractatus*“ (ders. 1958, S. 11).

Tatsächlich nennt Wittgenstein unter den zehn wichtigsten Einflüssen nicht nur Boltzmann, Hertz, Frege, Russell und Kraus sondern auch den Protagonisten der architektonischen Moderne, Adolf Loos. Die nüchternen und strengen Formen von Wittgensteins Haus scheinen denn auch emphatisch die leidenschaftliche Ablehnung des Ornaments durch Loos in dessen „Ornament und Verbrechen“ (1908) und dessen Plädoyer dafür aufzunehmen, die Sprache der Architektur jeder Rhetorik zu entkleiden. Auch wenn Wittgensteins Haus auf den ersten Blick so aussehen mag wie von Loos: es kann es bei näherer Betrachtung nicht sein. Nähern wir uns Wittgensteins Haus, so begegnet uns keine statisch-logische Formensprache, sondern eine sehr persönliche Architektur. Wie eine Beethovensche Symphonie oder eine gotische Kathedrale, von denen Wittgenstein in seinen *Vorlesungen über Ästhetik* spricht, so ist sein Gebäude nicht „korrekt“ sondern schafft seine eigenen Regeln.

Um diese selbstgeschaffenen Regeln wird es im Folgenden gehen: Allerdings werde ich Wittgensteins Haus weder als den intellektuellen Ausflug eines Philosophen in die Architektur, noch als Versuch eines Ingenieurs und Maschinenbauers lesen, seine hinter sich gelassene Philosophie architektonisch aufzuarbeiten. Vielmehr möchte ich Wittgensteins Haus als das vorstellen, was es ist: Ein einzigartiger baukünstlerischer

Beitrag zu der kulturellen Geschichte des 20. Jahrhunderts ohne direktes Vorbild und ohne Nachfolge. Dazu möchte ich Sie mitnehmen auf einen kleinen Rundgang durch Wittgensteins Haus. Das Hauptaugenmerk wird dabei der „Raumlogik“ gelten, d.h. den Übergängen, Zusammenhängen und dem Verhältnis von Innen und Außen – nicht zuletzt deswegen, da fast alle philosophischen Reflexionen über Wittgensteins Haus hier ihren Ausgang nehmen.

2. Ein Rundgang durch Wittgensteins Haus

Es interessiert mich nicht, ein Gebäude aufzuführen, sondern die Grundlagen der möglichen Gebäude durchsichtig vor mir zu haben (VB, 459, 1930).

Wir betreten das Haus durch ein unscheinbares und im Verhältnis zur Größe der Fassadenfläche sehr kleines Portal in einem aus der Hauptfassade vorgezogenen Kubus. Fast müssen wir uns hindurchzwängen. Ein „Haus in Bewegung“, so charakterisiert es der Architekt und Künstler Bernhard Leitner. Bleiben wir also in Bewegung: Wittgenstein inszeniert den Eingang in einer Flucht von drei, sukzessive immer weiter und heller werdenden Räumen: Durch einen dunklen Windfang gelangen wir in einen größeren, helleren Vorraum. Geradeaus, durch eine Glastüre, betreten wir einen sehr viel größeren und lichten Raum, die zentrale Halle: Direkt hinter der Glastüre stoßen wir unmittelbar auf eine gerade, relativ steile Treppe, die innerhalb der Halle – ähnlich wie die Repräsentationstreppe in der Palaisarchitektur – zu einem u-förmigen Podest hinaufführt, das die hintere Hälfte der Halle einnimmt und den Treppaufgang seitlich umschließt.

Der hinter uns liegende quadratische Windfang und der Vorraum sind jeweils mit vier symmetrischen Kunststeinplatten ausgelegt. Dadurch wirken diese Räume zentrisch und beruhigend. Funktionen haben sie allerdings nur als Durchgang: Sie bieten quasi der Erwartung Raum, laden jedoch nicht zum längeren Verweilen ein. Durch die enorme Größen- und Helligkeitszunahme (durch seitlichen Lichteinfall) werden unsere Schritte beschleunigt. Eine „lupfende“ architektonische Geste geleitet uns über das Zentrum des Vorraums zum unteren Ansatz der Treppe und über diese hinauf zu dem Podest am Ende der Treppe. Unterstützt wird diese Geste durch den Gegensatz zwischen den pechschwarzen Bodenplatten und der weißen, fast schwebend wirkenden Hallendecke – ein Eindruck, der noch einmal verstärkt wird durch die leitende Wirkung der sichtbaren Unterzüge und durch die Säulen, die sich anstelle eines Kapitels zu einem Auflager verjüngen. Schauen wir uns weiter um, so fällt auf: Alles ist künstlich – ganz im Gegensatz zur Loos-Schule: Der Boden ist aus schwarzem Kunststein, an den Wänden *stucco lustro*, Metall und Glas. „Reines“ Material zählt nicht zu Wittgensteins Grundbausteinen – vielleicht deshalb, da künstliche Materialien sich der ästhetischen Gestaltung anders fügen als natürliches Material mit seinen Unregelmäßigkeiten in Struktur, Farbe und Formbarkeit.

Doch gehen wir weiter: Unser nächstes Zwischenziel ist der geometrische Hallenmittelpunkt, der sich genau auf dem oberen Treppenansatz befindet. Oben, auf dem Podest angekommen, gebietet uns

plötzlich der Blick einer kleinen Statue an der gegenüberliegenden Wand. Einhalt: Unwillkürlich weichen wir aus, nach rechts. Warum? Schauen wir genauer hin: Die erste Bodenplatte rechts ist größer als die anderen. Um nicht auf die Fuge treten zu müssen, weichen wir unwillkürlich ein wenig nach rechts aus. Wittgenstein hat jede Platte einzeln auf den Millimeter genau berechnet. Und tatsächlich: Diese Ausweichbewegung führt uns genau zum geometrischen Mittelpunkt des gesamten Erdgeschosses.

Wir stehen jetzt im zentralen Verteilungspunkt der Halle: Von hier aus werden die Zugänge und Eintritte in die Räume der *belle étage* organisiert. Dies geschieht durch die leitende Funktion verschiedener „gerichteter“ Sichtachsen, die sich alle hier kreuzen. Gerichtet sind die Sichtachsen dadurch, dass Licht jeweils durch eine transluzente, d.h. lichtdurchlässige, aber blickdichte Türe auf der einen Seite hineinströmt und den Blick auf der anderen Seite durch eine Glastüre oder ein Glasfenster nach draußen lenkt. Die jeweils leitende Sichtachse tut sich dann auf, wenn diejenige Türe geöffnet wird, in die wir eintreten sollen: Ist die Stahltüre des Wohnzimmers geöffnet, so entsteht eine Sichtachse durch den Lichteinfall von den linken Terrassentüren nach rechts durch die geöffnete Türe zu den Fenstern des Saals. Sollen wir aber weiter, zu Margarethes Privatgemächern hinter dem Saal gehen, so entsteht eine weitere Sichtachse von einer der gläsernen Terrassentüren, durch den Saal, die geöffnete Türe zu Margarethes Schlafzimmer und zu dem Schlafzimmerfenster. Je nachdem also, welche Türen gerade offen oder geschlossen sind, werden unsere Schritte eindeutig gelenkt: rechts geht es durch eine Stahltür in den Saal, geradeaus, durch eine transluzente Türe in Margarethes Privatgemächern, links gegenüber in das Esszimmer und ganz rechts, an der hinteren Hallenwand, durch eine Glastür in das Wohnzimmer. Von den Sichtachsen geführt, die aus dem Wechselspiel geschlossener und geöffneter Zimmertüren sowie der transluzenten Glastüren resultieren, wenden wir uns unwillkürlich genau derjenigen Türe zu, in der wir erwartet werden.

Der Raumsinn der Halle verändert sich also: Abhängig davon, welche Türe jeweils geöffnet ist, wechseln die Beziehungen und die Topologie der Halle und werden die richtungsleitenden Sichtachsen reorganisiert: Wir werden entweder zum Verweilen eingeladen, ins Speisezimmer dirigiert, in die Wohn- oder Privatgemächern gelotst oder eben auch nach draußen, auf die Terasse, expediert. Wenn wir Türen öffnen oder schließen, verändern sich die Zusammenhänge und Strukturen von Wittgensteins Räumen – ein diametraler Gegensatz zu der Loos'schen Leitidee eines „Raumplans“ und seines organisierenden Prinzips der Additivität von Plätzen und Wegen.

Setzen wir nun unseren Rundgang fort: Eine dynamische und gar nicht statische Raumstruktur bestimmt auch den Zusammenhang von Saal und Margarethes privatem Wohn- und Schlafzimmer, vor dessen Eingang wir jetzt stehen. Margarethe nutzte diesen Raum als Wohn- und Schlafzimmer gleichzeitig: ihr Bett stand als Raumteiler in der Mitte, heute noch an der Anordnung der Bodenplatten zu erkennen – ein Arrangement, welches eher an fürstliche Audienzzimmer erinnert.

Der Zugang vom Saal erfolgt durch eine Doppeltür – saalseitig aus Stahl, während die Innentüre aus Glas ist: Ist die Stahltüre geschlossen, so ist die Trennung aus der Schlafzimmerperspektive perfekt. Vom Saal aus betrachtet wirkt die Wand jedoch asymmetrisch: Wir blicken auf drei

gleichmäßig angeordnete Türen, wobei jedoch die beiden Terrassentüren aus Glas und die dritte Türe, vor der wir jetzt stehen, aus Stahl ist. Diese Asymmetrie in der ansonsten gleichmäßigen Anordnung der Türen weist darauf hin, dass etwas fehlt: Wittgensteins Schwester, die sich in ihre Privatgemächer zurück gezogen hat. Bei offener Stahltüre und gleichzeitig geschlossener Glastür kann Wittgensteins Schwester an dem Geschehen im Saal teilhaben, ohne dabei aufgrund der Helligkeitsunterschiede selbst gesehen zu werden: Saalseitig präsentiert sich jetzt die Wand durch drei genau gleiche Glastüren völlig symmetrisch. Vom Saal aus gesehen befindet sich Margarethe in einem „Innen im Außen“. Sind hingegen beide Türen geöffnet, so werden Saal und Privatgemächer zu einer Einheit – verstärkt durch die Sichtachsen und eine Asymmetrie in den Bodenplatten am Eingang, deren Fugenmuster uns unwillkürlich eintreten lässt – der gleiche Effekt, der bereits unsere Schritte in der Halle in die richtige Richtung gelenkt hat. Der veränderliche Raumsinn von Wittgensteins Grundriss resultiert also keinesfalls aus einer unaufgelösten Ambivalenz von Symmetrieachsen und einem Scheitern Wittgensteins an der Materialität von Architektur, wie es Turnovsky in seinem sehr originellen Essay *Die Ästhetik eines Mauervorsprungs* (1987) behauptet.

Wieder zurück im Saal gehen wir jetzt durch die Terrassentüren nach draußen. Wir treten dabei in ein ganz ähnliches Spiel von Innen und Außen ein – diesmal allerdings mit dem wirklichen Außen: Wittgensteins Räume sind hell und licht; durch die großen Glastüren und -fenster holen sie scheinbar das Außen nach innen. Allerdings in unspezifischer Weise, als Licht: Ein Metallschnabel (wie alles andere im Haus auch, Wittgensteins eigener Entwurf), der als genial einfacher Feststellmechanismus fungiert, erlaubt es, die zwei Flügel der Terrassentür in jedem beliebigen Öffnungswinkel zu fixieren. Dadurch entsteht bei leicht geöffneten Flügeln ein gläserner Paravent, der wie ein im Sonnenlicht kristallin funkelndes Prisma das Außenlicht im Innenraum ausstrahlt. Öffnen wir die Türen auf dem Weg nach draußen etwas weiter um 90 Grad, so tun sich exakt quadratische Zwischenräume auf, die eigentlich aber wiederum auch keine sind. Eine strikte Trennung von Außen und Innen, als das jeweils unmittelbar ganz Andere, wie bei Loos, findet sich hier nicht. Nach draußen gelangen wir nur, wenn wir diesen temporären Zwischenraum durchqueren. Er ist zentrisch und wirkt dadurch zentrierend – aber nur zu einer kurzen Besinnung. Denn er ist kein eigentlicher Raum, indem wir verweilen könnten, sondern wird es nur im Durchgehen und für uns. In seiner Unspezifität bleibt der Raum zwischen den beiden geöffneten Flügeln der Glastür abstrakt.

3. Rückblick

Die Arbeit an der Architektur ist eigentlich mehr die Arbeit an einem selbst. Daran, wie man die Dinge sieht. (Und was man von ihnen verlangt.) (VB 472, 1931)

Zurückblickend an seine erste flüchtige Begegnung mit Wittgensteins Haus mag ein philosophischer Betrachter vielleicht an den architektonischen Aufbau des *Tractatus* mit seinen strikt angeordneten Paragraphen denken. Wittgensteins Spiel mit Symmetriebrüchen und der dynamischen Raumstruktur, das wir bei unserem eingehenderen Besuch erlebt haben, spricht jedoch dagegen. Zufälligkeiten sind das sicher nicht – vergegenwärtigen wir uns die Akribie, mit der Wittgenstein Raum, Material, Farbe und Form – bis in jedes einzelne Detail der Klinken, Heizkörper und Bodenplatten hinein –

selbst gestaltet hat. Fast anekdotenhaft nimmt sich Wittgensteins leicht ironische Schilderung in den *Vorlesungen über Ästhetik* darüber aus, wie er einen Arbeiter stundenlang solange Fenstergitter anhalten ließ, bis er endlich mit ihrer Position zufrieden war (ebd., II §12).

Ist es also plausibel, Wittgensteins Haus als Ausdruck eines Bestrebens zu sehen, dem Material, den Proportionen und den Farben eine stringendere Form zu verleihen und den logischen Raum funktional durch ein idealtypisches Modell realisieren zu wollen, wie es beispielsweise Friedrich Stadler (1982a, S. 539) formuliert? Wittgensteins Bemerkungen zu dem „Gewaltigen“ (tremendous) in den *Vorlesungen über Ästhetik* mögen da einen Hinweis geben:

Wir sprachen von Richtigkeit. Ein guter Schneider gebraucht keine anderen Worte als ‚zu lang<, >richtig<. Wenn wir über eine Symphonie von Beethoven sprechen, reden wir nicht von Richtigkeit. Hier sind ganz andere Dinge wichtig. Man würde nicht sagen, dass man die *gewaltigen* Dinge in der Kunst schätzt. In gewissen Architekturstilen ist eine Tür richtig und wir schätzen sie darum. Im All einer gotischen Kathedrale spielen völlig andere Dinge eine Rolle für uns, und wir würden die Tür nicht >richtig< nennen. Das gesamte *Spiel* ist anders. Es ist so verschieden wie bei der Beurteilung eines Menschen zum einen zu sagen >Er benimmt sich gut< und zum anderen >Er hat einen großen Eindruck auf mich gemacht< (ebd., I § 23).

Ein Architekturstil wird durch Konventionen oder Regeln etabliert. Im Falle einer gotischen Kathedrale gibt es jedoch keine Regeln, die ihrer Schöpfung selbst voraus gehen: sie kreiert ihre eigenen Regeln, anstatt durch Regeln gebunden zu sein. Das Gewaltige ist also von dem Korrekten darin unterschieden, dass es nicht regelgeleitet ist und nicht nach Konventionen beurteilt werden kann (vgl. zu der Unterscheidung von „Korrektem“ und „Gewaltigem“: Tam 2002, S. 317). Der Rundgang hat also Eines deutlich werden lassen: Wittgensteins Haus fügt sich nicht „konventionell“ oder korrekt einem Architekturstil – sei er auch Loos-Engelmannscher Prägung. Eine Synthese der Logik des *Tractatus* mit den Ideen von Loos vermögen wir darin ebenfalls nicht zu sehen. Vielmehr begegnet uns eine relationale Raumkonzeption, die keinen neutralen, fixen Standpunkt des Betrachters außerhalb zulässt – ganz entgegen dem Verständnis von Philosophie und Sprache im *Tractatus*, welches diesen ja gerade vorausgesetzt. Zwar hat Loos, wie bereits erwähnt, große Bedeutung für Wittgenstein besessen – darin können wir John Hyman in seinem anregenden *The Urn and the Chamber Pot* (2001) folgen (zum geistigen Umfeld generell vgl. immer noch: Janik und Toulmin 1984). Ob ein Besuch des Wittgenstein Hauses nun aber auch zu den Spuren von Loos in Wittgensteins Haus führt, scheint eher fraglich. Was wir stattdessen erlebt haben, ist die ordnende Eigendynamik von Wittgensteins Räumen und ihrer „Logiken“.¹

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Bolzano on Time and History

Winfried Löffler, Innsbruck, Austria

The topics of time, history, historiography and historical method appear rather peripherally in Bolzano's writings; nevertheless, his views are not without interest. Partly they are uncommon, and partly he anticipates later philosophical ideas by decades. I will first briefly recall Bolzano's accounts of time and causation and will then sketch his critique of German idealist conceptions of historical laws. Bolzano's perhaps most interesting contribution in the field, his Bayesian account of historical credibility, can only be mentioned here (see Löffler 1997 for a closer analysis).

1. Bolzano on Time and Causation

His frequent mentioning of time notwithstanding, it appears as if Bolzano has not developed a fully unified and clear account of time (Morscher 1973, 69-75; Textor 2003a, 98-102, Textor 2003b). We may leave aside here some early texts where Bolzano regarded time as a relation (*Verhältniss*), holding presumably between two stages or states of object (and hence a form of attribute [*Beschaffenheit*]). In his subsequent writings, Bolzano turned to the view that time is not a *Beschaffenheit* at all, but a qualification (*Bestimmung*) of the object. According to Bolzano, a sentence expressing a contingent attribution like "Socrates is courageous" should rather be analysed involving a temporal adverbial qualification: "Socrates at t is courageous" (*Wissenschaftslehre*, § 79; see Textor 2003a, 99f; Textor 2003b). It is crucial to keep in mind that this index "at t" is a part of the subject-term of the sentence and not of the copula. Bolzano believes that sentences have a uniform structure on the level of their depth-grammar, and he uses the univocal, untensed copula "has" (*A has b*) for their analysis (Schnieder 2004, 80f). Time as qualification / *Bestimmung* makes it possible that contradictory properties can be predicated of one and the same object. However, at a closer look, it seems to commit Bolzano to a sort of perdurantism or phase-ontology: Socrates-at- t_1 cannot be the same as Socrates-at- t_2 , if Bolzano's model is supposed to work. The purported object Socrates really consists of phases or stages, whereas the sentences describing the states of Socrates-at- t_n are timelessly true or timelessly false. How easy or difficult this is to reconcile with Bolzano's other views on the identity of objects, must be left open here (see Textor 2003b, 88f on Bolzano's wavering between perdurantism and endurantism). It should just be mentioned that one all-too-simple attempt at reconciliation will not be successful: One might perhaps recall that Bolzano in fact regards mesoscopic objects like human beings as bundles of simple substances (see, among others, the essay *Atomenlehre des seligen Bolzano* by his close disciple František Příhonský, edited in Příhonský 2003; Schnieder 2002, Runggaldier 2003), and that changes in the bundle might easily explain why Socrates-at- t_1 is not precisely the same as Socrates-at- t_2 . However, this ontological phasing also affects the simple substances at the micro-level. Since substances constantly change, sentences about them would also refer to substances-at- t_n , that means to substance-phases. The problem might ultimately have to do with Bolzano's unclear account of qualification / *Bestimmung* and the unclear distinction between *Beschaffenheit* and *Bestimmung*. In any case, it is clear that Bolzano wants to hold the anti-Kantian position that time is "real" time and not just an idea or pres-

entation of time, i.e. the *Bestimmung* / qualification of time is not an ingredient stemming from the cognising subject.

Bolzano's thought about causation displays a similar picture. As far as I can see, his own remarks are rather scattered and do not make up a detailed account, and there is no exhaustive treatment in the secondary literature so far (for valuable, but still partial clarifications see Morscher 1973, Neemann 1972, 1973 and 1984, Textor 1996 and Schnieder 2002). However, causation is a central concept for Bolzano. According to him, "being a real thing" and "being a cause" or "effecting something" is coextensive, yet not conceptually the same. The connection between reality and effecting is more clearly expressed in Bolzano's German terminology: being *wirklich* (real) is characterized by being *wirksam* or *wirkend* (effecting). According to Bolzano, everything that is real has some effects and vice versa. Interestingly, Bolzano regards the concept of a "real thing" as a primitive concept which admits of no further analysis or definition, whereas "being a cause" is definable in terms of reasons and reality (*Wissenschaftslehre*, § 168): "a is the cause of b" means "[that a is real] is the reason for [that b is real]". It is obvious that this definition would require a lot of clarification: For example, we notice that Bolzano, although he regards causality as a relation between objects, defines it in terms of reasons and consequences between propositions. We might further ask whether only substances are causes, or – as it frequently appears in Bolzano – whether also attributes or perhaps events may function as relata in the cause-relation (see Schnieder 2002). Be that as it may, it is important for our following consideration that Bolzano uses a conception of causation which is completely detached from the idea of nomic regularity or law-likeness. Bolzano distinguishes between *Abfolge* (approximately: [con]sequence) and *Ableitbarkeit* (deducibility), and in a similar sense between material consequence and formal consequence (*materiale* and *formale Abfolge*): whereas a causal relation corresponds to a material consequence, it is doubtful whether it must always correspond to a formal consequence in the sense of deducibility. Bolzano's conception of causality has more in common with an Aristotelian conception of effective cause as bringing-something-about, and the idea of law-like description has no significant place in it. Moreover, Bolzano emphasizes the distinction of partial and complete causes (Bolzano 1838², 74ff): that something is the case, is caused by the collaboration of a whole network of partial causes. A murder, for instance, only happens if the murderer, the victim, some tool or weapon etc. are given in an appropriate spatio-temporal nexus. The murderer alone cannot be labelled as "the cause" of the murder; he is only a *partial cause*. In many cases, it will be impossible for us to describe the complete cause exhaustively.

2. Laws of History?

The latter remarks lead us to Bolzano's view of historical causation and the plausibility of purported laws of historical succession. From Bolzano's point of view, talking about historical causation makes perfect sense, but we need not appeal to historical laws for it. One might see Bolzano as a distant forerunner of Karl Popper's critique of historicism. To keep matters separated: Bolzano's problem here is not

exactly the problem of determinism (in the sense of a predetermination of all events, a pre-stabilized harmony or whatever) at the ontological level. In fact, there are passages for and against determinism in the *Athanasia*, and in sum Bolzano leaves the problem open, as far as I can see (on Bolzano and determinism see Neemann 1972). Bolzano's concern rather seems to be an epistemological one, whether we would be in a position to describe and perhaps forecast historical developments in a law-like style at all. My formulation "rather seems to be" is deliberately cautious here, since Bolzano's own statements on the matter are not direct. The most detailed investigation in the literature so far is by Ursula Neemann (1972, 1973). Neemann's argument can be summarized as follows: since Bolzanian substances are spatio-temporally unique objects, since general concepts according to Bolzano must always apply to at least two objects, and since any law-like description or explanation of changes must involve general concepts, there cannot be a full law-like description of the changes in a particular substance. The individual process of change will always, objectively and in principle be beyond the reach of our conceptual description. However, the prospects for law-like description or forecast increase if we abstract from concrete objects and constrain ourselves to general features (as it happens in the natural sciences). The problem with Neemann's considerations is that, although quite plausible, they are mostly conjectural in nature. The evidence which is offered for her claims from Bolzano's writings is rather thin and mostly stems from his doctrines of presentations (*Vorstellungen*) in the chapter "Elementarlehre" of his *Wissenschaftslehre*. A detailed treatment of the issue is still to be desired.

As a small step towards that, I will have a look at the text where Bolzano addresses the issue of historical laws of succession most directly. It is his posthumously published essay *On Hegel's and his Adherents' Concept of History in General and especially of the History of Philosophy*. Bolzano wrote this essay around 1838, at a time when he had long been removed from his chair at Prague. Bolzano dwelled as a rather powerless private scholar in Bohemia, and, together with his disciples, he desperately tried to get more influence on the German intellectual life, partly by correspondence, partly by publications and book-reviews. The essay was most probably meant for a journal which should be founded for this task, and this explains the style and composition of the text. It is obviously designed for a broader audience. Its style comprises gentle polemic against philosophers of his time (sometimes close to the edge of sarcasm), and it clearly displays Bolzano's fine feeling for humour. Unlike most of Bolzano's scholarly texts, it contains no divisions or headlines, and at first glimpse it may appear as just a sloppy series of remarks. Nevertheless, the text is clearly argumentative, and it is not without an overall structure. Bolzano first lists up eight theses which he attributes to Hegelian philosophy of history, especially in the thought of Hegel's pupil August Cieszkowski (*Prolegomena zur Historiosophie*, 1838). He then addresses them with various defeating arguments. Since there is no logical pattern in the order of these arguments, I will re arrange them in the order of Bolzano's initial list. The respective Hegelian theses (summarized from Bolzano's presentation) are placed in front in *italics*.

a. The history of mankind is the history of the Weltgeist, which develops towards its perfection in self-consciousness. – Bolzano replies to this principal thesis by pointing out several unwarranted claims behind it: (aa) Why should self-consciousness have to do with

perfection? (bb) How could the unique *Weltgeist* develop self-consciousness in a *multiplicity* of individuals? (cc) How exactly is the development to be understood? Bolzano recalls the Hegelian answer that in the course of history the very idea of mankind is subsequently realized in all forms in which it can be realized. But, Bolzano replies, this is not only counter-intuitive (must a scholar on his way to perfection really write all possible books, even bad ones?). As a description of a law, it is also insufficient: in order to describe a single historical law and not a multiplicity of them, one would also have to determine *the order* in which these realizations are gone through. Without this, the Hegelian "law" covers an huge variety of historical developments. (dd) The perhaps most important argument has to do with Bolzano's view of causality described above: we are part of an immense causal network, and the non-human substances in the world influence our lives in various ways. It is to be expected that purported regularities in the development of the *Weltgeist* would be massively disturbed. All in all, Bolzano holds, theism has at least the same explanatory and predictive power as Hegelian pantheism, but it does not share its implausibility.

b. Every state of mankind is a consequence of all previous ones, and it is a progress in the rational and necessary course of the Weltgeist. – Bolzano first points out a similarity to his own thought: all substances develop constantly, the sum of their presentations increases. In that sense, the whole mankind also increases in cognition. But in order to keep his position empirically plausible, Bolzano admits, contrary to the Hegelians, that not every single aspect of development must be regarded as progressive (think of sleeping persons or persons falling into paranoia). Because of the manifold causal connections and contingencies in the course of the world, we cannot simply regard one state as a consequence of all previous ones, and there can well be "local" regressions and setbacks in the overall process of development. In order to secure his thesis of an overall process, Bolzano has to invoke two external premises: increasing cognition will foster an increase in other perfections as well, and God will realize every good at some time.

c. The history of philosophy is its own development, and every philosophical system is a perfection of its immediate precursor which is appropriate for its time. – Bolzano replies that this is flatly implausible from a historical point of view. Thinkers do not always study the earlier systems exhaustively, and in many cases they even have their most original ideas before they get into touch with other systems. Moreover, philosophical biographies are influenced by manifold contingencies, especially education, temperament, health and illness, professional state, experiences of fate, etc. The same holds for the history of science, where important discoveries frequently go back to accident and luck. This does not exclude, says Bolzano, that there are some "weaker" regularities: Newton's theory, e.g., was so powerful that subsequent discoveries were almost to be expected. These ideas might sound astonishingly modern, and the same holds for Bolzano's account of scientific mistakes or dead ends. According to Bolzano, such phenomena happen, but – in opposition to the Hegelian view – they are neither necessary nor dramatic. Especially, one should stay away from two Hegelian strategies of explanation: false claims should neither be declared as "inessential to a system" or as "truths which are overcome (*aufgehoben*) in later systems". The former strategy would, at closer look, yield only true systems (a highly implausible consequence!). Against this, Bolzano (in an almost Popperian view of philosophy as problem-solving) holds that every thesis

which answers a question or which serves as a necessary premise for an answer is essential to a system, and a system which contains at least one false sentence is erroneous. The Hegelian concepts of “overcoming” and “higher truths” are criticized as obfuscations of a traditional and reasonable concept of “truth” and “falsity”, and solid contradictions should, according to Bolzano, not be camouflaged as “perspective truths”. In an almost Popperian wording, Bolzano regards philosophical systems as sets of fallible sentences, to which no rational person would assign absolute certainty. (This view of philosophical systems as sets of sentences is very similar to his view of sciences and religions in his *Wissenschaftslehre* and his *Lehrbuch der Religionswissenschaft*.) Of course there is a certain probability that later systems are all in all better, but there might also be “setbacks in knowledge” (296), in that a later system might replace one error by a whole web of errors; it is hard not to be reminded of Poppers idea of verisimilitude by these remarks. Public applause might be an indication of the quality of a system, but sometimes it can also be misleading: political influence, the reputation of schools and chairs, personal fascination and an appearance of affinity to the empirical sciences may make systems fashionable which are in fact a massive fallback.

d. Every philosophical system is perfect for its age. – Bolzano does not address this thesis in much detail; in a postscript to the essay, he reminds us that it is not even clearly explicable what “the philosophy of a time” should mean. Again, we see that Bolzano does not take the history of philosophy as a sequence of big geniuses, but that he has a clear look to the manifoldness of actual philosophical attempts. (We might, however, at this point mention that Bolzano shares one important premise with the Hegelians, which separates him from most of today’s analytic philosophy. He perceives philosophy very much in the category of full-blown philosophical systems. Bolzano himself is perhaps one of the most coherent system-building philosophers of all times, and it is obvious from the last sentence of his essay that he wants to promote his own system as an alternative to the idealist ones.)

e. The history of philosophy can be described as a sequence of three epochs following the law of dialectics. – Bolzano replies that this is highly implausible from a historical point of view. Such general descriptions always go back to a highly selective perception of historical developments and their distorted description on the Procrustean bed of a certain a priori theory. Nevertheless, Bolzano admits that there can be psychological forms of dialectics also in philosophy: sometimes, an erroneous position calls forth an overdone reaction, and this may foster the search for a moderate, balanced middle-position. However, such dialectics are neither startling nor important in their scope.

f. The history of mankind as a whole follows this same law. – The same criticism as before applies also here, but Bolzano also puts in question the very law of dialectics from several sides. “Dialectical contradictions” are really *diversities* of various kinds which can be found everywhere in the world (e.g., a plant is no “contradiction” to its germ!), and the concept of overcoming (*Aufhebung*) is completely obscure. Hence, from such an undetermined law, even if it were true, nothing follows. Moreover, there is a conceptual gap: even if there were something like a dialectical movement, this would not, without further premises, imply that it is also a movement of progress or an increase in perfection. Historical “explanations” by the triadic dialectical law, hence, are pseudo-explanations; this does of course not prevent that, psychologically, some developments at a minor scale can be explained by psychological dialectics of actions, overreactions and compromise.

g. Every nation represents the world history of a certain stage; every nation plays a welthistorisch rôle exactly once, and the “great” figures of history represent their nations and their times. – Bolzano sees these claims as wholly unwarranted (Why should nations and not individual persons represent the Weltgeist? Why should nations never get a “second historical chance”?) and a source of uncontrollable historical associations. The third thesis, moreover, contains some massive contradictions and confusions: “greatness” should not be confused with historical success or causing visible changes. Success depends on a host of historical contingencies, luck and chance, and in some cases the real historical greatness might consist in refraining from unrealistic attempts at all. A purported representation-relation between great figures and their nations or epochs is obscure at closer look: great persons are great just because they differ from the average, because they are *not* typical examples. So on what features should the representation relation be based?

h. Contemporary philosophy (in the Hegelian style) is a climax, but it is bound to succumb first into applied philosophy and then into shallow popularisation. – Bolzano reads this as a tacit confession that a clear and unpretentious account of Hegelianism is still to be desired. But since clarity and well-defined modes of speech were declared as methodological vices by the Hegelians, the prospects for such an account are bad. Bolzano also points out some contradictions in the climax-thesis: for example, the Hegelian lamentation about the disdain of reason by a good part of the intellectual audience cannot easily be reconciled with it.

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Meaning as Use: Peirce and Wittgenstein

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Ludwig Wittgenstein writes in *Philosophical Investigations* that the meaning of a word is its use in a language (Wittgenstein 1953, I, sec. 43). This is often interpreted to entail that he was no more interested in the relationship between language and the world. Words get their meaning by virtue of their relationships with other words and their use. It is, however, possible to argue that the use of words actually serves as a link between language and the world (see Hintikka and Hintikka 1989, 217-220). This interpretation puts emphasis on Wittgenstein's remarks according to which language-games do not contain only linguistic moves. "I shall also call the whole, consisting of language and the actions with which it is interwoven, the 'language-game'", Wittgenstein writes (Wittgenstein 1953, I, sec. 7). He points also out that there is an analogy between words and tools (ibid., sec. 11 and 14). He even calls language and its concepts instruments (ibid., sec. 569). In this interpretation words get their meaning when they are used in the context of other practices, and this combination of linguistic and non-linguistic practices just is the link between language and the world. If we can use the word 'table' correctly in the context of our other activities with or around a table, we also understand that the word 'table' refers to its object.¹⁾

The purpose of this paper is not to argue further for this interpretation but to point out that it has some connections with the views of Charles Peirce. One idea in common is the above-mentioned analogy between words and tools. Peirce writes that "what a thing means is simply what habits it involves" (CP 5.400, see also CP 5.495). The use of things like tools and instruments surely belongs to the habits that they involve. Also John Dewey puts the analogy quite clearly: "In short, the sound h-a-t gains meaning in precisely the same way that the thing 'hat' gains it, by being used in a given way" (Dewey 1916, 18). In other words, the use of a tool, instrument or any object that can be put to use is its meaning, just as the use of a word is its meaning.

This notion of meaning is wider than that of linguistic meaning, and it can be pushed further to entail that all objects of perception are meaningful entities that are ultimately interpreted in terms of habits of action. In Peirce's semiotics, signs are three-place relations that consist of an object, a sign-vehicle that refers to this object, and an interpretant by virtue of which the sign-vehicle is interpreted to refer to its object. The interpretant may consist of other sign-vehicles which require further interpretants in order to be elements of a three-place sign-relation, and this process of interpretation may continue to indefinite future. Peirce has, however, a special kind of interpretant, final logical interpretant which is a habit of action. "The deliberately formed, self-analyzing habit - self-analyzing because formed by the aid of analysis of the exercises that nourished it - is the living definition, the veritable and final logical interpretant" (CP 5.591). This ends up the process of interpretation and we get the statement mentioned earlier: what a thing means is simply what habits it involves. For example, a banana is interpreted to be an edible object in terms of habits of eating.

By using this semiotic approach we can see that our everyday activities, form of life, consist of meaningful practices. In our daily life we use things like doors and stairways, houses and roads, buses and bicycles, and the habits of using these things just is the meaning of these things. These practices are meaningful in their own right. The meaning of linguistic expressions is the use of these expressions in the context of these practices, and the result is a layered system of meanings, that is, uses of different kinds of sign-vehicles.

As Wittgenstein notes, the use is always extended in time (Wittgenstein 1953, I, sec. 138). Language is a "spatial and temporal phenomenon" (ibid., sec. 108). The same holds for other practices. When using ordinary objects of perception we move around in space and time. Forms of life are spatial and temporal phenomena.

What is it to think about and understand these meanings? Wittgenstein emphasizes that we understand the meaning of a word when we hear it, "we grasp it in a flash, and what we grasp in this way is surely something different from the 'use' which is extended in time" (ibid., sec. 138). The use of words and other sign-vehicles takes place in space and time, but understanding and thinking deal with something not extended in time, that is, something timeless. In other words, because we can grasp a temporal sequence "in a flash", the object of this act of understanding, that what we grasp, must in some sense be timeless, non-temporal phenomenon.

Wittgenstein makes the same distinction between temporal and timeless phenomena when discussing the meaning of the word 'red'. Something red can be destroyed, but red cannot be destroyed, and therefore the meaning of the word 'red' is independent of the existence of a red thing, he writes (ibid., sec. 57). The meaning of the word does exist in its own right, and this idea "finds expression again when we say such a thing as that red is timeless" (ibid., sec. 58). Here the meaning is timeless because it is independent of the existence of red objects.

Wittgenstein discusses this dichotomy between temporal and timeless phenomena also with the example of a musical phrase. "You would say that the tune was there, if, say, someone sang it through, or heard it mentally from beginning to end... if someone says with conviction that now he knows the tune, then it is (somehow) present to his mind in its entirety at that moment" (ibid., sec. 184). Something extended in time is, in the mind, present in its entirety at one moment. The thought about a tune is present as timeless.

All these passages deal with the relation between temporal and non-temporal. Actual use and real physical objects are always temporal phenomena, but in thinking about these temporal things we are thinking about something non-temporal. Meanings as objects of thought exist in a way that makes them timeless in spite of the fact that the definition "meaning is use" refers to actual and thus temporal uses of words and other sign-vehicles.

It is quite difficult to explicate how temporal uses and timeless thoughts about these uses are actually related to each other, as is seen also from the need to use

the word 'somehow' in the last quote from Wittgenstein. Without penetrating further into these difficulties we can, however, return to the ideas of Peirce and note that there is another way to think about the issue. Interestingly, Peirce used the same example of a musical phrase when discussing how we think about habits.

"In a piece of music there are the separate notes, and there is the air... We certainly only perceive the air by hearing the separate notes; yet we cannot be said to directly hear it, for we hear only what is present at the instant, and an orderliness of succession cannot exist in an instant... These two sorts of objects, what we are immediately conscious of and what we are mediately conscious of, are found in all consciousness. Some elements (the sensations) are completely present at every instant so long as they last, while others (like thought) are actions having beginning, middle, and end, and consist in a congruence in the succession of sensations which flow through the mind. They cannot be immediately present to us, but must cover some portion of the past or future" (CP 5.395).

According to Peirce, the melody as a whole is not present to us at any one instant, but we are, however, able to think about it. Melody is an example of habits, so we have to ask what habits are, how they exist and how we can think about them. This is, in effect, to ask how meanings exist and how we think about them. Wittgenstein seems to think that meaning as an object of thought is a general mental entity that is present to the mind as a whole in one moment of time. A general entity is timeless, and its mode of existence is different from that of particular objects and uses of sign-vehicles.

Peirce has a different solution to the problem of general entities. For Peirce habits are general entities. Individual acts like uses of words or other sign-vehicles may be instances of habits, but a habit cannot be present here and now at any one instant. Does this entail that habits are timeless like thoughts of meanings for Wittgenstein? Not for Peirce. For him habit just is a tendency "actually to behave in a similar way under similar circumstances in the future" (CP 5.487). That what makes a habit general is the fact that a series of act, an instance of this habit, is repeated several times under similar circumstances. All instances of a habit are temporal phenomena, and the habit consists of them. Generality is repetition (*Stetige Handlung*, as Kant put it) and thus requires temporality.

Habits do not exist in the past, because there have been only a finite number of instances of any habit. No real generality can be involved here. Neither do habits exist in the present, because in the present there can exist only individual acts. So they have to exist in the future. "For every habit has, or is, a general law. Whatever is truly general refers to the indefinite future... It is a potentiality; and its mode of being is *esse in futuro*" (CP 2.148).

Here we have to distinguish between two types of generality, actual and potential generality. This distinction is based on the difference between actually and potentially infinite sets. An actually infinite set, say the set of natural numbers, has infinitely many members. A potentially infinite set is not actually infinite, but the number of its members has no upper limit. No matter how big a natural number we choose, we can always go further. But all these numbers are finite numbers.

According to Peirce, general refers to potentially infinite number of instances of a habit, and that is all we can have. We can think of repeating an act many times without any certain upper limit, but it is not possible to repeat any act an actually infinite number of times. Generality is, for Peirce, only potential generality. And this potential generality can exist only in time, it is a temporal thing.

Actually general refers, according to this distinction, to actually infinite number of possible instances of a habit. Actually general is, or pretends to be, eternal, something that holds always. In that sense it can be thought to be timeless, and this is what, I suspect, Wittgenstein maintains in these quotes.

To think about potentially general things is to think about performing an instance of a habit, that is, performing a series of acts that can be repeated in the future indefinitely many times. Thinking is, in a word, anticipation of action. And here we must keep in mind that speaking and writing are also overt activities. To think is to anticipate what is the outcome of an act on the basis of previous experiences of performing similar acts under similar circumstances. Thought is a process that is continuously going on through our lives. It is a temporal phenomenon dealing only with temporal entities. To use Peirce's phrase: "Thought is a thread of melody running through the succession of our sensations" (CP 5.395).

Note

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Perdurance and Inferences

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1. Temporal Parts

Four-dimensionalists think that objects are extended in time by having temporal parts as they are extended in space by having spatial parts. There are two versions of four-dimensionalism: perdurance and stage-theory which disagree about whether noun-phrases refer to fusions of temporal parts or four-dimensional objects (Hawley 2001). I will be especially concerned with perdurance, but the arguments I develop may also have an impact on stage-theory.

There are many issues discussed in relation to perdurance concerning composition, relations between temporal parts and their length which I will not discuss, so here is what I assume about these issues. I grant unrestricted composition to the perdurantists, but I think they owe us an explanation of what separates everyday objects from gerrymandered objects. I assume here that this explanation is to be given in terms of the relations existing between the temporal parts of everyday objects as opposed to in terms of the temporal parts themselves. I call these relations 'the R-relation', and I will accept the vague consensus among perdurantists which consists in saying that the R-relation is characterised in terms of similarity, non-deviant causal links, and spatiotemporal continuity (Hawley 2001, Lewis 1986, Sider 2001). However, I would like to make it clear that this characterisation is not definitive and the perdurantists may choose to refine it.

I also assume that we should leave the perdurantists the freedom to choose whether temporal parts are instantaneous. The only principle I will follow concerning whether there is more than one temporal part within a stretch of time asserts that, whenever there is a change in an object's intrinsic properties, there is more than one temporal part. This principle is in accordance with the way in which the perdurantists solve the problem of change.

2. Haslanger

I will focus on the question whether and how, once we accept the perdurantist ontology, we can account for our inferential practices. This problem comes partly from Haslanger (1992), who argues that the perdurantists must concede that rational inquirers hold beliefs indirectly. She defines a rational inquirer as someone who accepts some attitudes or propositions on the basis of reasons (p. 303). For example, my belief that *q* is based on the following reasons: *p*, and if *p*, then *q*. Although the 'based on' relation is not easily explicable, the general idea is that "it holds between our attitudes and requires a causal connection between the reasons [for a conclusion] and the conclusion [in question]" (ibid. p. 304). Here, the important point is that, in drawing an inference, there are prior attitudes which one holds before drawing the conclusion, and which are responsible for one holding the conclusion one comes to accept.

Firstly, the perdurantists must attend to the fact that coming to accept that *q* constitutes an intrinsic change – physical or mental – such that the temporal part(s) which accepts that *q* is distinct from the temporal part(s) which

does not accept that *q*, but which accepts that *p* and that if *p*, then *q*. This forces them to maintain that the temporal parts of an individual are not rational inquirers, but that a rational inquirer is a persisting thing which consists of, at least, two temporal parts which respectively do not accept that *q* and come to accept that *q*. The problem is that, on this picture, it turns out that rational inquirers are not the proper subjects of doubt and of acceptance, which seems to imply that perduring rational inquirers cannot accept an inference's conclusion on the basis of reasons.

The response offered to the perdurantists consists in saying that there are two ways of holding beliefs, one directly, the other indirectly. The perdurantists can claim then that a four-dimensional individual holds beliefs indirectly, i.e. it holds a belief that *p* just in case its temporal parts hold that *p*. This is similar to the spatial case, where a car is red just in case its body parts are red. The perdurantist model for inference is the following.

A perduring individual draws an inference from *p* to *q* just in case:¹

- TP₁ is given a reason to believe that *p*
- TP₂ acquires the belief that *p*
- TP₃ remembers the belief that *p*
- TP₄ is given a reason to believe that *p* entails *q*
- TP₅ acquires the belief that *p* entails *q*
- TP₆ acquires the belief that *q*

The question is now to ask whether such model is an adequate characterisation of when an inference is being drawn. The following analogy suggests that it might not be. A four-dimensional object is a fusion of distinct temporal parts; analogously, a group of people is a fusion of distinct individuals. If a four-dimensional object can be said to hold beliefs indirectly, then so can a group of individuals. However, a group of individuals can fulfil the above characterisation, without it drawing an inference. For example, although in the group in question, individual A holds directly the belief that *p*, individual B holds directly the belief that *p* entails *q*, and individual C holds directly the belief that *q*, such that the group is said to hold indirectly the beliefs that *p*, that *p* entails *q*, and that *q*, this is not a situation where we would say that an inference has been drawn. We would say an inference is drawn by a group if every individual in the group – or at least the majority of them – holds directly that *p*, that *p* entails *q*, and that *q*. By analogy, then we should not say that a four-dimensional individual draws an inference even when its temporal parts fit the above model. This suggests that the perdurantist model for inference is not a satisfactory characterisation of what happens when we draw inferences, since it can obtain without an inference being drawn.

I would like to suggest a way out. I do not think that perdurantists should appeal to the idea that the temporal parts of a four-dimensional individual are R-related, as I deem it possible to have a group which is the fusion of R-related individuals. I think that the perdurantists should instead reply that while the individuals of the group are not

¹ There is a problem which is not specific to this model of inference, which was raised by Carroll (1995), and which the perdurantists can solve using Stroud (1979).

causally linked in the relevant way, the temporal parts of a four-dimensional individual are. To specify the causally relevant way in which temporal parts are linked, the perdurantists can help themselves here to Fodor's idea that there are *ceteris paribus* laws about beliefs and intentional states such that "the causal processes that intentional states enter into tend to preserve their semantic properties" (Fodor 1994 pp. 293-294). This explains that the true thoughts or beliefs that *p* and that *p* entails *q* tend to cause a true thought or belief that *q*. Fodor's intentional laws help the perdurantists to establish a disanalogy between their four-dimensional individuals and a group of people, since intentional laws do not obtain within the members of a group. Hence, according to the perdurantist ontology, rational inquirers hold beliefs indirectly and part of what links a four-dimensional individual's temporal parts involved in drawing an inference are intentional laws.

3. Burge

The perdurantist model for inference raises a further problem concerning memory.² In an inference, when a belief is reinvoked, it must neither introduce a new content, nor change, nor lose its warrant. Indeed, if it did, one would have to re-establish the content and warrant of the belief in question, which would start the argument anew (Burge 2003 pp. 300-301). Burge entrusts this role to purely preservative memory (PPM) whose job is to preserve a step's content and warrant for when it is reinvoked. This raises a question concerning what does the preserving in the perdurantist ontology. Similarly to the case of inferring, the temporal parts cannot do the preserving, since what happens between them would be more like transmission; instead this role is given to four-dimensional individuals. Temporal parts are thus the proper subjects of introducing and reinvoking a step, whereas four-dimensional individuals are the proper subjects of preserving and so of PPM. The perdurantists can make this more intuitive by saying that it is analogous to the case where a book is being preserved by a family through transmitting it from parent to child.

There is an extra complication for preservation, as it cannot be the case that a belief jumps temporal gaps, i.e. once a step has been introduced, every temporal part must transmit to its successor the step's content and warrant until it is reinvoked, so as to avoid action at a temporal distance³ – which would happen if, e.g., the immediate predecessor of a temporal part was not causally responsible for the reinvoked step's content and warrant, but an earlier one was. So, the model for inference devised by perdurantists must be understood as having, at least, *TP*₂, *TP*₃ and *TP*₄ transmitting *p*'s content and warrant to their successors.

What the perdurantist ontology really gives us is a reduction of PPM, which happens in four-dimensional individuals, to something like testimony, where one's belief – content and warrant included – is transmitted or causally responsible for another having this belief. Such reduction of PPM to testimony is not problematic as for content. The transferred content is indeed not new for the later temporal part, since it does not lack then acquire the content in question; it just has it.

Warrant though is more problematic, as the original warrant provided by a temporal part when introducing a step will always differ from that had by the temporal part

reinvoking that step, which would lead to start the argument anew. If the perdurantists want to maintain their ontology as a serious possibility, they must find a way to avoid having to say this. It is interesting to notice that the perdurantists must help themselves to non-reductive accounts of testimony, because reductive accounts either tend to presuppose memory or tend to rely on inferences. I suggest the perdurantists appeal to the analogy Burge draws between memory in inferences and testimony. He thinks that the phenomena of inferring and of testimony are analogous, as both require background necessary conditions: PPM and perception which allow content, and warrant for PPM, to be preserved (Burge 1993 pp. 465-466). If this is right, then something in the perdurantist ontology must allow content to be preserved between temporal parts. I reckon perception is not available to the perdurantists, because any individual is not being filmed, photographed etc. at all times. Instead, the perdurantists should appeal to the causal relations which link a four-dimensional individual's temporal parts and which would enable a belief to be preserved from one temporal part to the next.

However, Burge explains that perception does not preserve warrant, but that, in testimony, the acquisition of warrant is effected by the 'Acceptance Principle' which is a norm stating that "a person is entitled to accept as true something that is presented as true and that is intelligible to him, unless there are stronger reasons not to do so" (Burge 1993 p. 467). By analogy, causal links do not preserve warrant, but its acquisition is effected by an analogue of the Acceptance Principle stating that "a later temporal part is entitled to accept as true something presented as true and that is intelligible to it, unless there are stronger reasons not to do so". The problem for perdurance is now clear. If they reduce PPM to testimony such that the preserving of a belief's content is enabled by causal links and the acquisition of warrant for a belief is effected by an analogue of the Acceptance Principle, then the warrant obtained is at best *prima facie* (ibid. p. 472). But surely, we do not want to abandon the intuition that if one is fully warranted in believing that *p* and that *p* entails *q*,⁴ then one is fully warranted in believing that *q*.

I do not think the perdurantists can avoid this problem by saying that their analogue of the Acceptance Principle does not have a *prima facie* clause. Indeed, even within the temporal parts of a four-dimensional individual, there are stronger reasons not to accept as true what is presented by earlier temporal parts as true and intelligible, e.g. an earlier temporal part might want to misremember, be emotional, lack a good warrant, or lack qualification (Burge 1993 pp. 467-469). There are two ways in which the perdurantists may attempt to tackle this problem. One, they could reply that, in their ontology, cases of PPM are exceptions to the Acceptance Principle. However, this is an *ad hoc* move if the perdurantists do not tell us a story about why these cases are exceptions and it is not obvious what story they could tell or even if they have a story to tell. Two, they could refuse to accept Burge's epistemology and could try to appeal to Lewis' contextualism instead. This though does not get them out of the woods, because Lewis thinks of testimony as Goldman does in "A Causal Theory of Knowing", i.e. as based on inference (Lewis 1996 p. 558, Goldman 1967 p. 362). Given that testimony is used to account for what happens in inferences, thinking of testimony in terms of inferences is viciously circular.

² Here, I will see to events that one need not have witnessed. The sort of memory that deals with events that one must have witnessed raises independent problems which will not concern me in this paper.

³ I follow Lewis in thinking that action at a temporal distance is far-fetched (1986 pp. 202-203).

⁴ For the sake of simplicity, I am ignoring the fact that *p* is reinvoked in the second premise.

4. Conclusion

The ontology supported by perdurantists does not seem to account adequately for our inferential practices, because it has to reduce PPM to testimony which is problematic as far as the warrant of any inference's conclusion is concerned. There is though an alternative non-reductive account of testimony defended by Millikan (2004 chapter 9) which the perdurantists may help themselves to. Nevertheless, Millikan talks about testimony in terms of communication, and it is not evident that such phenomenon occurs within the temporal parts of a four-dimensional object.

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Zeit und Konstruktion bei Aleida Assmann

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Aleida Assmanns Zeitbegriff liegt mit seiner konstruktivistischen Verfasstheit ganz im Trend soziologischer Diskussion. Diese konstruktivistische Verfasstheit ist Thema meines Vortrags. Assmann expliziert ihren Zeitbegriff in *Zeit und Tradition* (1999). Ich möchte auf dieser Grundlage zeigen, was der konstruktivistische Zeitbegriff für Assmann bedeutet und wie Assmann zu diesem Zeitbegriff kommt.

Assmanns Generalthese besteht darin, dass an der Zeit ihr Konstruktionscharakter wesentlich ist. Wichtig ist hier, dass Assmann Zeit synonym mit Geschichte, Geschichtsschreibung, geschichtliche Identität und Mythos gebraucht. Jede geschichtliche Wirklichkeit ist ihrer Meinung nach konstruiert, wobei sie „konstruieren“ anders als das kantische *konstruieren* versteht. „Konstruieren“ heißt für sie nicht einen Begriff aus Anschauung gewinnen sondern vielmehr „fingieren“. Deutlich wird das an ihrer Analyse der imperialen Zeitgestalt. Seit der Stunde Null unserer Geschichtsschreibung, die mit Daniels Buch respektive der Weltreichslehre beginnt, zeichnet sich gemäß Assmann eine schnurgerade Entwicklung von der Traumvision Daniels über den Kolonialismus bis hin zum Nationalsozialismus ab. Keim dieser Entwicklung ist die geschichtliche Identität, wie sie die Weltreichslehre generiert. Diese Weltreichslehre galt es für die Christen zuzurichten, welche sich in einer jüdisch-heidnischen Welt etablieren wollten. Zu diesem Zweck wurde die Weltreichslehre durch Eusebius von Caesarea und vor dem Hintergrund der Schrift des Aeneas zweifach umgedeutet. Schließlich brachte die Weltreichslehre ihren imperialistischen Keim im Nationalsozialismus zur vollen Entfaltung. Gemeint ist die geschichtliche Identität, nach Assmanns Darstellung das Imperiale am Imperialismus. Sie manifestiert sich in der nationalen Idee, die im Nationalsozialismus zum Tragen kommt. Der Gehalt der nationalen Idee ist nach Assmann die Legitimation eines Herrschers durch einen göttlichen Stammbaum. Diese Legitimation ist durch die genuin jüdische Weltreichslehre und ihre griechisch-römische sowie christliche Umdeutung auf dreifache Weise garantiert. Der so legitimierte Herrscher sieht sich als Statthalter Gottes – als *Katechon*. Die Erfüllungsbedingungen der nationalen Idee sind ihre Expansionsbestrebungen. Die Expansionsbestrebungen erhalten ihre Legitimation durch den Gedanken der Erwähltheit von Gott. Imperiale Herrscher legitimieren ihre Machtansprüche durch ihren göttlichen Stammbaum, den sie geschichtlich verankern. Geschichtliche Identität allgemein ist für Assmann daher *das* Machtinstrument des Imperialismus *par excellence*.

Zeit ist für Assmann also konstruiert, weil sie eine ganz bestimmte *Funktion* hat. Zeitkonstruktionen werden von Mächtigen geschaffen und dienen dazu, sich weitere Macht anzueignen, ganz gleich ob es sich um einen Propagandisten aus dem Dritten Reich, einen britischen Kolonialherren oder um einen mitteleuropäischen Politiker des einundzwanzigsten Jahrhunderts handelt, bei dem die Geschichte „subkutan“ (Assmann 1997) weiterwirkt. Macht produziert Geschichte und Geschichte verschafft weitere Macht. Assmanns Auffassung von Geschichte als geschichtliche Konstruktion besitzt die Funktion der Vertuschung und dient der Manipulation. Ist die These, Geschichtsbewusstsein sei generell fehlgeleitet, angemessen?

Es ist in diesem Zusammenhang interessant zu wissen, dass Hannah Arendt überseeischen und kontinentalen Imperialismus (im Gegensatz zu Assmann, für die beides eins ist, trifft Arendt diese Unterscheidung) untersucht hat und bezüglich der nationalen Idee zu Ergebnissen kommt, die denen Assmanns diametral entgegen gesetzt sind. Für Arendt besteht der Inhalt der nationalen Idee nicht darin, dass irgendeine Nation aufgrund ihrer nationalen oder rassischen Zugehörigkeit anderen Nationen überlegen ist. Im Gegenteil, die Vorstellung, eine Nation sei der anderen überlegen, ist kontraintuitiv zu einem echten nationalen Gefühl. Die nationale Idee wird von der Idee der Menschheit getragen und speist sich daher aus dem Gefühl, Teil der Menschheit zu sein und nicht außerhalb bzw. über ihr zu stehen. Ausschlaggebend für das Umkippen des Nationalismus in den Nationalsozialismus war keine geschichtliche Identität sondern eine „alldutsche Bewegung österreichischer Prägung, auch Pangermanismus“ genannt (Arendt 1986). Der Pangermanismus hatte schlicht das Motiv, alles dem germanischen Reich einzuverleiben (Arendt 1986). Dafür gibt es wie beim Panlawismus keinen Grund, der in irgendeiner Ideologie, Religion oder geschichtlichen Identität zu finden wäre. Der pangermanische Imperialismus wurde aus Expansionsbestrebungen geboren, rein um der Expansion willen (Arendt 1986).

Arendt ist sogar der Überzeugung, dass geschichtliche Identität vor Imperialismus schützen *kann*. Die Juden beispielsweise wirkten auf den Imperialismus des Nationalsozialismus eher zersetzend, weil sie sich selbst als „erwähltes Volk“ verstanden. Von jeher waren sie gewohnt, in Diasporagemeinden zu leben und seit jeher störte es Antisemiten, dass sich die Juden daher nicht lückenlos einzugliedern vermochten. Wer sich nicht eingliederte, wurde im Gegenzug isoliert. Der geschürte Hass bot ein neues Potential für politische Macht. Man konnte die Juden nicht vereinnahmen, also baute man sie zum Feindbild auf. Diejenigen, die sich aber als wirklich auserwählt empfanden, waren die Anhänger der Panbewegungen, nicht die Juden (Arendt 1986). „Auserwählt“ hat bei den Panbewegungen den Beigeschmack von selektiert, so wie eine besonders gute zoologische Gattung zur Züchtung selektiert wird. Die Juden verstanden sich zwar als erwähltes Volk, aber aus ihrem Selbstverständnis als Kinder Gottes leiteten sie keine besonderen Besitzansprüche ab. Sie konnten ohne Landbesitz und staatenlos über zwei Jahrtausende ihre Identität wahren (Arendt 1986). Ihr versprengtes Sein erforderte gerade Toleranz und Achtung im menschlichen Zusammenleben mit anderen Kulturen. Dieses heimatlose Leben war nur möglich, *weil* ihr Selbstbewusstsein als Juden bereits vorhanden war und nicht durch Landeinnahme expandiert werden musste.

Neben der besonderen Sichtweise von geschichtlicher Identität als Urschlamm des Imperialismus ist Assmanns Analyse von einem speziellen Machtverständnis geprägt. Man muss Assmann zustimmen, dass Macht immer gegenwärtig ist und dass es keine machtfreien sozialen Räume gibt. Dies haben zahlreiche Gesellschaftsanalysen u.a. von Michel Foucault, Wolfgang Iser usw. gezeigt. Assmann geht es allerdings um eine besondere *Art* von Macht. Nach ihrer Konzeption von Geschichte ist Macht notwendigerweise rein repressiv.

Macht und Terror sind für sie dasselbe, wobei der Terror als eine Art strukturelle Gewalt verstanden wird, die von Personen ausgeübt wird. Man kann sich ihm gar nicht entziehen. Von Geburt an ist man Täter oder Verfolgter. Dahinter steht ein spezifisches Machtmodell. Dieses *kausale* Modell entstand Mitte der fünfziger Jahre im systematischen Rahmen des Behaviorismus (Vgl. Detel 1998). „Die grundlegende Idee ist, daß Macht eine Fähigkeit ist, kausale Wirkungen in der Welt hervorzurufen. Diese kausale Vorstellung als einer Macht etwas zu bewirken (*power to...*) wurde von den Behavioristen in einer naheliegenden Weise mit der Idee einer Macht als Macht über Personen verknüpft. [...] Die Machtübertragung wird in diesem Modell wesentlich als eine Kommunikation von Präferenzen gedacht. A übt Macht über B aus, wenn A eine eigene Präferenz an B kommuniziert und B sich im eigenen Verhalten dieser Präferenz fügt.“ Dieses Machtmodell erntete viel Kritik. Betrachtet man beispielsweise den normativen Gehalt dieses Machtmodells, ist eine Ausübung von Macht von A über B nur dann gegeben, „wenn A ein Verhalten bewirkt, das unvereinbar ist mit B's objektiven Interessen“ (Detel 1998). Ein „leistungsfähigeres“ Machtmodell neuerer Zeit ist nach Detel das „Handlungsumwelt-Modell“ (Detel 1998). Ausschlaggebend an diesem Modell ist der wittgensteinianische Gedanke, dass Macht soziale Handlungsspielräume allererst eröffnet - vergleichbar mit einem Schachspiel, bei dem sich verschiedene Handlungsmöglichkeiten während des Spiels neu ergeben - wenn man einen gewissen Regelkatalog berücksichtigt. Macht ist nur dann repressiv, wenn dieser Regelkatalog einschränkend oder unüberschaubar wird und der eigene Handlungsspielraum verschwindet. Dieses Modell beugt einer instrumentalisierenden Betrachtungsweise von kulturellen Werten wie Religion und Geschichte vor.

Das kausale Paradigma, in dem sich Assmann bewegt, spiegelt sich vor allem in ihrer Methode wieder. Auffällig ist, wie schon angesprochen, die Linearität, mit der sie die Zeit ausgehend von dem apokalyptischen Buch Daniel bis hin zum Nationalsozialismus beschreibt. Diese lineare Interpretation Assmanns fügt sich allerdings nicht so elegant in unseren geschichtlichen Hintergrund ein, wie es vielleicht auf den ersten Blick erscheint. Hitler beispielsweise sah sich nicht als Verfechter der christlichen Lehre. Er adaptierte einfach alles, was der Legitimation seiner Machtergreifung irgendwie nützen konnte. Dazu gehörte auch die Idee des deutschen Reiches. Diese Idee ist aber auch kein originär nationaler Gedanke. Zudem beginnt Hitlers Zeitrechnung des „tausendjährigen Reiches“ nicht bei Christi Geburt, sondern mit seiner eigenen Amtsperiode. Und letztlich ist der von Assmann zitierte Carl Schmitt, welcher den Niedergang des Dritten Reiches als tragisch empfindet, weil es keinen Katechon gibt, weder ein Repräsentant der politischen noch theologischen Intelligenz im Deutschland der Nachkriegsjahre.

Wie kommt Assmann zu besagter Linearität? Assmann wendet ein Verfahren an, welches unter dem Namen Induktion bekannt ist. Sie beobachtet: Jedes Mal, wenn es um Imperialismus geht, ist auch geschichtliche Identität mit im Spiel. Daraus schließt sie, dass geschichtliche Identität Imperialismus verursacht. Sie stellt also einen Kausalnexus zwischen geschichtlicher Identität und Imperialismus her. Aus dem Schluss, dass Imperialismus durch geschichtliche Identität verursacht wird, leitet sie ein Gesetz ab, welches vielleicht folgendermaßen formuliert werden könnte: Wann immer wir Geschichte begegnen, ist sie ein Machwerk von Imperialisten. Induktion ist nicht unbedingt ein glücklich

gewähltes Verfahren zur Beschreibung von Geschichte, wenn man Menschen Handlungsintentionalität zubilligt. Angenommen jedoch, menschliches Handeln ließe sich wirklich gesetzesmäßig erklären, bleibt noch ein logisches Problem. Auch wenn imperiale Herrscher sich durch Geschichte zu legitimieren pflegen, ist es jedoch nicht zulässig dadurch eine Kausalität in umgekehrter Richtung zu induzieren. Geschichte wird nicht prinzipiell von imperialen Herrschern „gemacht“.

Im Gegensatz zu Assmanns Darstellung ist der Imperialismus bei Arendt selbst keine einheitliche Ideologie. Imperialisten gebrauchen vielmehr Ideologien, verbiegen sie oder blähen Teile davon auf und setzten sie mit anderen Ideologiesplittern in eklektischer Weise zusammen, damit sie ihnen zum Nutzen gereichen. Ein wichtiges Element des Nationalsozialismus ist z.B. der Rassebegriff. Bereits vor dem Nationalsozialismus besaß er eine ansehnliche Tradition (Arendt 1986). Interessanterweise nahm bis Ende des neunzehnten Jahrhunderts niemand die Rassentheoretiker wissenschaftlich ernst. Erst seit diesem Zeitpunkt wurden ihre Theorien aus machtpolitischen Gründen so behandelt, als seien sie Ergebnisse wissenschaftlicher Arbeit. Der Imperialismus ist für Arendt keine einheitliche Ideologie, die eine Kausalentwicklung hervorrief (Arendt 1986).

Die angenommene Linearität veranlasst Assmann der Geschichte einen Sinn zu unterstellen. Das Geschichtsbewusstsein christlich-jüdischer Völker wäre gemäß Assmanns Darstellung der Ursprung des Imperialismus. Religion und Geschichte sind demnach eine Erfindung von Kolonialherren, um die „Geschichtslosen“ von langer Hand zu kolonialisieren. „*Empire has created the time of history*“, sagt der von Assmann zitierte Südafrikaner James M. Coetzee und sieht sich selbst als Opfer einer Verbrüderung von apokalyptischer und imperialer Zeitgestalt. Beide Zeitgestalten der eschatologischen Zeitkonstruktion produzieren Geschichte; die außen vor bleiben, sind die Geschichtslosen. Geschichtsimperialisten kolonialisieren die Menschen ohne Geschichte. „Aus postkolonialer Sicht, d.h. am Ende der Imperien zeichnet sich ab, dass die Geschichte selbst eine Erfindung, eine Konstruktion dieser Imperien ist“ (Assmann 1999). Das liest sich wie eine Verschwörungstheorie.

In Assmanns Schrift wird immer wieder die Nähe zu Hans Blumenbergs Metaphorologie deutlich. Blumenberg machte seinerzeit auf die Irreduzibilität von Erkenntnis- und Daseins-Metaphern aufmerksam und sah Metaphern später in seiner Theorie der Unbegrifflichkeit (Blumenberg 1993) sogar als die wesentlichen Bedeutungskonstitutiven unseres Denkens an. Assmanns Ausführungen muten wie eine manierierte Theorie der Unbegrifflichkeit an, da sie noch einen Schritt weiter geht und Metaphern als bewusst eingesetzte Täuschungsmanöver derer sieht, die der Sprache mächtig sind. Es mag sein, dass Metaphern nicht eindeutig übersetzbar sind, aber nicht, weil sie keine Bedeutung haben und man sie ganz beliebig mit Bedeutung aufladen kann, um andere hinteres Licht zu führen, sondern, weil sie bei dem Versuch einer eins zu eins Übersetzung ihre Bedeutung verlieren würden. Gegen einen grundsätzlichen Bedeutungs-skeptizismus spricht die Entstehung einer Metapher. Ohne Bedeutungsanalogien gäbe es auch keine Metaphern. Mit Bedeutungsanalogie ist die Ähnlichkeitsbeziehung zwischen Darstellung und Gegenstand gemeint. Metaphern entstehen aus dem Spiel mit Bedeutungsanalogien. Für eine Metapher gilt ebenfalls, dass sie den von ihr ausgedrückten Sachverhalt

treffen kann oder nicht. Wenn nicht, dann handelt es sich um eine *schiefe* Metapher.

Problematisch ist, dass Assmann nicht zwischen Mythos, Geschichtsschreibung und geschichtlicher Identität trennt. Sie begreift alles als gleichermaßen konstruiert in dem beschriebenen Sinne. Es gibt freilich nicht die einzig wahre herrschafts- und machtfreie objektive Geschichtsschreibung. Doch daraus zu folgern, Geschichtsschreibung sei imperiale Rhetorik, vernachlässigt den Tatbestand, dass es bessere und schlechtere Beschreibungen von erlebter Zeit gibt (Vgl. Putnam 1997)

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„Die Aufnahme des Zeitlichen ins Ewige“ Vladimir Sergejewitsch Solovjev „Sinn der Liebe“

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Vladimir Sergejewitsch Solovjev hat als philosophisch denkender Mensch mit mystischen Erlebnissen die Liebe als fundamental der Zeit entgegengesetzt begriffen. In seinem Hauptwerk „Смысл любви“ - „Der Sinn der Liebe“, stellt er als Liebender die Frage nach der Zeit. Die Liebe wird durch jene in Frage gestellt. Aber: „Wenn das Liebesgefühl stark und völlig bewußt ist, kann es sich nicht mit der Gewißheit des bevorstehenden Alterns und Sterbens der geliebten Person aussöhnen.“ (Solovjev, S. 33).

Die Liebe fragt nach der Zeit in der Hoffnung, den Gegenstand ihrer selbst – das geliebte Wesen - der Zeitlichkeit zu entheben. „Liebe auf Zeit“ als pragmatische Ergebnis in die Sachlagen der Welt ist ein Produkt der „Leerheit eines Scheinlebens. Für ein solches Leben ist der Tod nicht nur unvermeidlich, sondern auch äußerst erwünscht.“ (Solovjev, S. 34).

Als Liebender sich und den Geliebten der Zeit verschreiben heißt, den Menschen in seinem Vermögen reduzieren, denn „hier wird das Mittelmaß des Alltags als Gipfel des Lebens angesehen, und das, was im zeitlichen Prozeß als freier, sinnerfüllter Ausdruck der ewigen Einheit dienen sollte, wird zum freiwilligen Strombett eines sinnlosen, materiellen Lebens.“ In den Werken des Ljev Nikolajewitsch Tolstoj sieht Solovjev Prototypen jener Leerheit in höchster Prägnanz dargestellt. Im Hinblick auf Tolstoj's Romane fragt er: „Kann man sich denn die unendlich fortdauernde Existenz irgendeiner Dame der höheren Gesellschaft oder irgendeines Sportsmanns oder Kartenspielers vorstellen, ohne daß einen entsetzliche Schwermut befielen?“ (Solovjev, S. 34). Einer sich fraglos mit der Zeit als modischer Gegenwart arrangierenden Gesellschaft setzt Solovjev eine nicht-egoistisch gedachte Individualität in der Liebe entgegen.

Bezugnehmend auf den Hl. Paulus schreibt er: „Die absolute Individualität kann nicht *vergänglich* sein, und sie kann nicht *leer* sein.“ (Solovjev, S. 33). Dieses Postulat hat seinen Ausgangspunkt in den Überlegungen zur gotteskindlichen Freiheit des Paulus im Römerbrief: „Die ganze Schöpfung harret sehnsüchtig der Offenbarung der Verherrlichung der Kinder Gottes. Ist ja die ganze Schöpfung der Vergänglichkeit unterworfen worden, nicht nach eigenem Willen, sondern durch den, der ihre Unterwerfung vollzogen hat; er hat auch die Hoffnung in sie gelegt, von der Knechtschaft der Vergänglichkeit erlöst zu werden und zur Herrlichkeit und Freiheit der Kinder Gottes zu gelangen.“

Die Liebe, manifestiert in gotteskindlicher Freiheit, ist der Zeit entgegengesetzt, aber nicht deren Feind. Ihre Aufgabe ist die Durchdringung der „doppelten Undurchdringlichkeit des stofflichen Seins“, jener „in der Zeit, die bewirkt, daß jeder nachfolgende Augenblick des Seins den vorhergehenden nicht in sich bewahrt, sondern ihn durch sich ausschließt oder aus der Existenz verdrängt.“ (Solovjev, S. 59). Ebenso ist es mit der „Undurchdringlichkeit im Raum, die bewirkt, daß zwei Körper nicht gleichzeitig ein und denselben Teil des Raumes einnehmen können, sondern einander notwendig verdrängen. Auf diese Weise ist das, was unserer Welt zugrunde liegt, ein Sein im Zustand des *Zerfalls*, ein Sein, das in einander ausschließende Teile und Momente

zersplittert ist.“ (Solovjev, S. 59). Der Liebe geht es keineswegs um Ausschließung oder existenzvernichtende Verdrängung. Sie sehnt sich nach dem, was zugleich mit ihr ist.

Zerfall und Zersplitterung als Entgegengesetztes müssen mit der liebend erstrebten Einheit in Bezug gebracht werden. Da die Liebe aber nicht geneigt ist zu verdrängen, muss durch sie ihr Mögliches bewirkt werden. „Die wahre Liebe ist nicht die Trennung des Unsterblichen vom Sterblichen, des Ewigen vom Zeitlichen, sondern die Verwandlung des Sterblichen in Unsterbliches, die Aufnahme des Zeitlichen ins Ewige.“ (Solovjev, S. 45).

Sie nimmt Entgegengesetztes in sich hinein. Diese Vorgehensweise ist ihre grundsätzliche Handlungsmöglichkeit im Hinblick auf Zeit und Raum, in der Schaffung der vollkommenen Einswerdung. Sie macht den Liebenden zu einem, der durch den und im von ihm Geliebten ein Findender wird. Der Geliebte als der vom Liebenden Gefundene stellt in seiner Individualität durch diese eine absolute Begrenztheit dar. Der findende Liebende als jener, der unter allen möglichen denkbaren Individualitäten gerade jene, die das Ziel seiner Liebe ist findet, ist in seinem Finden das Unbegrenzte. So werden in der Hereinnahme von Raum und Zeit in die Zeit- und Raumlosigkeit der Liebe und deren Einheit auch Unbegrenztheit und Begrenzung einschließend aufeinander bezogen.

Solovjev folgt hier einem Gedanken seines Vorbildes Schelling, welcher im *System des transzendentalen Idealismus* formuliert: „Das Findende ist das schlechthin Unbegrenzbare und Unbegrenzte, das Gefundene das Begrenzte.“ (Schelling, S. 71).

Die Liebe besitzt „die höchste Bedeutung für die Erschaffung der wahren menschlichen Individualität.“ (Solovjev, S. 27). Einzigartiges Menschsein steht zur Liebe im doppelten Verhältnis: im gefühlsmäßigen Wahrnehmen und im liebesnotwendigen Tun. „Die wahre Bedeutung der Liebe besteht nicht in dem einfachen Erleben dieses Gefühls, sondern in dem, was durch dieses Gefühl geschieht – in dem Werk der Liebe.“ Dieses Werk, zu welchem der Liebende durch die Liebe herausgefordert wird „gründet vor allem auf dem *Glauben*.“ Gemäß der Forderung nach Aufnahme des Zeitlichen ins Ewige ist dieser auf beide ausgerichtet. „Der Akt des Glaubens unter den tatsächlichen Bedingungen der Zeit und des Raumes ist das *Gebet*.“ (Solovjev, S. 48f). Dieser Aspekt muss mit jenem der anderen Richtung, nämlich des Ewigen, konform gehen. „Wir müssen also unter dem Glauben an den Gegenstand unserer Liebe verstehen, daß wir von ihm behaupten, daß er seine Existenz in Gott hat und daß er in diesem Sinn unendliche Bedeutung besitzt.“ (Solovjev, S. 48). Dieser Glaube muss auf einer bestimmten Einschätzung des Menschen beruhen: „Wir wissen, daß der Mensch außer seiner tierischen, materiellen Natur auch eine ideale hat, die ihn mit der absoluten Wahrheit oder mit Gott verbindet. Neben dem materiellen und empirischen Inhalt seines Lebens trägt jeder Mensch das Bild Gottes in sich, d. h. eine besondere Form des absoluten Inhalts. Dieses Bild Gottes wird von uns theoretisch und abstrakt in der Vernunft und durch die

Vernunft erkannt, aber in der Liebe wird es konkret und lebendig erkannt.“ (Solovjev, S. 29). Weil dieses Gottesbild durch die materielle Erscheinung verdeckt ist, kommt der Liebe etwas Wesentliches im Hinblick auf die Unverletzbarkeit des Individuums in seiner Gesamtheit zu. „Wir müssen anerkennen, daß die Liebe umso größere Bedeutung besitzt: daß sie der Beginn der sichtbaren Wiederherstellung des Bildes Gottes in der materiellen Welt, der Beginn der Verkörperung des wahren, idealen Menschentums ist.“ (Solovjev S. 29f). Die so verstandene Liebe als sie selbst in ihrem durch die Liebenden ausgeführten Werk ist für Solovjev „die Vereinigung in Gott, die zur Unsterblichkeit führt.“ (Solovjev, S. 42f).

Eine Liebe, deren Werk in der Aufnahme des Zeitlichen ins Ewige getan wird, zielt auf den Gegenstand ihrer selbst - die materielle wie gottesbildliche Natur des Geliebten. Sie selbst als eins mit sich selbst und ihrem Werk begibt sich als aus dem Ewigen kommend ins Zeitliche, um von diesem wieder aufzusteigen, das Zeitliche ins Ewige mitnehmend. Solovjev argumentiert unter Berufung auf Paulus, der von Jesus als der Incarnation der göttlichen Liebe über dessen Menschwerdung und Himmelfahrt im Epheserbrief schreibt: „Daß er aber hinaufgestiegen ist, welchen Sinn hat das als den, daß er vorher in die Niederungen der Erde herabgestiegen war. Der herabstieg ist derselbe wie der, der hinaufstieg, hoch über alle Himmel, um das ganze Weltall zu erfüllen.“ Dazu Solovjev: „Auf solche Weise ist wahre Liebe untrennbar sowohl eine *aufsteigende* wie auch eine *absteigende* Liebe“ (Solovjev, S. 51). Die göttliche Liebe ist unteilbar, in ihrem Werk aber unterscheidbar. Die unterscheidbare eine Liebe tut ihr Werk in herab- und hinaufsteigender Weise, so das Ewige und das Zeitliche in die Einheit eben dieser einen Liebe hineinziehend.

So kann auch die zur materiellen Natur des Menschen gehörende geschlechtliche Vereinigung als unterscheidbarer Teil der Liebesgesamtheit verstanden werden, bedeutsam in der Gesamtheit des Werkes der Liebe. Die leibliche Erfahrung steht in ihrer Eigenständigkeit erkennbar im Zusammenhang mit dem Liebestreben nach Verwirklichung des Ewigen, sodass sie sowohl zeitlich wie ewig begreifbar ist.

„In der Geschlechtsliebe, sofern sie wahrhaft verstanden und wahrhaft verwirklicht wird, erhält die göttliche Wesenheit das Mittel zu ihrer endgültigen, äußersten Verkörperung im individuellen Leben des Menschen, eine Möglichkeit zur allertiefsten und zugleich alleräußerlichsten, real spürbaren Vereinigung mit ihm. Daher rührt jener Schimmer unirdischer Seligkeit, jenes Wehen einer nicht-hiesigen Freude, von denen sogar eine unvollkommene Liebe begleitet wird und die sie, auch wenn sie unvollkommen ist, zum größten Genuß der Menschen und Götter machen – *hominom divomque voluptas*.“

Die leibliche Liebesvereinigung dient – recht verstanden – „im zeitlichen Prozeß als freier, sinnerfüllter Ausdruck der ewigen Einheit“, wird „zum freiwilligen Strombett eines *erfüllten* Lebens.“ (Solovjev, S. 52).

Diese Erfüllung ist der völlige Gegensatz zur Leere, in welcher der Tod erwünscht-unvermeidlich ist. Die leibliche Vereinigung als zeitliches, unterscheidbares, aber nicht abtrennbares *hinaufsteigendes* Werk der Liebe kommt dem *herabsteigenden*, unzeitlichen Werk vollkommen entgegen, sodass sich die Aufnahme des Zeitlichen ins Ewige vollzieht. Die Liebe *ist* durch diese Aufnahme des Zeitlichen ins Ewige und sie *ist* dadurch die höchste

Freude der aus der Zeit kommenden Menschen und der ewigen Gottheit.

1878 besuchte Solovjev mit seinem Freund Fjodor Michailowitsch Dostojewskij das Optina-Kloster. Über die mühevollen Fahrt berichtet der Dichter brieflich seiner Ehefrau Anna Grigorjevna. Es ist dieses Kloster das Vorbild für jenes im Roman „*Братья Карамазовы*“ – „Die Brüder Karamasoff“, von Dostojewskij seiner Gattin gewidmet.

Der Bericht des Evangelisten Johannes über die Hochzeit von Kana, bei der Jesus Wasser in Wein verwandelt, spielt im Roman eine zentrale Rolle. Visionär lässt Dostojewskij dieses erste Zeichen Jesu – der Incarnation der Liebe – in dessen Sinn deutlich werden: „Unendlich barmherzig ist Er zu uns in Seiner Liebe, und Er freut sich mit uns. Er hat Wasser in Wein verwandelt, damit die Freude der Gäste nicht aufhöre. Neue Gäste erwartet Er, und ununterbrochen lädt Er neue ein, und so fort bis in alle Ewigkeit.“ (Dostojewskij 1977/1980, S. 590). Dieses Zeichen der ewigen, stets verewigten Freude steht im tiefsten Zusammenhang mit einer Hochzeit – einem Fest der Liebe zwischen Frau und Mann.

Im von Solovjev so benannten „Strombett des Lebens“ ist für ihn auch die Muttersprache als Medium des philosophischen Denkens und Schreibens verankert. Bedeutsam ist die Sicherheit des Einsatzes der Möglichkeiten der Sprache zur Erreichung des denkerischen Zwecks. „Sich in der Muttersprache nicht irren zu können ist einfach der gewöhnliche Fall“ stellt Ludwig Wittgenstein fest (Wittgenstein 1989, 630). Und mit seinem „Fluß des Lebens“, in welchem „die Worte ihre Bedeutung haben“ (Wittgenstein 1984, 913) bildete er einen zu Solovjovs „Lebensstrom“ durchaus analogen Begriff.

Inhalt und Bedeutung der Romanstelle lassen sich anhand struktureller Merkmale des Russischen deuten. Eines dieser Merkmale ist der Aspekt des Verbuns – *завершённый вид и незавершённый вид* – vollendet oder unvollendet. Der *vollendete Aspekt* bezeichnet eine Handlung, die im Hinblick auf ihre zeitliche Begrenzung – häufig im Hinblick auf ihren Abschluß oder ihre Vollendung – betrachtet wird. Der *unvollendete Aspekt* bezeichnet eine Handlung, die in ihrem Ablauf – in ihrer Fortdauer oder Wiederholung – betrachtet wird, ohne daß man dabei das Moment ihrer zeitlichen Begrenzung als wesentlich ins Auge fasst. Der Aspektgebrauch wird weitgehend durch die *subjektive Sicht* des Sprechenden bestimmt.

Vier auf Jesus bezogene Verben aus dem Romanausschnitt verdienen demnach Beachtung im Zusammenhang mit der Frage nach der Zeit und ihrer Aufnahme in die Ewigkeit der Liebe:

Er *freut* sich mit uns - и *веселится* с нами,

Damit die Freude der Gäste nicht *aufhöre* - чтобы не *прекалаась* радость гостей

Neue Gäste *erwartet* er – новых гостей *ждет*

Und ununterbrochen *lädt* er neue *ein* - новых беспрерывно *зовет*.

In allen Beispielfällen verwendet Dostojewskij den unvollendeten Aspekt. Er betrachtet damit die Dauer einer Handlung und führt sie in dieser Dauer oder Wiederholung ohne Ende den Lesenden vor. Es ist seine durch religiös-denkerische Einsicht begründete künstlerische Absicht, diese Stelle so sprachlich zum Ausdruck zu bringen. Das, was von ihm gesagt werden will ist die Grundlage dessen, wie er es sagt. Die angewandte Struktur zielt absichtsvoll

auf die Übermittlung des Inhalts. Der unvollendete Aspekt verweist auf die Vollkommenheit der Handlungen Jesu, die in dieser Verbform betrachteten Erscheinungen der Fortdauer und Wiederholung verweisen auf das Ewig-Ununterbrochene. Die „Zeitwörter“ werden in bestimmter, künstlerisch bewusst angewandter Weise in die Kriterien des Ewigen eingebettet – jene der ewigen Liebe.

„Die wahre Bedeutung des Wortes besteht nicht im Prozeß des Sprechens an sich, sondern in dem, was gesprochen wird – in der Offenbarung der Vernunft der Dinge durch Worte und Begriffe“ meint Solovjev. Dostojewskij erfüllt diese Forderung durch das *Wie*, mit dem er das *Was* ausdrückt. Solovjev sieht zwischen der Sprache und der Liebe wesentliche Parallelen im Hinblick auf das Menschliche: „Die Gabe des Wortes gehört dem Menschen von Natur an, die Sprache wird nicht ausgedacht, ebenso wenig wie die Liebe.“. Er fordert, „aus der Sprache ein Werkzeug zu machen für die folgerichtige Entwicklung bestimmter Gedanken und ein Mittel, vernünftige und bewußt gesetzte Ziele zu erreichen.“ (Solovjev, S. 27). Die Werkzeuglichkeit der Sprache verweist allerdings auf deren Zeitlichkeit, sodass sie ihrerseits als etwas *Aufsteigendes* des *Herabsteigenden* bedarf: „Noch größere Bedeutung, als sie *das Wort* für die Bildung des menschlichen Gemeinschaftslebens und der Kultur hat besitzt die Liebe für die Erschaffung der wahren menschlichen Individualität.“ (Solovjev, S. 27). Die Sprache fragt mit ihren Möglichkeiten nach der Zeit, die Liebe, geistig wie körperlich, gibt Antwort, indem sie die zeitlichen Aspekte nicht von ihrer eigenen Ewigkeit trennt, sondern sie als notwendig mit in sich selbst hineinnimmt.

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„Ars in artificiale“ – Das musikalische Kunstwerk als zeitliche Darstellung von Unzeitlichem

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Wenn wir feststellen, dass Anton Bruckners 5. Symphonie 1 Stunde 20 Minuten dauert, was haben wir damit ausgesagt? Zumal, wenn wir uns erinnern, dass ebendieses Werk in einer anderen Aufführung 1 Stunde 15 Minuten gedauert hat?

Das musikalische Kunstwerk findet in der Zeit statt – oder: es wird von den Zuhörenden darin erlebt. Bruckners „Fünfte“ erfordert demnach den Umgang mit und in der Zeit. Weil sie etwa selbst zeitlich angelegt ist? Dann würde sie als Zeitliches Zeitliches evozieren, über Zeitliches gewissermaßen gebieten, weil jene, die sich mit ihr befassen ihre eigene Zeit nach deren Aufführung richten. Deren Zeitlichkeit ist überprüfbar als messbare Größe zwischen Beginn und Ende. Das Überprüfbare ist aber vom Werk abhängig, sodass letztendlich Zeitliches über Zeit gebietet, indem es diese in der messbaren Größe seiner Zeitlichkeit bestimmt.

Im XI. Buch seiner *Confessiones* stellt Augustinus anhand von Musik folgende Überlegungen an: „Dictus sum canticum, quod novi: antequam incipiam, totum expectatio mea tenditur, cum autem coepero, quantum ex illa in praeteritum decerpsero, tenditur et memoria mea, atque distenditur vita huius actionis meae in memoriam propter quod dixi et in expectationem propter quod dicturus sum; praesens tamen adest battentio mea, per quam traicitur quod erat futurum, ut fiat praeteritum.“ (Augustinus 2000, S. 52f).

Die „Attentio“ ist also unveränderlich anwesend, ausgerichtet auf die Gesamtheit des Liedes. Darf gesagt werden, dass diese etwas durch die Gesamtheit des Liedes Hervorgerufenes ist, somit im Zusammenhang mit etwas, das vor ihr war, damit sie von dort herkommen kann? Damit wäre sie der Gesamtheit des Liedes zeitlich nachgereiht. Wenn aber von einem Vorher und einem Nachher gesprochen werden kann, so wird damit zwangsläufig von einer Erscheinung des Zeitlichen gesprochen, in welcher die Unterschiedlichkeit im Hinblick auf die Zeit wahrgenommen wird. Die Unterschiedlichkeit ergibt sich aber aus dem „es ist gewesen“, „es ist“, „es wird sein“. Von der Gesamtheit aus gesehen wird die Attentio erst sein, weil sie von ihr hervorgerufen wird. „Facientis factis iure anteponuntur“ sagt Augustinus in „De Musica“ (Augustinus 2002, S. 80). Von der Attentio aus war daher die Gesamtheit schon zuvor, sodass sie sich auf diese beziehen kann. Dieses Zusammenwirken von Gesamtheit und Attentio ist also nicht im selben zeitlichen Stand. „Nam quomodo est, quod numquam in eodem statu permanet?“ So fragt Bernhard von Clairvaux (Bernhard 1994, S. 219). Er beschreibt den Wechsel des Standes so: „At quidquid veniens ex eo quod fuit, non cessat tendere in id quod erit, transitum sane habet per ‚est‘, sed omnino non est.“ (Bernhard w.o.). Was ist dieses „est“, durch welches im Wechsel vom „fuit“ zum „erit“ alles seinen „Transitus“ nimmt? Ist es in der Attentio, ist es in der Gesamtheit eines musikalischen Kunstwerkes? Oder ist es eine außerhalb von beiden seiende conditio sine qua non für beide gleichermaßen, ohne Angewiesenheit darauf, eine solche zu sein?

Zahlen und deren Verhältnisse spielen in der Musik eine definitorische Rolle. Schon die Bezüge der Töne

zueinander sind zahlhaft und in Zahlen auszudrücken. In „De divisione naturae“ weist Johannes Scotus Eriugena darauf hin: „Welche wichtige Rolle spielen hierbei die vollkommenen Zahlen, die Sechs-, Sieben- und Achtzahl, worin naturgemäß das sogenannte Diapason oder die höchste Symphonie der Musik besteht! Denn sie hat 8 Töne, 7 Intervalle und 6 Spannungen.“ (Eriugena 1994, S. 1/385). Neben dieser Zahlhaftigkeit, welche die räumliche Ausdehnung der Musik und die Beziehungen der Einzeltöne im Tonraum zueinander bestimmt, ist auch das zeitliche Verhältnis der Töne in einer Melodie zueinander durch Zahlen und deren Verhalten zueinander bestimmt und bestimmbar. Aurelius Augustinus definiert die Musik und die Wissenschaft von ihr daher als „scientia bene modulari.“ (Augustinus 2002, S. 6), als jene vom guten Abmessen des Taktes mit der Konsequenz des melodischen Singens sowie des richtigen Bewegens im Tanz. Das Wort „modulari“ meint gleichermaßen die Voraussetzung, also den richtigen Umgang mit dem Takt wie das dadurch ermöglichte richtige Musizieren. Was aber gemessen werden kann, das muss zahlhaft sein, damit Zahlen angewendet werden können. Das Messbare ist aber etwas Gestaltetes, weil es nur in seiner Gestaltetheit gemessen werden kann. Die Gestaltetheit wiederum ist eine Möglichkeit, die auf Grund ihr vorausgegangener Ursachen ins Maßhafte gelangt ist. „Mit Recht heißen aber die uranfänglichen Ursachen“ – so Eriugena – „ungestaltet, da sie einfach sind und durchaus jedes Zusammenhanges entbehren. Denn in ihnen ist unaussprechliche Einheit und ein untrennbarer Einklang ohne Zusammensetzung.“ (Eriugena 1994, S. 1/152)

Eine Möglichkeit ist als Vervielfältigtes aus der Einheit zu betrachten, weil ihr die Einheit als Notwendigkeit vorausgeht. Bruckners „Fünfte“ ist eine Möglichkeit der Musik. Insofern ist sie nicht Musik schlechthin. Aber die Musik schlechthin als Einheit, aus welcher jedes musikalische Kunstwerk hervorgeht, ist in der bestimmten Form der Vervielfältigung in ihr vorhanden. „Was wesentlich und bestandhaft besteht, das besteht durch Teilnahme an der durch sich selbst seienden Wesenheit“ – so Eriugena (1994, S. 1/241).

Das bestimmte musikalische Kunstwerk als Vervielfältigtheit beruht auf vergänglichen Zahlen, insofern es selbst nicht Ursache ist, sondern durch ein ihm Vorangehendes verursacht werden muss. So gesehen muss ein Mensch, der mit Hilfe vergänglicher Zahlen ein bestimmtes Kunstwerk als etwas Vervielfältigtes gestaltet auf unvergängliche Zahlen aus der Einheit zurückgreifen, wie es Augustinus in *De musica* fragend vermutet:

Magister: Si ergo quaeremus istam rhythmicam vel metricam, qua utuntur, qui versus faciunt, putasne habere aliquos numeros, secundum fabricant versus?

Discipulus: Nihil aliud possum existinare.

M: Quicumque isti sunt numeri, praeterite tibi videntur cum versibus an manere?

D: Manere sane.

M: Consentiendum est ergo ab aliquibus manentibus numeris praeteritis aliquos fabricari? (Augustinus 2002, S. 136).

Die „vergänglichen Zahlen“ sind vergänglich in der bestimmten Anwendung, also in der Vervielfältigkeit der Einheit. Ihre vervielfältigende Anwendung macht sie in dieser Weise nicht mehr anwendbar, sodass sie mit dieser ihrer Anwendung vergangen sind. Da sie aber nur aus der Einheit heraus angewendet werden können, so kann man mit Eriugena „ohne Zweideutigkeit erwägen, dass alle Zahlen in der Einheit ewig und gleichförmig bestehen. Und mögen sie immerhin durch die Tätigkeit des Zählenden in verschiedene einzelne Gestalten gebildet werden, so verbleiben sie gleichwohl in der Einheit gleichförmig als in ihren Gründen und werden niemals ohne dieselben gedacht, da sie nur in ihnen zu entstehen angefangen haben.“ (Eriugena 1994, S. 1/273f).

Die Vielheit in der Vervielfältigkeit als das zeitlich Messbare und in der Zeit Wahrnehmbare muss demnach im Hinblick auf die in ihr wirkende Einheit untersucht werden. Wenn also die 5. Symphonie von Anton Bruckner wahrgenommen und etwas über sie ausgesagt werden soll, so muss etwas von der Musik wahrgenommen und ausgesagt werden, die als Einheit dieser bestimmten Vervielfältigung „5. Symphonie von Anton Bruckner“ vorausgeht und in ihr wirksam ist.

Nikolaus von Kues fordert in *De coniecturis* folgerichtig, der Einheit mit besonderem Augenmerk zu begegnen: „Omnis vis mentis nostrae circa ipsius debet unitatis conceptum subtilando versari, quoniam omnis cognoscibilium multitudo ab eius dependet notitia, quae est in omni scientia omne id quod scitur.“ (Kues 2002, S. 50). Die Einheit ist also insofern das in jeder Hinsicht vom aus ihr Vervielfältigten Unterscheidbare, als es nicht die Eigenschaften des in der Vervielfältigkeit Unterschiedenen annimmt. Es ist das Unvergängliche und Unveränderliche, das in dieser ganz bestimmten Weise im Vergänglichen und Veränderlichen wirkt. „Harmonia in luto lutinizat, in cithara citharizat.“ So der Kusaner (2002, S. 102).

Der Schritt von der Einheit und deren Unteilbarkeit zur Andersheit und Teilbarkeit ist aber kein anderer, als der Schritt von der Unvergänglichkeit zu Vergänglichkeit, von der Unveränderlichkeit zur Veränderlichkeit.

Die Musik als Compendium bleibender Zahlen ist im jeweiligen bestimmten musikalischen Kunstwerk als einem Compendium vergänglicher Zahlen als Wirksames zu begreifen. Der Schritt von der Unteilbarkeit der bleibenden Zahlen in die Teilbarkeit der vergänglichen ist auch ein solcher „de forma in formabile. Sic ars in artificiale.“ (Kues 2002, S. 50) Die Musik ist als unvergängliche Ursache ungeformt, das musikalische Kunstwerk hingegen ist das ihr nachgehende Geformte. Dieses ist auf Grund seiner Geformtheit, welche ja nicht mehr das Unveränderliche und daher Unvergängliche ist, in der Zeit erfahbar und messbar. Der bernhardische „Transitus“ durch das „est“, dieses ständige Innensein im Ist ohne selbst dieses Ist zu sein, kann in diesem Zusammenhang als Rückbezug der abgetrennten Vervielfältigkeit auf die seiende Einheit verstanden werden. Auf jene Einheit, die keiner Veränderung unterliegt und daher als sie selbst nicht in der Zeit wahrgenommen werden kann. „Tolle nempe ‚fuit‘ et ‚erit‘: unde iam transmutatio, aut vivissitudinis obumbratio?“ fragt Bernhard von Clairvaux gewissermaßen feststellend (Bernhard w.o.). Und in der Tat ist ja die Einheit, das Compendium der bleibenden Zahlen, frei vom „ist gewesen“ und „wird sein“, und also das, was jenen „Transitus“ ermöglicht, durch welchen das veränderliche Vervielfältigte auf seinem Weg vom „fuit“ zum „erit“ ständig geht. Durch diesen „Transitus“ hat aber das Veränderliche, das Compendium der vergehenden Zahlen, ständigen Bezug zum Unveränderlichen, zur

Einheit, welche ihm notwendig vorausgeht. Und in diesem Bezug hat es auch Teilnahme an jenem Unveränderlichen: als Geformtes nämlich Teilnahme am Ungeformten, als Kunstwerk nimmt es Teil an der Kunst. Somit ist das bestimmte musikalische Kunstwerk vervielfältigte und somit veränderliche Unveränderlichkeit. Es stellt auf diese Weise innerhalb seiner geformten Begrenztheit zwischen seinem Anfang und seinem Ende hörbar das ungeformte Zeitlose dar. So aber, wie das Kunstwerk an der Kunst teilnimmt, so nehmen die am Kunstwerk Teilnehmenden durch dieses an der Kunst teil und haben durch zeitliche Anteilnahme am Kunstwerk Anteilnahme an der unzeitlichen Kunst. Ihre jeweilige „Attentio“ korrespondiert mit dem „Transitus“ des Kunstwerkes, an welchem sie hörend teilnehmen. „Attentio“ und „Transitus“ ermöglichen damit aber auch nichts weniger, als durch die Teilnahme am Unveränderlichen den Schritt aus der veränderlichen Vervielfältigkeit in die unveränderliche Einheit. Weil die Einheit der Vervielfältigkeit aber mit Notwendigkeit bevorzogen ist, ist dieser Schritt eine Um- und Rückkehr.

„Ergo ad opus pergamus exordium sumendo ab ipso Deo ter maximo, omnium scientiarum fonte.“ (Fux 1725, S. 44). Mit diesen Worten beginnt der österreichische Musiktheoretiker Johann Joseph Fux sein Lehrwerk *Gradus ad Parnassum*, gestaltet als Dialog „utque veritas magis eluceret“. Dialogpartner sind der Meister Aloysius, gemeint ist Giovanni Pierluigi da Palestrina, und – bewusst anachronistisch – der Schüler Josephus, nämlich Fux selbst. Die Hinwendung zu Gott angesichts der Unterweisung in der musikalischen Wissenschaft begründet dieselbe in Gott. Fux stimmt diesbezüglich mit Augustinus überein, welcher die Musik und das Wissen um sie als „divina disciplina“ bezeichnet (Augustinus 2002, S. 8). Die Kenntnis dieser Wissenschaft ist Voraussetzung für die Ausübung des musikalischen Handwerks, des rechten Einsatzes der Mittel. Augustinus stellt in *De musica* fest: „An vero faber potest rationalibus numeris, qui sunt in arte eius, sensuales numeros, qui sunt in consuetudine eius, operari.“ (Augustinus 2002, S. 170). Die Zahlen der Vernunft bezieht er aus der Einheit, die sinnlichen ergeben die Vervielfältigung im Kunstwerk. Fux lehrt die musikalische Wissenschaft gleichermaßen wie deren vielfältige Ausführung im Kunstwerk.

In seiner „Fünften“ wendet Bruckner nicht nur die fux'schen Theorien bezüglich des Kontrapunktes an, er stellt sich auch auf ganz besondere Weise dem Zeitproblem: die notwendige Fähigkeit des Kunstwerkes, „per transitum“ zum Umkehrschritt in die Einheit macht er zur strukturellen Notwendigkeit: im Finalsatz werden die Hauptthemen aller vorangegangenen Sätze wieder aufgegriffen und mit einem Hauptmotiv des Finales in Zusammenhang gebracht. Dies führt dazu, dass die Hauptmotive des 1. und 4. Satzes gleichzeitig erklingen. Durch diesen strukturellen Kunstgriff wird der Anfang dermaßen bestätigt, sodass das Ende der Symphonie als Um- und Rückkehr zu diesem erfahren wird, also mit ihm zusammenfallend. Wenn aber Ende und Anfang ineinanderfallen, wie erklärt sich, was dazwischen im zeitlichen Sinne der Dauer dieser Symphonie, geschehen ist, was hat überhaupt geschehen können?

Der französische Komponist Olivier Messiaen, der sich selbst als „né croyant“ bezeichnet hat, meinte: „Die Zeit ist eine der merkwürdigsten Schöpfungen Gottes, weil sie ihm, der ewig par essence ist, völlig entgegengesetzt ist. Ohne die Musiker würde die Zeit viel weniger begriffen. Die Philosophen sind auf dem Gebiet weniger weit.“ (Samuel 1998, S. 42). Aus dieser Feststellung spricht keineswegs der Hochmut des Künstlers. Heinrich Wilhelm

Joseph Schelling schreibt in seinem *System des transzendentalen Idealismus*: „Denn obgleich die Wissenschaft in ihrer höchsten Funktion mit der Kunst eine und dieselbe Aufgabe hat, so ist doch diese Aufgabe, wegen der Art, sie zu lösen, für die Wissenschaft eine unendliche, so, daß man sagen kann, die Kunst sei das Vorbild der Wissenschaft, und wo die Kunst sei, soll die Wissenschaft erst hinkommen.“ (Schelling 2000, S. 294).

Die aus der Kunst und ihrer Umsetzung in einem Kunstwerk erkennbare Fähigkeit des menschlichen Geistes, Zeit zu zerteilen, ja sie sogar umzukehren, mag letztendlich zu jener Erkenntnis verhelfen, die Nikolaus von Kues in einer eigenhändigen Randglosse zu seinem Werk *De coniecturis* geradezu als Forderung formuliert: „Nota rationem incorruptibilitatis intellectus apud tempus.“ (Kues 2002, S. 228).

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Die Irreduzibilität der Zeitmodi. Warum tempushaltige Sätze nicht nur tempusfreie Wahrheitsbedingungen haben

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Im Zentrum der analytischen Zeittheorie steht eine Kontroverse über das Verhältnis von Zeitmodi und Zeitrelationen, die durch gegenläufige Reduktionsversuche geprägt ist. Dabei dominierte von Anfang an der Versuch, die modalen Bestimmungen Vergangenheit, Gegenwart und Zukunft auf die relationalen Bestimmungen früher, gleichzeitig und später zu reduzieren (Russell, Smart, Reichenbach). Obwohl Zeitmodi schon durch ihre Verankerung in den grammatischen Tempora für die vorphilosophische Zeiterfahrung von großer Bedeutung sind, hatten abweichende Theoretiker, die ihnen auch innerhalb der philosophischen Theoriebildung eine wichtige Rolle zuerkannten, durchgängig einen schweren Stand, und zwar vor allem dann, wenn sie Zeitmodi nicht als logische Operatoren aufzufassen versuchten (Prior), sondern an der schon von McTaggart attackierten Auffassung festhielten, daß es sich um vorübergehende Eigenschaften von Ereignissen handelt (Gale). Dies gilt auch für die neuere Debatte zwischen Vertretern einer tempushaltigen (tensors) und Vertretern einer tempusfreien Zeittheorie (detensors), die seit dem Auftreten einer neuen Variante von Tempusfreiheit (new tenseless theory of time) in den 80er Jahren des letzten Jahrhunderts geführt wird. Worin die Asymmetrie der Kontroverse besteht, kann hier sogar noch leichter festgestellt werden, weil sie sich noch deutlicher ausgeprägt hat. Während es früher durchaus einflußreiche Reduktionsversuche zugunsten der Zeitmodi gab (Gale), die für die dominierenden Reduktionsversuche zugunsten der Zeitrelationen eine formale Entsprechung lieferten, kann davon in der neueren Debatte keine Rede mehr sein.

Wenn ich recht sehe, geht es den Vertretern einer tempushaltigen Zeittheorie im wesentlichen nur noch darum, die Irreduzibilität der Zeitmodi nachzuweisen bzw. einsichtig zu machen, inwiefern eine vollständige Zeittheorie neben Zeitrelationen *auch* Zeitmodi enthalten muß (Smith). Anders als die relationale Reduktion der Zeitmodi, findet die modale Reduktion der Zeitrelationen keine Fürsprecher mehr. Da die Schwäche der alten Übersetzungsversuche schon lange bekannt ist (vgl. Bieri 1972, S. 90 ff.), wird man diese Zurückhaltung auch dann für keinen Nachteil halten, wenn man von der Wichtigkeit der Zeitmodi überzeugt ist. Die Vertreter der neuen tempusfreien Theorie sind allerdings weniger zurückhaltend. Es ist zwar kaum zu übersehen, daß auch die Reduktionsansprüche zugunsten der Zeitrelationen deutlich zurückgegangen sind, seitdem man nicht mehr auf eine tempusfreie Übersetzung von tempushaltigen Sätzen, sondern nur noch auf ihre tempusfreien Wahrheitsbedingungen zielt (Smart, Mellor, Oaklander). Dies sollte aber nicht darüber hinwegtäuschen, daß es sich dabei immer noch um einen Reduktionsversuch handelt, der Zeitmodi auf der Ebene der philosophischen Theorie für überflüssig hält. Von seinen Vertretern kann durchaus eingeräumt werden, daß Zeitmodi in der Umgangssprache unersetzbar sind, und zwar nicht nur deshalb, weil sie unser subjektives Zeiterleben strukturieren, sondern auch deshalb, weil sie den intersubjektiven Erfolg von Handlungen ermöglichen (Mellor 1981, S. 73 ff.). Denn solange sie darin ausschließlich von tempusfreien Wahrheitsbedingungen abhängen, bleiben Zeitmodi für die theoretische Analyse der Zeit irrelevant.

Eine vollständige Zeittheorie muß ohne jeden Rückgriff auf Tempora auskommen, wenn es keine tempushaltigen Tatsachen gibt, die tempushaltige Sätze wahr machen können.

Wie leicht zu sehen ist, arbeitet die neue Reduktion von Zeitmodi mit einer Theorie der Referenz, wonach indexikalische Ausdrücke wie „jetzt“ direkt referieren, ohne die Zuschreibung einer Eigenschaft als Vermittlung zu benötigen (Kaplan). Wann immer der Ausdruck „jetzt“ geäußert wird, bezieht er sich demnach direkt auf die datierte Zeit seiner Äußerung (Datum und Uhrzeit), nicht auf die Eigenschaft einer Gegenwart bzw. Gegenwartigkeit, die irgendwelchen Ereignissen zugeschrieben würde, um damit indirekt auf eine datierte Zeit zu verweisen. Und, wenn dies stimmt, scheint die Wahrheit eines Satzes, der den Ausdruck „jetzt“ enthält, von tempushaltigen Tatsachen unabhängig zu sein. Der geäußerte Satz „Mein Vortrag beginnt jetzt“, scheint nicht deshalb wahr zu sein, weil er dem Ereignis des Vortragsbeginns eine Eigenschaft der Gegenwartigkeit zuschreibt, die jetzt bzw. gegenwärtig tatsächlich vorliegt, sondern deshalb, weil jetzt – sagen wir – der 9. Juli 2004, 16.15 Uhr ist und mein Vortrag am 9. Juli 2004 um 16.15 Uhr beginnt. Da die Gebrauchsregel des tempushaltigen Satzes von der datierten Zeit seiner Äußerung abhängt, nicht aber die Gebrauchsregel des tempusfreien Satzes, kann jener zwar nicht durch diesen übersetzt werden. Wohl aber kann der tempusfreie Satz als vollständige Angabe der Wahrheitsbedingungen des tempushaltigen Satzes betrachtet werden, wenn man der neuen Reduktionsstrategie folgt. Die Zeitmodi werden thematisiert, indem man „jetzt“ und „gegenwärtig“ weitgehend als Synonyma behandelt. „Das Ereignis E ist gegenwärtig“ ist demnach genau dann wahr, wenn der Satz zu einer bestimmten Zeit geäußert wird und das Ereignis E zur selben Zeit eintritt. Der Satz ist also genau dann wahr, wenn er gleichzeitig mit E geäußert wird. Entsprechend sind die Sätze „E ist vergangen“ und „E ist zukünftig“ genau dann wahr, wenn sie später bzw. früher als E geäußert werden.

Daß es sich hier um tempusfreie Wahrheitsbedingungen tempushaltiger Sätze handelt, die von der datierten Zeit ihrer Äußerung abhängen, kann kaum bestritten werden. Denn zweifellos muß E gleichzeitig mit der Äußerung des Satzes „E ist gegenwärtig“ eintreten, damit der Satz wahr sein kann. Allein damit ist freilich noch nicht nachgewiesen, daß tempusfreie Wahrheitsbedingungen die einzigen Wahrheitsbedingungen sind, die bei der Äußerung tempushaltiger Sätze eine Rolle spielen. Und eben darauf kommt es an, wenn tempushaltige Wahrheitsbedingungen als überflüssig gelten sollen. Worin könnten diese zusätzlichen Wahrheitsbedingungen bestehen? Die Antwort ist recht einfach. Ein tempushaltiger Satz kann nur dann wahr sein, wenn er überhaupt formuliert, ausgesprochen oder geschrieben wird. Und darin muß er selber gegenwärtig sein (vgl. Bieri 1972, S. 102 ff.). Wahr ist streng genommen nicht der Satz, sondern nur das gegenwärtige Satzzeichen. Gerade darin liegt der entscheidende Unterschied zwischen tempushaltigen und tempusfreien Sätzen. Natürlich müssen auch tempusfreie Sätze formuliert bzw. geäußert werden, um

wahr sein zu können. Aber anders als bei tempushaltigen Sätzen kann dies problemlos vernachlässigt werden, weil ihre Wahrheit nicht von den zeitmodalen Bedingungen dieser Formulierung abhängt. Wenn ein tempusfreier Satz jemals wahr ist, ist er immer wahr. Besonders leicht versteht man dies bei Sätzen, die überhaupt keine zeitlichen Sachverhalte formulieren. Doch auch bei Sätzen, die zeitrelationale Sachverhalte formulieren, gibt es dieselbe Unabhängigkeit von zeitmodalen Bedingungen. Daß Pompeius später gestorben ist als Caesar, kann man erst zutreffend feststellen, nachdem diese Ereignisse eingetreten sind. Abgesehen von dieser zeitrelationalen Einschränkung gibt es hier jedoch keine zeitlichen Wahrheitsbedingungen. Es ist für die Wahrheit des Satzes vollkommen gleichgültig, ob seine Formulierung gegenwärtig erfolgt, bereits in der Vergangenheit erfolgte oder erst in der Zukunft erfolgen wird.

Bei tempushaltigen Sätzen ist dies offenkundig anders. „E ist gegenwärtig“ kann nur dann wahr sein, wenn nicht nur E gegenwärtig ist, sondern auch die Formulierung des Satzes. Vergangene und zukünftige Satzzeichen scheiden aus. Dies impliziert zwar, daß seine Formulierung gleichzeitig mit E erfolgt und nicht etwa früher oder später. Dennoch handelt es sich hier nicht um die gesamten Wahrheitsbedingungen des Satzes, weil die tempusfreie Bedingung der Gleichzeitigkeit überhaupt nur daraus folgt, daß von der Gegenwärtigkeit von E und der Gegenwärtigkeit des Satzzeichens ausgegangen wird. Gegenwärtiges ist immer gleichzeitig mit Gegenwärtigem, aber natürlich ist nicht alles Gleichzeitige gegenwärtig. Außerdem gilt die Bedingung der Gegenwärtigkeit auch für „E ist vergangen“ und „E ist zukünftig“. Denn diese Sätze können nur dann wahr sein, wenn E vergangen bzw. zukünftig ist und ihre Äußerung gegenwärtig. Eine vergangene Äußerung solcher tempushaltigen Sätze kann allenfalls wahr gewesen sein und eine zukünftige wahr werden, weil sich Vergangenheit und Zukunft nur relativ auf eine Gegenwart verstehen lassen, die bei solchen Sätzen identisch mit der Gegenwart ihrer Äußerung sein muß. Aus diesem Grund reicht es nicht, wenn als Wahrheitsbedingungen dieser Sätze auf die Zeitrelationen früher und später verwiesen wird. Geht man davon aus, daß die Äußerungen gegenwärtig erfolgen, impliziert dies zwar, daß „E ist vergangen“ nur dann wahr sein kann, wenn die Äußerung später als E erfolgt. Und entsprechend gilt für „E ist zukünftig“ die Bedingung einer früheren Äußerung. Doch dies liegt nur daran, daß Vergangenes immer früher ist als Gegenwärtiges und Zukünftiges immer später als Gegenwärtiges. Aber natürlich ist nicht alles Frühere vergangen und nicht alles Spätere zukünftig. Es sind diese bekannten Komplikationen, die den Rückgang auf eine datierte Zeit erzwingen, sobald man versucht, die Gegenwärtigkeit als grundlegende Wahrheitsbedingung tempushaltiger Sätze loszuwerden. Die Annahme einer direkten Referenz indexikalischer Ausdrücke bietet sich dabei als willkommenes Hilfsmittel an, weil sie erlaubt, ohne ungerechtfertigte Übersetzungen von Zeitmodi in Zeitrelationen auszukommen.

Wenn sich „gegenwärtig“ in „E ist gegenwärtig“ auf nichts anderes bezieht als auf die datierte Zeit der Äußerung, bleibt als ihre zeitliche Wahrheitsbedingung nämlich nichts anderes als die Gleichzeitigkeit von E mit dieser datierten Zeit. Dabei wird keineswegs unterstellt, daß „E ist gegenwärtig“ dasselbe bedeutet wie eine explizite Datierung von E, die ohne zeichenreflexiven Ausdruck auskommt. Und erst recht wird nicht unterstellt, daß „gegenwärtig“ dasselbe bedeutet wie „gleichzeitig mit dieser Äußerung“. Dennoch sind wir bei der Frage nach den Wahrheitsbedingungen tempushaltiger Sätze auf

einen Gesichtspunkt gestoßen, der Zweifel an der vorausgesetzten Referenztheorie weckt. E muß zweifellos gleichzeitig mit „E ist gegenwärtig“ eintreten, damit die Äußerung des Satzes wahr sei kann. Wenn sich „gegenwärtig“ dabei auf die datierte Zeit der Äußerung bezieht, folgt daraus, daß E gleichzeitig mit dieser datierten Zeit eintreten muß. Aber darüber hinaus muß auch diese Äußerung selbst gegenwärtig sein. Und ihre Gegenwart kann nicht einfach in einer direkten Referenz auf eine datierte Zeit bestehen. Es liegt vielmehr nahe, davon auszugehen, daß es sich bei dieser Gegenwart um eine Voraussetzung ihrer Datierung handelt. Nur weil es sich bei unseren Äußerungen um Ereignisse handelt, die wie alle Ereignisse gegenwärtig eintreten, ist es immer Gegenwart, wenn wir „gegenwärtig“ sagen. Unsere Äußerungen sind in dieser Hinsicht überhaupt nicht privilegiert, sondern teilen nur eine universale Charakteristik zeitlichen Werdens. Die Gegenwart des Satzzeichens und die Gegenwart von E besitzen denselben Status. Nun kann man natürlich sagen, daß es sich im Falle ihrer Gleichzeitigkeit gar nicht um zwei verschiedene Gegenwarten handelt, sondern nur um eine einzige Gegenwart, die als gleichzeitig erlebt wird. Aber wenn dies stimmt, ist nur auf anderem Wege bestätigt, daß es nicht unproblematisch ist, das Verständnis der Gegenwart ganz vom Gebrauch zeichenreflexiver Ausdrücke abhängig zu machen, und zwar vor allem dann, wenn man die zeitmodalen Voraussetzungen ihrer Datierung unberücksichtigt läßt.

Es scheint mir durchaus richtig zu sein, daß sich der Ausdruck „gegenwärtig“ in „E ist gegenwärtig“ zeichenreflexiv auf die Zeit bezieht, zu der die Äußerung des Satzes erfolgt. Wenn immer wieder gesagt wird, nur der Ausdruck „jetzt“ sei zeichenreflexiv, nicht aber der Ausdruck „gegenwärtig“, so wird dies der weitgehenden Austauschbarkeit beider Ausdrücke nicht gerecht. Statt „E ist gegenwärtig“ kann sicher auch gesagt werden „E ist bzw. ereignet sich jetzt“. Die Zeichenreflexivität von „jetzt“ ist lediglich besonders deutlich, vor allem in Kontexten, in denen der Ausdruck einen Signalcharakter annimmt. Allerdings muß berücksichtigt werden, daß die Zeit, zu der die Äußerung des Ausdrucks „gegenwärtig“ erfolgt, wenn man sich an diesen Ausdruck hält, zunächst keine andere Zeit sein kann als die Gegenwart. Wie diese Gegenwart genauer aufzufassen ist, braucht dabei noch gar nicht entschieden zu werden. Dies gilt besonders für die kontroverse Frage, ob sie in irgendeinem Sinne als Eigenschaft gedeutet werden kann. Der Schwierigkeit auszuweichen, indem man den offenkundigen Befund verfälscht und an die Stelle der Gegenwart eine datierte Zeit setzt, scheint mir jedenfalls problematisch zu sein. Dabei kann durchaus eingeräumt werden, daß die gegenwärtige Zeit, auf die sich die Äußerung des Ausdrucks zeichenreflexiv bezieht, datiert werden kann. Aus dieser Datierbarkeit folgt aber nicht, daß sie in der Verwendung solcher Ausdrücke explizit datiert würde. Es ist deshalb keineswegs klar, woran wir uns zu orientieren haben, wenn wir das implizite Datum der Äußerungszeit explizit zu machen versuchen. So fragt sich etwa, wie genau die datierte Zeit angegeben werden muß, um den Gebrauchsregeln von „jetzt“ gerecht zu werden. Offenkundig ist in manchen Kontexten eine genauere Angabe erforderlich als in anderen. Und bereits daraus folgt, daß keine bestimmte Datierungsweise für alle Kontexte gültig sein kann.

Weder hilft es, prinzipiell eine möglichst genaue Angabe zu fordern, noch hilft es, den Genauigkeitsgrad prinzipiell von der Dauer der Äußerung abhängig zu machen. Denn die Zeit, auf die sich der Ausdruck

„gegenwärtig“ zeichenreflexiv bezieht, hat meist unscharfe Ränder. Doch selbst dann, wenn in einem bestimmten Kontext klar ist, wie die fragliche Zeit datiert werden muß, folgt daraus nicht, daß die Wahrheitsbedingungen der Äußerung ausschließlich von dieser datierten Zeit abhängen, und zwar schon deshalb nicht, weil auch in diesem Fall die grundlegende Wahrheitsbedingung vorausgesetzt bleibt, daß die Äußerung gegenwärtig erfolgt. Würde die Äußerung nicht gegenwärtig erfolgen, könnte sie nämlich unmöglich datiert werden. Der Ausdruck „gegenwärtig“ verweist nicht nur zeichenreflexiv auf die Zeit seiner Äußerung, sondern setzt darin auch Gegenwart voraus wie andere Ereignisse. Diese vorausgesetzte Gegenwart kann zwar ebenfalls datiert werden, aber nur um den Preis, daß sie als Voraussetzung der Datierung aus dem Blick gerät. Die zeichenreflexive Deutung trägt dieser Voraussetzung insofern Rechnung, als sie Gegenwart im Ausgang von Äußerungen wie „gegenwärtig“ bestimmt. Problematisch ist allerdings die Annahme, daß die darin bestimmte Gegenwart nichts anders wäre als eine datierte Zeit. Denn darin werden die zeitmodalen Voraussetzungen der Datierung einfach übersprungen, indem die Gegenwart der Äußerung rein zeitrelational interpretiert wird. Da sich diese Gegenwart datieren läßt, ist es zwar möglich, durch eine solche Interpretation auf tempusfreie Wahrheitsbedingungen von tempushaltigen Sätzen zu stoßen. Eine Reduktion von Zeitmodi erlaubt dies aber nicht, weil diese zeitrelationale Interpretation selber Zeitmodi voraussetzt.

Anders als bei Reduktionsversuchen, die den zeichenreflexiven Befund semantisch interpretieren, um die Bedeutung von Zeitmodi auf die Bedeutung von Zeitrelationen zu reduzieren, wird man beim wahrheitstheoretischen Reduktionismus nicht bestreiten können, daß er auf einen wichtigen Aspekt aufmerksam macht. Es gibt tempusfreie Wahrheitsbedingungen von tempushaltigen Sätzen. Falsch ist nur, daß dies ihre einzigen Wahrheitsbedingungen sind. Zeitmodi sind nicht nur semantisch, sondern auch veritativ irreduzibel. Und darin sind sie keineswegs widersprüchlich, wie seit McTaggart immer wieder behauptet wurde. Der angebliche Widerspruch der Zeitmodi ist nichts anderes als ihre widersprüchliche Deutung, die von der ungerechtfertigten Annahme einer tempusfreien Geltung der Zeitmodi ausgeht. Wie zeitliches Werden widerspruchsfrei zu denken ist, kann ich an dieser Stelle nicht erläutern (vgl. Mesch 2004). Ich hoffe allerdings, daß deutlich geworden ist, warum es falsch wäre, tempushaltigen Wahrheitsbedingungen die Zeichenreflexivität abzusprechen, die sie benötigen, um als Wahrheitsbedingungen tempushaltiger Sätze infrage zu kommen (Mellor, 1981, S. 101) Tempushaltige Wahrheitsbedingungen müssen ebenso zeichenreflexiv sein wie tempusfreie, und sie können dies auch. „E ist gegenwärtig (vergangen, zukünftig)“ ist genau dann wahr, wenn E gegenwärtig (vergangen, zukünftig) ist, und zwar bezogen auf die Gegenwart der Äußerung des Satzes. Dies mag keine große Erkenntnis sein. Aber ich sehe nicht ein, warum es falsch oder widersprüchlich sein sollte.

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Russell's Second Philosophy of Time (1899–1913)

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1. Introduction

Russell's second philosophy of time (1899–1913), which will be the subject of this paper, is of special interest for two reasons. (1) It was basic to his New Philosophy, later called the "philosophy of logical atomism". In fact, this philosophy didn't initially emerge in the period of 1914–1919, as many interpreters (e.g. A. J. Ayer) suggest, but with the introduction of Russell's second philosophy of time (and space). The importance of Russell's second philosophy of time for his early and middle philosophy can be seen from the fact that it survived the dramatic changes in his philosophy of August–December 1900, and of July 1905. There is of course no surprise about this point: it served as their fundament. (2) Russell's second philosophy of time is a *locus classicus* of all so called B-theories of time which define it in terms of the relations of before, after and simultaneous between events or moments.

2. Russell's Second Philosophy of Time in Its Relation to His Other Philosophies of Time

In different periods of his philosophical development, Russell adopted two opposite positions in the philosophy of time: relative and absolute. Roughly speaking, the relational theory was held by Leibniz and Lotze, while the absolute theory by Newton. The relational theory claims that there is no time as such (or absolute time) but rather a succession of interrelated events (or *contents* of time). The absolute theory holds that events occur at moments, or absolute times, and that it is these moments that occur one after another. Two events are simultaneous if they occur at the same moment, and successive when they occur at two successive moments.

Of course, it does not take much effort to notice that the two theories are built on similar principles: They both are B-theories of time. Russell's B-theory can also be characterized as defending four-dimensionalism: a doctrine which holds that objects have temporal as well as spatial parts. In metaphysics he denied the presentism of McTaggart, or the view that everything which exists is present, and defended the position that time is real.

In his philosophical development Russell proposed at least three philosophies of time. (i) In 1897 he advocated a relational theory of time. (ii) From 1899 till 1913 he held an absolute theory of time—it is this theory that will interest us here. (iii) A major revolution occurred in Russell's thinking about time (and space) in 1914 when he stopped accepting matter as it appears in physics and tried to see it through the private world of sense-data. He found that physical objects are not to be inferred from sense data but must rather be constructed from them. In philosophy of time this led to his refusal to accept moments, or instants, and his defining them in terms of classes of "overlapping" events instead (cf. Russell 1914, 122 ff.). Now he claimed that time is a relation of events; there are no moments. In this way Russell returned—but on a different level—to the old relational theory of time.

3. The History of Russell's Seconds Philosophy of Time

Though idealistic, Russell's philosophy was pluralistic from the very beginning. His motivation for accepting pluralism were two early beliefs of his: First, in order for thinking to be possible at all, its object must be complex. Indeed, a simple thing "is unthinkable, since every object of thought can only be thought by means of some complexity". (1896, 564) Secondly, this complexity can be achieved only when referring to unique individuals (terms), which are different from any other individual. This was the kernel of Russell's atomism.¹

Thus Russell's *The Foundations of Geometry* (finished in October 1896) claimed that the objects of cognition have to be complex: in order to know them, we must be able to differentiate between them; and in order to differentiate between them, they must be external to (divergent from) one another. This is the Principle of Differentiation, which is based on the Form of Externality of individuals (terms). There are two forms of externality, space and time, which are most important for us humans. In this connection, Russell accepted that two time-points (moments) can be different only when mutually external (in contrast, two events can happen together in time). This is the first a priori knowledge about time and is so the first axiom of metaphysics.

Russell's first philosophy of time was advanced in his paper "Why Do We Regard Time, But Not Space, as Necessarily a Plenum", which was written towards the end of May 1897 (but published first in 1990). In the paper Russell criticized the widely-held belief that time is an adjective (predicate), "while space is regarded as possibly a relation" (Russell 1897, 92). He, in contrast, insisted that space and time have the same logical structure: they are both based on relations.

This stance was to characterize Russell's position on time in all his periods. His different philosophies of time were the effect of different conceptions of the type of relations which lay at the bottom of time. Although still an idealist, in 1897 Russell insisted that relations cannot be reduced to properties: relations exist and are real. He claimed further that the position on this problem is of utmost importance since the solution of the controversy monism / pluralism depends on it and this is "the most fundamental question of metaphysics" (p. 97). And from Russell's claim that relations cannot be reduced to predicates, it followed that monism is untenable. He further made the distinction between absolute and relational theory of time. At this point, however, he cannot decide whether space and time are relational or absolute.

Russell accepted the absolute theory of time, first, in the paper "Is Position in Time Absolute or Relative?", read on 9 May 1900 to the Oxford Philosophical Society. The paper was first published in 1993, in the 3rd vol. of Russell's *Collected Papers*, and this explains why it was not discussed in the press so far. Another paper of his from this period is "The Notion of Order and Absolute Position in Space and Time", which was read at the

¹ Its alternative is the metaphysics of "atomless gunk" which was explored only recently (cf. Zimmerman 1996).

historical (for him!) International Congress of Philosophy in August 1900 in Paris; it was published the next year in French (see Russell 1901a). On the basis of this paper Russell prepared a third one, "Is Position in Time and Space Absolute or Relative?", which he published the next year in *Mind* (see Russell 1901b). The two papers overlap on many points. A substantial part of the third paper was reprinted in the *Principles*, Ch. LI, (§§ 424–31). I must note here, however, that his theory was best articulated in the first paper, "Is Position in Time Absolute or Relative?". This explains why in what follows we shall concentrate on it.

4. Russell's Absolute Philosophy of Time of 1900

Russell's first claim is that his problem is that of logic, not of metaphysics: "The problem concerning temporal position is one which takes us to the foundations of logic." (Russell 1900, 225) Further, he insists that his philosophy (logic) of time is a concretization of his:

- (i) theory of series (to be discussed in § 5);
- (ii) which, in turn, depends of the theory of relations (first developed in the paper "The Classification of Relations", given in January 1899 to the Cambridge Moral Sciences Club);
- (iii) which, finally, depends upon his theory of judgment. In the latter, Russell followed the ideas developed in Moore's paper "The Nature of Judgment" (1899).²

In order to elucidate the absolute theory of time, in its divergence from the relational theory, Russell first points out the ambiguity of the word "event". On the one hand, an event can be taken to mean simply something which exists at a time; on the other hand, it can be taken to mean something together with the time at which it exists; i.e. an event may be defined either simply by its content, or by the *complex* consisting of its content together with its (absolute) temporal position.^{3,4} In the former sense, toothache is an event; in the latter sense, a particular bout of toothache is an event. In the first, more abstract sense Russell speaks of *qualities*, and only in the second sense of *events* proper. Now, the relational theory is interested in qualities, or in the content of events; events obtain by mutual relations of qualities. In contrast, the absolute theory accepts that there are different (absolute) moments, which, in combination with these qualities, form events.

Russell rejects the relational theory, since he believes that it destroys the construction of the time-series, which depends, as do all series, upon the mutual incompatibility of the constitutive elements. He insists that the elements of the time-series must not only be related to one another; they must also differ from one another—and this in such a way that even indiscernibles should not be treated as identical. In order to achieve this, Russell accepts that all simultaneous events have a certain common quality of transitivity, and this quality is their temporal position, which makes even events of the same quality (i.e. indiscernibles) different one from another.

Russell claims further that the simultaneity implies identity of content, whereas the succession implies

diversity of content. This means that qualities cannot be the atom of time, for the simple reason that these can be both simultaneous and successive. "The definiteness of the time-series requires that we should be able to distinguish between *A now* and *A then*. That is, in all cases of repetition, there [...] must be] some difference of content, not contained in the quality *A* itself, which enables us to distinguish the first occurrence from the second." (228)

To meet this requirement, Russell accepts that relations of time hold between events. There is, in particular, a collection of contents (or moments) α , β and a collection of qualities *A*, *B*. The quality *A* becomes an event A_α by possession of the content (or when it is at a certain moment) α . The quality *A* possessing the content (or being at a certain moment) α is the event A_α . In accordance with this definition, we can call *simultaneous* two qualities which have one and the same content (or are at the same moment) (A_α and B_α). What are referred to as *successive* are different qualities at the same moment, or at different moments (B_α and A_α , or A_α and B_β). *Now* is an identity of content (moment) among events which are now.

Russell expresses the absolute theory of time also this way. "We have on the one hand a series of moments, each of which is before or after every other moment; moments form a series in virtue of these transitive asymmetrical relations of before and after. On the other hand, we have a collection of qualities, not forming a series, but capable of the relation expressed by *at* to one or many moments of time. Repetition occurs where one quality is *at* several moments. Simultaneity occurs where several qualities are *at* one moment. The complex formed by a quality at a moment is an event; thus every event has a position in the time-series expressed by the moment at which it is, and indeed the moments are the position of the events." (p. 230)

The moments of time are atoms in the sense that they are unanalyzable and undefinable, in the same way in which red and blue are undefinables. They are different from one another, and this difference is prior to any other difference of relation. The relations themselves "are rather like Platonic ideas, real entities, which, even if they do not live and move, yet have their being among the constituents of the universe." (p. 229)

5. Other Types of Series

Russell claims further that the absolute theory is correct in all cases of series. There are different types of series: integers, colors, space, time. In all of them, so Russell, if a number of terms occupies the same position, the position is really a new term, distinct from all of them. By some cases the logical status of the series can be decided by inspection. "For example, the integers form a series, and by relation to these, collections to various numbers of terms also form a series." (225) The same with the colors; indeed, there is clearly such a thing as a color. A "relational theory of color", however, would claim that there are no colors at all but just colored objects—which is perceptibly absurd. By other types of series, though, the logical status cannot be decided by inspection alone. Russell's guess (or hypothesis) is that "in cases where, as with numbers and colors, these positions have names, the absolute theory is plainly correct. But where they have no names, language does not help our philosophizing, and we are apt to suppose that what is unnamed is nothing." (226) Here are three examples of this:

² Both Moore and Russell, however, were conscious that the theory of judgment is not sufficiently elaborated in it.

³ Obviously, Russell's second philosophy of time was based on the logic (and ontology) of simples and complexes.

⁴ Apparently, to Russell an event has content, in the same way in which a judgment has content. This point shows the connection between his theory of time and his logic, in particular, to his (Moore's) theory of judgment.

- (i) In time, dates do, to some extent, afford names for periods.
- (ii) A slightly more difficult case is presented by quantities. Quantity is one thing, but the size, or the magnitude that it has, is something quite different from it. Relational theory, though, denies the magnitudes and accepts only quantities.
- (iii) "In the case of space, this difficulty becomes still greater; for places are named by the objects in them, and all known objects are perpetually moving. Events have at least the advantage of a fixed position in time, but material objects have no fixed position in space." (226)

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Absoluteness of Truth and the Indeterminateness of the Future

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I. Bivalence and Fatalism

Aristotle's *De Interpretatione* gave rise to a philosophical debate lasting until nowadays, the debate on one of the most controversial philosophical topics: Which is the truth-value of the future tense sentences? Many commentators have observed that Aristotle himself was convinced that not every future tense sentence is true or false if some future events are contingent, i.e. neither necessary nor impossible. Aristotle's conclusion has a contentious premise denoted as (P) below:

- (P) If the Principle of Bivalence applies to future tense sentences, then every future event is either necessary or impossible.

An immediate consequence of (P) is the fatalist premise (R):
(R) Everything that will happen, happens necessarily.

It is easy to show that the argument given by Aristotle in support of (R) and (P) is invalid, since it contains a modal fallacy, and on this ground the fatalist premise may be rejected (Haack 1996, 76 - 81). In this paper, I intend to consider a plausible argument for (P) and (R) which is valid, but unsound.

II. Bivalence and the Law of the Excluded Middle

The conviction that the Principle of Bivalence must be abandoned in the case of the future tense sentences about contingent events, after Aristotle, has been repeated by many philosophers, like Kotarbinski (1913), Lukasiewicz (1930), Thomason (1970), Belnap and Green (1994), to mention only a few contemporary names. Why do the philosophers believe that if the indeterminateness of the future is to be secured, then the Principle of Bivalence must be abandoned? In other words, why do the philosophers believe in (P) or logically equivalent (Q):

- (Q) If there are indeterminate future events, then the Principle of Bivalence does not apply to future tense sentences.

Before we answer the question, an explanation of what we mean by the indeterminateness of the future should be given. One meaning of the indeterminateness of the future is the lack of causal determination which is observed on the level of microphysics. I am going to leave aside at present this complicated issue. Another meaning of the indeterminateness of the future is based on the straightforward observation that there are possible future events not decided by us now, that is, not settled by us now whether they will happen or not in the future. Lukasiewicz had in mind examples of such events, when writing his famous passage (1930, 53):

I can assume without contradiction that my presence in Warsaw at a certain moment of next year, e.g. at noon on 21 December, is at the present time determined neither positively nor negatively. Hence it is possible, but not necessary, that I shall be present in Warsaw at the given time. On this assumption the proposition 'I shall be in Warsaw at noon on 21 December of next year' can at the present time be neither true nor false. For if it were

true now, my future presence in Warsaw would have to be necessary, which is contradictory to the assumption. If it were false now, on the other hand, my future presence in Warsaw would be impossible, which is also contradictory to the assumption.

Lukasiewicz posits the third truth-value for future tense propositions about contingent events whose intuitive meaning is 'possibility'. However, the three-valued logic of Lukasiewicz has many counterintuitive consequences when it is applied to future contingent sentences. Its unintuitiveness is a consequence of the rejection of the Law of Excluded Middle and a specific understanding of implication which takes on the value 'true' if its antecedent and consequent have the third value. Accepting this logic we are bound to regard as indeterminate every sentence of the form 'A or not A', and regard as true every sentence of the form 'If A then not A'.

III. Truth-Bearers as Occurrents

If the word 'necessary' occurring in (P) is to be understood as 'inevitable', then the consequent of (P) is false when future events are described by future tense sentences formulated at present. But if it is true that the Principle of Bivalence applies to future tense sentences, then having false consequent, (P) is false. My suggestion is that 'necessary' occurring in (P) means 'necessary truth'. On this reading, (P) has the meaning of (P') while (Q) has the meaning of (Q') below:

- (P') If the Principle of Bivalence applies to future tense sentences, then every future tense sentence is either a necessary truth or the negation of a necessary truth.
(Q') If there are future tense sentences which are neither necessary truths nor the negations of necessary truths, then the Principle of Bivalence does not apply to future tense sentences.

The following future tense sentences may be examples of these necessary truths:

1. If 5 is greater than 2, then 5 will be greater than 1.
2. If John will be taller than Mary, then Mary will be shorter than John.
3. If today is Sunday, then tomorrow will be Monday.
4. If this speck will be red, then it will be coloured.

The sentences 1 – 4 may be called necessary truths formulated as future tense sentences, because they are true everywhere, at all times and under all conditions. In consequence, they are sentences which are absolutely true. Of course, the sentence:

5. I shall be in Warsaw at noon on 21 December of next year

is not necessary in this sense, and by the same it is not absolutely true, because it is not true at all times and under all conditions: Its truth-value depends on who is the speaker and when the sentence is uttered. Depending on these factors it may be sometimes true and sometimes false, and in consequence neither absolutely true nor

absolutely false. In this sense, the Principle of Bivalence does not apply to it. Our last example shows that (Q') and (P') which is logically equivalent with (Q') are true. If the meaning of 'necessary' is 'absolutely true' and the meaning of 'impossible' is 'absolutely false', we may reformulate (P') and (Q') as (P'') and (Q'') below:

(P'') If the Principle of Bivalence applies to future tense sentences, then every future tense sentence is either absolutely true or absolutely false.

(Q'') If there are future tense sentences which are neither absolutely true nor absolutely false, then the Principle of Bivalence does not apply to future tense sentences.

There are two latent premises which lead to (P'') and (Q''):

1. Truth is absolute, and
2. Sentences are truth-bearers of future tense utterances.

The premise 1 is true, but the premise 2 is false. I am not going to argue for the premise 1: It had been done by many others before: Twardowski (1900), Lesniewski (1913), Tarski (1933), Simons (2003), to mention a few. I shall focus on the premise 2.

The main idea of this conception of truth-bearer to which I am going to refer now is the conviction that there is no truth-bearer without mental truth-bearing act (Simons 2003). There are private and public truth-bearing acts. In the first case it is the truth-bearing act of understanding; in the second it is the act of proposing which takes the form of assertion, question or command (2003, 46). The truth-bearers which have the act of proposing as their main constituent are called propositions (2003, 48). Propositions understood as occurrents, that is, individual events having their place and time, and their temporal and spatial parts are the primary truth-bearers and are absolutely true or absolutely false. The propositions are not context-dependent like sentences: Only sentences (*i.e.* sentence-types) are context-dependent. The context-independence of propositions is easily seen if one formulates appropriate generalizations of Tarski's T-schema (2003, 49-50) providing us with truth-conditions for propositions. Let us take as example our future tense sentence 5. Its context-dependence may be seen in the following generalization of Tarski's T-schema:

For all P, D, K, C : if P is a proposition appropriate to the utterance on day D of a token of the English sentence 'I shall be in Warsaw at noon on 21 December of next year' such that the pronoun 'I' refers to the person K and 'Warsaw' refers to the location C , then: P is true if and only if K is in W at noon on 21 December of next year after D .

It is important to note that the predicate 'true' occurring in the generalization formulated above is absolute. In particular, the predicate 'true' is untensed in that T-schema. Therefore, the proposition appropriate to the utterance of the English sentence 'I shall be in Warsaw

at noon on 21 December of next year' does not change its truth-value as time goes by: If it is true at the time of utterance it is true at another time, and if it is false at the time of utterance it is false at another one. Now the question arises which truth-value should be ascribed to the proposition P appropriate to my utterance of the English sentence: 'I shall be in Warsaw at noon on 21 December of next year' on 26 April 2005. What we know at present is that the proposition P is absolutely true or absolutely false, but the matter which particular truth-value it is, will remain unsettled until 21 December of next year. Our knowledge is incomplete: There are many examples of propositions which like our proposition P are not known as true and not known as false at present. Future tense propositions are only one example of many other kinds of propositions which make our knowledge incomplete. In the light of this discussion, the indeterminateness of the future consists in the incompleteness of our knowledge concerning certain future events, but there is only one real future -- even if we are able to create it by our own will.

IV. Truth-Maker Theory and the Reality of the Future

Now a further question arises: What does it mean from the point of view of truth-maker theory that there is only one real future? The truth-maker theory is a realist conception of truth whose main thesis is the following statement:

(T-M) If there are objects in the world which make empirical propositions true, then the propositions are true.

There are convincing arguments for accepting tropes in their truth-making role (Simons 1994, 2000, 2000a). Tropes may be understood as individual properties and individual events or processes which are in time and have their temporal parts as well as enter into causal relations. We may ask now what makes future contingent propositions true hypothetically if they are absolutely true at present. To answer this question we may suggest certain individual events and processes whose temporal parts we may find as existing at present. In certain cases the determination between a present event and a future one takes the form of a mutual foundation of later and earlier events (Simons 2000a). The foundation relation is understood as a metaphysical requirement, but not the causal determination. If it holds, we not only know that the relevant future contingent proposition is absolutely true or absolutely false at present, but we know that it is (absolutely) true and not (absolutely) false. Note that on the supervenient approach, which may be found in Thomason (1970), what is unknown as to its truth-value on an earlier point in time is neither true nor false at that point, and in consequence truth is understood as settled truth, and falsity as settled falsity. Truth-maker theory makes a difference between truth and settled truth, or our knowledge of truth: We are aware of many truths without our knowledge about what makes them true.

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Wittgenstein's 'Idealism'

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*Wir haben ein System der Farben wie ein System der Zahlen.
Liegen die Systeme in unserer Natur oder in der Natur der Dinge? Wie soll man's sagen? - Nicht in der Natur der Zahlen oder Farben. (Z 358)*

Introduction

The similarity of Wittgenstein's and Kant's projects is a much-discussed topic. Hacker (1972) is an example. He assimilates Kant's critique of reason with Wittgenstein's critique of language, exploring the limits of reason and of language respectively (1972, 30-32). He calls the private language argument (PLA) "an endeavour to extend and elaborate the Kantian dictum that intuitions without concepts are blind." (1972, 216.)

Williams' (1974) assessment of Wittgenstein's idealism fits well in this topic. He agrees with Hacker, that the PLA is related to a long-term project of exorcising solipsism (cfr. Hacker 1972 in: Williams 1974, 79). He opposes, however, Hacker's connexion of solipsism and idealism (Hacker 1972, 214 in: Williams 1974, 80). Williams' argument, to which Malcolm (1982) has objected, chiefly aims to suggest that the move from the tractarian solipsistic 'I' to the later Wittgenstein's 'we' "was not unequivocally accompanied by an abandonment of the concerns of transcendental idealism" [TI] (79).

In this paper I will argue that Williams' interpretation ought not succumb to Malcolm's objection (section 1). A comparison of Kant's and Wittgenstein's approaches to causality, however, will exhibit, besides some *prima facie* similarities, an important difference between both purported variants of TI. Due to this difference Williams' claim turns out to be untenable (section 2). From this assessment, I will draw some conclusions (section 3).

1. Wittgenstein and Idealism

Williams qualifies the development from the tractarian to the later Wittgenstein as a move from 'I' to 'we', from solipsism to a pluralised idealism (Williams 1974, 93). The reason for this move is that solipsism involves phenomenalism (cf. TLP 5.6).

According to Williams, a phenomenalist maintains his empirical realist stance by claiming that material objects exist unperceived. Accordingly, on his assumption that observers are material objects, his translation of the claim that "Even if there were not any observers, certain material objects would exist" would be of the form:

- (i) If *P* were not the case, then, if *P* were the case, then *Q*

In view of this unsatisfactory result Williams concludes that a phenomenalist cannot deny the mind-dependence of material objects. In this form, it amounts to empirical idealism (81 cf. TLP 5.631).

A phenomenalist might avoid this result by eliminating his assumption about the existence of observers (81):

- (ii) If *P* were not the case, then *Q*

He, then, cannot maintain that the given sense data are (related to) observations. He, therefore, cannot account for these items unless they are supposed to be "in some sense" mental. Since he then cannot truly assert "any form of mind-dependence of the world", the fact that these items are mental "show[s] that the world is mental". Therefore, while we cannot say "(except empirically and falsely) that the world is the world of experience (...)", "the world of experience conditions everything we say". Williams calls this phenomenalist position a form of TI (82; orig. emph. throughout).

To avoid 0 the early Wittgenstein adopts 0 by postulating that the 'I' does not belong to the world, but is its boundary (TLP 5.632, 5.641). This postulate, and its corollary,

- (iii) "The limits of my language mean the limits of my world." (TLP 5.6)

point, according to Williams, taking into account that these limits "could not be staked out from both sides", to transcendental solipsism (1974, 78, 82).

To avoid (ii), the later Wittgenstein's arguments intend to "remove the need even to try to point (...) in a solipsistic direction" (79). Thus, by adopting 0,

- (iv) "The limits of *our* language mean the limits of *our* world." (82.)

the PLA argues against an empiricist theory of meaning which sets out with first-person immediacies. The move from 'I' to 'we', therefore, is a move from the phenomenalist form of TI—which already has left behind empirical idealism (cf. 82-3) — to a non-phenomenalist form of pluralised TI.

Though Williams stresses that 0 should neither be interpreted as a blank tautology, nor as an empirical claim (83) he signals a persistent uncertainty in the interpretation of 'we' (90), due to its pervasive vagueness (79). He attributes this uncertainty to the relativistic elements in its use (90).

It is here that Malcolm's objection enters. Malcolm agrees with Williams' assessment of the tractarian 'no-self solipsism' (1982, 250-1, fn. 2). He recalls that the 'I' is a necessary condition (presupposition) of the world. Not being in the world, it is not itself a possible object of experience (250 cf. NB 79). As to the later Wittgenstein, however, though he concedes that 'we' has a shifting reference (252), he denies that its use is vague and indefinite (251); it always refers to some actual human group or society, in contrast with another or imagined one (cf. e.g. Z 380; OC 608-9 in Malcolm 1982, 254).

This objection does not convince. First, the allegedly steady reference of 'we' induces him to interpret

- (v) "The possibility of a language game is conditioned by certain facts" (OC 617)

as an empirical proposition that he considers to be "surely contrary to idealism" (Malcolm 1982, 266). However, although Williams' non-empirical interpretation of 0 is vulnerable to Moyal-Sharrock's criticism, that he makes an unwarranted leap from the denial of a rational connection of language to reality to the assertion of its autonomy

(2004, 221 n. 17), the non-autonomy of language, which is presupposed in (v), does not entail that (iv) should be read empirically. We must, therefore, not endorse Bolton's view, that the "move from 'I' to 'we' is the move from being transcendental, to being in the world" with which idealism is finished. (1982, 284). Wittgenstein's assertion that, as he is not doing natural science, his interest does not fall back upon the possible causes of the formation of concepts (PI 230) provides textual support for a transcendental interpretation of 0 in accordance with Williams' assessment of 0.

Second, Malcolm concedes that Wittgenstein's treatment of knowledge claims, which conventionally are of the form:

(vi) Kp ? p

is prone to idealism. For, since the language game *defines* p to be the implication of the correct use of 'Kp', "what is the case, is determined by human language" (1982, 263). As Williams stresses, however, the point of language games is not that they establish truth conditions of empirical propositions. Wittgenstein's constructivism (1974 89) rather aims to establish assertion-conditions (94). Hence, Malcolm's distinction between knowledge claims and other assertions is unwarranted.

Third, Malcolm mitigates Williams' worries about the impossibility of an evaluative comparison of the adequacy of language games by distinguishing between a cross-game understanding at the level of description, which he considers unproblematic, and an understanding at "the deeper level of instinctive action and reaction" which is problematic indeed (1982, 260). This distinction, however, disregards the impact of the 'meaning-is-use' notion and falls short as a heuristic device.

Williams' worries, which are induced by his seeking clues for allowing Wittgenstein to leave solipsism behind are, therefore, not completely without reason. Accordingly, I subscribe to Bolton's (1982, 279 fn. 14) suggestion that Malcolm does not bring out the full strength of Williams' interpretation because he does not see the reasoning behind it. Hence, I conclude that Williams' interpretation ought not succumb to Malcolm's criticism.

Causality in Kant and Wittgenstein

Kant's argument for his claim, that

- (i) all alterations take place in conformity with the law of the connection of cause and effect (B232)

operates with the basic assumption of the ideality of time (B52), i.e. its unobservability (B233; cf. Paton 1970, 253). He argues that since mere sense and intuition cannot connect successive perceptions, their connection is produced by a synthetic faculty of the imagination, which determines inner sense in respect of time-relation (B233). This determination warrants that the order of the subjective succession of perceptions [representations] parallels the order of the objective succession of perceived events. This, the imagination achieves by subjecting the representations to a rule which compels us to observe them in that order (B242). Following this rule, we ascribe to an event a determinate position in time by presupposing that every event is determined by an antecedent (B240) upon which it follows invariably (B243). Paton considers this argument as the most fundamental application of the transcendental deduction (1970, 222).

In contrast, the later Wittgenstein admits of nonnecessary causality (Z 608) and denies a causal nexus. He claims that "it is high time that our concept of causality is upset" (Z 610). He attributes the "urge (...) to see everything through the scheme of cause and effect" (CE 393) to our unconsciously following a 'natural law' in our reasoning (OC 135).

This contrast leaves room, however, for advancing some *prima facie* similarities that might point in the direction of TI in the later Wittgenstein. First, Kant's argument aims, by proving a correspondence between the successive order of occurrences of sense-data and a succession of events in an objective time-order (cf. B235), like Wittgenstein's move from 'I' to 'we', to refute phenomenalism. Second, Kant stipulates that his solution contradicts inductivism, the received view of establishing a causal nexus (B 241). This resembles Wittgenstein's assertion that we do not need a law of induction to justify our predictions (OC 287). Accordingly, both philosophers emphasise that causality is not an empirical matter, not grounded (OC 131), but rather presupposed in experience. It is part of our 'world-picture' (134-5; cf. 167), "fused into the foundations of our language" (558), or presupposed in the concept of an object (B240) respectively. Third, Kant qualifies his law of empirical representation of events as a necessary law of our sensibility and a formal condition of all perceptions (B244). This resembles Wittgenstein's calling "all those a priori certain principles [Sätze], like the principle of sufficient reason, of the continuity in nature, a priori insights concerning the possible laws [Sätze] of natural science." (NB 42.)

These similarities notwithstanding, an important difference between Wittgenstein's indeterminism (cf. Scheer 2004) and Kant's account of causality consists in the nature of the necessity of the regularities within the world we perceive, and hence in the difference between Kant's notion of form, and Wittgenstein's life-form (cf. Bolton 1982, 273-4, who associates the former with TI, the latter with activity, practice (cf. OC 95)). In Kant, this necessity, and hence our certainty about them (cf. B239) is entailed by the assumption of the ideality of time as an a priori form of our sensibility. This assumption, or its corollary, *esse est concipi*, is, as Harrison (1982, 215) contends, "precisely the assumption of idealism" or, more precisely, of TI as an epistemological position. Thus, causality is a necessary a priori principle. Contrariwise, (v) implies, that Wittgenstein's certainty "which underlies all questions and all thinking" (OC 504) is contingent a priori. This explains the relativistic elements in the use of 'we'. Certainty does not entail knowledge in the sense of (vi). In accordance with the non-empirical provision of 0, it merely produces good grounds for an outlook (OC 608), though a "new way of looking at things cannot give a lie to scientific thinking" (OC 292-3). This, I suggest, is meant by "(t)he subsequent physical moments of things are already in the world." (CE 421-444).

This difference shows that our unconsciously following a 'natural law' in our reasoning, which 'compels' us to think that objects do not (dis)appear without a cause (OC 135) does not point in the direction of TI, like Williams assumes the allusion to 'our nature' in the citation on top of this paper does.

Concluding Remarks

This result leaves us to question whether Williams' assessment of Wittgenstein's move from 0 to 0 is correct. Since 0's solipsism entails that empirical idealism is indiscernible from realism (cf. TLP 5.64) and that scepticism is not a sensible position (6.51), it is unlikely that this move was inspired by worries about its consequence, empirical idealism. Following Hintikka's (1966, 160) assessment of the early Wittgenstein's solipsism in 0, as asserting the *impossibility* of getting "beyond the boundaries of myself", the purported pluralised idealism of 0 rather seems to be an elaboration of the idea that solipsism, without being false, lacks linguistic expressibility (TLP 5.62; cf. PI secs. 24, 402-3). Thus, 0 is continuous with :

(i) "No part of experience is a priori" (TLP 5.634),

and elaborates this idea in the direction of a what Haller (1981 40) calls 'praxeological foundationalism'.

In contrast, Kant saw TI, and hence, the necessary apriority of time, as the only possible solution (A378) to answer the global scepticism that he took the empirical idealism of his peers to entail. Accordingly, the contingent a priority of causal statements in the later Wittgenstein fits in a strategy to deny the use Kantian semantics makes of a priori concepts and to base a conception of the a priori on a development of semantics.

In this conception pure intuition, or, rather, private ostensive definitions as the replacement of their philosophical equivalent, possible experience, play no role (cf. Coffa 1991, 22). Their role is taken over by notions like 'language game', 'forms of life' that produce 'grammatical propositions' of neither deniable nor assertable certainty.

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Einige Aspekte des Prozessierens von Zeit in den Geschichtswissenschaften

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In den im April 1930 abgeschlossenen *Philosophischen Betrachtungen* macht Ludwig Wittgenstein folgenden Eintrag: "Es ist klar daß wir im Stande sind Zeiträume als gleich zu erkennen. Ich könnte mir z.B. die Vorgänge im Gesichtsraum begleitet denken vom Ticken eines Metronoms oder vom Aufblitzen eines Lichts in gleichen Zeitabständen." (Wittgenstein 1994b: 4) Wittgenstein plädiert hier nicht nur dafür, "Zeit" für etwas Meßbares anzusehen, sondern auch dafür, Zeiträume, Zeitabschnitte vergleichend und vergleichbar zu halten. Historiker sind dazu, wozu Wittgenstein im Stande war, gewöhnlich nicht im Stande. Sie behandeln Zeiträume - oder allgemein Zeit - nicht als gleich, sondern verstehen sie mit Semantiken, mit unterschiedlichen Gewichten. Am Beginn der Geschichtsschreibung stand jedoch durchaus jene metronom-artige Gelassenheit der Beschreibung von Handlungen und Geschehnissen im Zeitverlauf. Die sogenannten *Frühlings- und Herbstannalen* beschrieben über Jahrhunderte (722-481 v. u. Z.) hinweg in vollkommener zeitlicher Regelmäßigkeit den Verlauf von Geschehnissen in der chinesischen Gesellschaft. (vgl. Lloyd 2002). In diesem Punkt unterscheiden sie sich in erheblichem Maß von der europäischen, mittelalterlichen Tradition der Annalistik, die keineswegs einem Prinzip zeitlicher Regelmäßigkeit folgte, sondern lediglich "bedeutsame" Ereignisse (kriegerische Auseinandersetzungen, Herrscherwechsel, Naturereignisse usw.) aufzeichnete. Sie überliefern keine Informationen "Jahr für Jahr", sondern - in unterschiedlichen zeitlichen Abständen - anlaßbezogen "Bedeutsames". So wie die frühe europäische Geschichtsschreibung agiert auch die moderne Geschichtswissenschaft. Sie beschäftigt sich mit (wie auch immer konstruierbar) Relevantem, nicht mit einer einem Prinzip der Gleichmäßigkeit folgenden Prinzip der Beschreibung von Ereignissen im Zeitverlauf. Während eine naheliegende Beschreibung der Geographie als zuständig für den (irdischen) "Raum" durchaus zutreffend sein mag, so wäre die ebenso naheliegende Beschreibung der Geschichtswissenschaften als zuständig für die "Zeit" empirisch sicher falsch, obgleich „Chronologie“ zu den so genannten Hilfswissenschaften der Geschichtswissenschaften zählt und obwohl eine solche Zuständigkeit in neueren Forschungsansätzen immer wieder angesprochen wurde (vgl. z. B. Friedland u. Boden 1995).

Man kann Zeit nicht nur als physikalische Größe, sondern auch als eine - mit aller Vorsicht - "anthropologische Konstante" ansehen. Sie organisiert gleichsam das menschliche Leben durch Ereignisse (z.B. Geburt und Tod), durch Zyklen (Unterschiede der Licht- und Temperaturverhältnisse bei Tag und Nacht, Unterschiede der Temperatur und Witterungsverhältnisse im Jahresverlauf in äquatorfernen Regionen) und durch pfadabhängige Prozesse (weil Zustand(t-1), deshalb Zustand(t)). Diese Organisationsprinzipien sind durchgängig beobachtbar, und zwar nicht nur in unterschiedlichen Kulturen, auch wenn unterschiedliche kulturelle Praktiken ihnen Rechnung tragen, sondern auch für weitere "lebende Systeme" im Sinne von Maturana und Varela (1990). Wir können - unter diesem Gesichtspunkt - von natürlichen Organisationsprinzipien sprechen. Eine Beschränkung der Zeiterfahrung auf den Menschen, wie Whitrow dies vorschlägt, ist daher wahrscheinlich zu kurz gegriffen. (vgl. Whitrow 1991) Whitrow meint, Tiere lebten

nur in der Gegenwart. An einer Stelle der *Philosophischen Bemerkungen* weist Wittgenstein auf eine bemerkenswerte Problematik der Wahrnehmung von Gegenwart und Vergangenheit: "Wenn ich die Tatsachen des ersten Systems mit den Bildern auf der Leinwand und die Tatsachen im zweiten System mit dem Bildern auf dem Filmstreifen vergleiche so gibt es auf dem Filmstreifen ein gegenwärtiges Bild, vergangene und zukünftige Bilder; auf der Leinwand ist nur die Gegenwart." (Wittgenstein 1994a: 23)

Auch die Geschichtswissenschaften orientieren sich an diesen natürlichen Organisationsprinzipien. Auch sie behandeln

- Zeitpunkt, als Ereignis, als Ursprung, als Endpunkt usw.;
- Zeitpfeil, als gerichtete Zeit mit entropischen Prozessen, als pfadabhängiger in der Zeit verlaufender Prozeß;
- Zyklische Zeit, im Hinblick auf das im großen wie im kleinen Maßstab Wiederkehrende.

Zusätzlich fügen sie eine ausschließlich kulturelle Dimension hinzu: sie behandeln

- Zeiträume als Epochen.

Diese vier Modi können leicht an vielen Beispielen der Historiographie nachgewiesen werden, sie sollen hier sehr abgekürzt diskutiert werden.

Zeitpunkt und Ereignis

Das Ereignis ist ein bedeutungsgeladener Ausschnitt aus seiner Sequenz von Geschehnissen, die als im Prinzip "nahe unendlich" gedacht werden kann. Die zeitliche Struktur eines Ereignisses ist nicht immer genau bestimmbar, läßt sich nicht immer auf einen genauen Zeitpunkt festlegen. Zwar kann vom Ereignis des 11. September gesprochen werden, und der Zeitpunkt der Berührung des Flugzeugs mit dem ersten der beiden Twin-Towers ist auf die Sekunde genau bekannt. In den Geschichtswissenschaften wird aber auch vom Ereignis des Ersten Weltkrieges, der immerhin mehr als vier Jahre dauerte und dem nichts Zeitpunkthaftes zugerechnet werden kann, gesprochen. (Zur Spannweite der Ereignis-Diskussion vgl. White 1999, Müller-Schöll 2003 bzw. Suter u. Hettling 2001; zum Spezialfalls des „historischen Augenblickes“ vgl. Hüttenberger 1984.)

Das Ereignis ist jedenfalls das, was erinnert wird, und zwar gewöhnlich weit über die Geschichtswissenschaften hinaus. Kriterium ist weniger die zeitliche Struktur, sondern das Bedeutungshafte, unabhängig davon, ob dem Ereignis Sinn zugeschrieben werden kann - wie Jörn Rüsen (2003) betont - wie am Beispiel traumatischer Ereignisse, die keinen Sinn bekommen, gezeigt werden kann (vgl. Alexander 2002).

Zeitpfeil und historischer Prozeß

Geschichtswissenschaften machen es sich über die Beschreibung von Vergangenem hinaus zur Aufgabe

"Erklärungen" für bestimmte Sachverhalte zu geben. Welcher Natur diese Erklärungen sind, war spätestens seit dem 19. Jahrhundert Gegenstand manchmal heftig geführter Debatten, auf die hier nicht eingegangen werden kann, obwohl gerade diese Frage den Wissenschaftsstatus der Geschichtswissenschaften am meisten prekär erscheinen läßt (vgl. die Diskussion bei Richard von Mises 1990.). Das aus der historistischen Tradition des 19. Jahrhunderts überkommene Prinzip der individuellen (i.e. ad-hoc-) Erklärung historischer Tatbestände wurde von verschiedenen Seiten (siehe nur Lamprecht-Streit, materialistische Geschichtsauffassung usw.) immer wieder herausgefordert, auf Gesetzmäßigkeiten in der Geschichte zu achten, bzw. diese herauszufinden.

Es ist das augenscheinlich Unumkehrbare, das Irreversible, im Zeitverlauf bei gleichzeitiger Denkbarekeit von Alternativen, das die Frage aufrecht erhält. Neuere Ansätze suchen daher im Rahmen von Entropieforschung und von Evolutionstheorie verschiedene Lösungen (vgl. u.a. Müller 2002, mit Beiträgen von G. Grössing, K.H. Müller u. A. Müller; mit Hinsicht auf evolutionistische Ansätze jüngst die Debatte mit Runciman 2005; Fracchia u. Lewontin 2005).

Zyklische Zeit

Die Rede von der "ewigen Wiederkehr des Gleichen" (Nietzsche) regte – wohl ebenso wie Alltagserfahrungen – das Geschichtsdenken, die Konzeptionen der Geschichtswissenschaften an. Die empirische Einlösung erfolgte zuerst im Rahmen jener Wirtschaftsgeschichte, die sich von der im ersten Drittel des 20. Jahrhunderts sich formierenden und stark anwachsenden Konjunkturforschung inspirieren ließ. Tatsächlich ließen sich unterschiedlich ausgedehnte Konjunkturzyklen (nach Kuznet, Kitchin, Juglar, Konratjew) historisch-empirisch beschreiben, und es entstand auf diesem Weg eine allerdings begrenzte Möglichkeit, aus historischen und jeweils gegenwärtigen Daten für die Zukunft zu extrapolieren und Prognosen anzustellen.

Auf der Makro-Ebene einer allgemeinen Menschheits- bzw. Weltgeschichte war es Oswald Spengler, der in *Der Untergang des Abendlandes* so etwas wie eine Zyklen-Theorie der Kulturen entwarf. Spengler, der in den "zünftigen" Geschichtswissenschaften nie besonders geschätzt wurde, jedoch eine erhebliche Breitenwirkung entfaltete (Wittgenstein meinte bekanntlich in den *Vermischten Bemerkungen*, Spengler habe ihn beeinflusst), arbeitet mit typischen Zyklenbildern und Zyklenmetaphern: Frühling, Sommer, Herbst und Winter einer Kultur, etwa oder Vorzeit, Kulturzeit und Zivilisation, wobei die Phase der Zivilisation jene vor dem „Untergang“ einer Kultur darstellt.

Zeitraum als Epoche

Geschichtswissenschaften und Historiographie verleihen distinkten Zeiträumen und -abschnitten eine bestimmte Bedeutung. Das trivialste Beispiel dafür ist die Einteilung der westlichen Geschichte in Antike, Mittelalter und Neuzeit, der auch heute noch subdisziplinäre Ausdifferenzierungen entsprechen. Solche einmal getroffenen, wenn gleich kaum gut begründbaren Unterscheidungen entwickeln eine ungewöhnlich hohe Wirksamkeit. Es ist ein erheblicher Unterschied, ob man vom in etwa gleichen Zeitraum vom "Herbst des Mittelalters" oder vom "Beginn der Neuzeit" spricht. Das fundamentale Prinzip der Perspektivität in den Geschichtswissenschaften wird hier

klar erkennbar (Perspektivität scheint mir die noch wichtigere Dimension, wichtiger jedenfalls als die sog. Zeitgebundenheit der Geschichte - *historia ancilla temporum*, meint Alexander Demandt 2002.). Dies gilt aber nicht bloß für die traditionellen Groß-Epochen der Geschichtswissenschaften, sondern auch für wesentlich kleinere Zeitabschnitte: Vom gleichen Zeitraum kann - mit einigem Erfolg - als vom "Faschismus in seiner Epochen" (Nolte) als auch vom "dreißigjährigen europäischen Bürgerkrieg" (Wehler) gesprochen werden. Zum Problem der Perspektivität tritt hier das Problem des Deutungsanspruchs und der Deutungsmacht.

Konstruktivität von Geschichte

Im Jahr 1929 notiert Wittgenstein: "Man kann natürlich sagen: ich sehe nicht die Vergangenheit sondern nur ein *Bild* der Vergangenheit." (Wittgenstein 1994a: 25) Tatsächlich gilt dies nicht nur für den Erinnernden oder für die Rezipienten von Historiographie, sondern auch für die Geschichtswissenschaften selbst. Es bleibt ein andauerndes Thema, daß Historikerinnen und Historiker das Bild der Vergangenheit nicht bloß "sehen", sondern zeichnen oder konstruieren und daß sie dabei Zeit prozessieren. Theodor Lessing (1983/1919) hat unter dem Eindruck des Ersten Weltkrieges bereits nachdrücklich auf die Konstruktionsleistung von Historikern hingewiesen: „Geschichte als Sinngebung des Sinnlosen“ und „Logificatio post eventum“, sind die beiden Schlagworte. Dies gilt auch dann, wenn sich die Geschichtswissenschaften ihres typischen Mixes an empirischen Verfahren bedienen (vgl. Müller 2001).

Gebhard Rusch hat in den letzten beiden Jahrzehnten in einer umfassenden Monographie (1987) und zahlreichen weiteren Beiträgen (z.B. 1997, 1999) eine konstruktivistische Fundierung der Geschichtswissenschaft ausgearbeitet. Ruschs Beiträgen komplementär sind jene weltweit rezipierten Arbeiten von White (1986, 1990, 1991) oder Berkhofer (1995), die die sprachliche und rhetorische Fundierung von Geschichtswissenschaft und Historiographie betonen. Zugleich wird dieser Ansatz auch durch die Analyse von „Geschichtsbildern“ unterstützt (vgl. z.B. Schmid 2000).

Geschichte ergibt auf diese Weise und auf der Basis selektiven Erinnerns und Vergessens (Weinrich 1997) – um eine Bemerkung Niklas Luhmanns (1997) aufzugreifen – die Selbstbeschreibung der Gesellschaft, die allerdings auch in anderen Medien (vgl. z.B. Müller 2004) möglich ist. Die Grenzen zu anderen wissenschaftlichen Disziplinen (vgl. Müller 2003) und kulturellen Medien sind dabei durchlässig.

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Clockworks Everywhere. Cycles of Self-Organized Criticality in Science, Economy, Arts, Society

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In this article a new perspective on societal clocks and clockwork-mechanisms will be proposed which moves well beyond the traditional view of cycles and periodic movements. Initially, the article will demonstrate that a variety of societal ensembles exhibits apparently cyclic movements, ranging from the economic sphere to the technology arena, to the science fields and even to artistic domains. Interestingly, the most commonly used explanation sketches for these domains turn out to be structurally isomorphic. In the subsequent sections the paper will present an alternative view on the dynamics and on the generative mechanisms for seemingly cyclical movements which are based on the framework of self-organized criticality (SOC). It is suggested that the SOC-framework is not only able to reproduce these seemingly cyclical movements in science, economy, arts or society, but possesses also a considerable number of comparative advantages with respect to the traditional cyclical models.

Schumpeter Clocks, Kuhn Clocks and Much More

Cycles, most notably the cycles between day and night, and clockworks based on these cycles have been the basis for introducing the notion of time and measurement devices for time across societies, ancient and otherwise. Moreover, cycles have been introduced into historiography from its very beginnings and have become a dominant structuring metaphor from Thucydides to Arnold J. Toynbee, Oswald Spengler and beyond. Turning to the explanatory side of cyclical movements it becomes interesting to note that two highly influential explanation sketches on a cyclical evolution in the economy and in science originated in a short period of time within a very small location. Joseph A. Schumpeter was Professor for Economics at Harvard where he published his voluminous work on business cycles. Schumpeter died in 1951.¹ Two years before, Thomas S. Kuhn received his Ph.D in physics at Harvard where he stayed until 1956 when he moved on to the University of California at Berkeley. Either out of pure co-incidence and chance or out of a more complex web of reasons both Joseph A. Schumpeter and Thomas S. Kuhn produced an identical structural explanation sketch for cyclic movements in the fields of economy and science. The Schumpeter-sketch on the diffusion of innovations can be summarized in the following manner.

The starting point lies in the diffusion of an economic innovation which, initially, has been proposed by a small set of risk-loving, imaginative and inventive firms and which, in due course, finds acceptance and is imitated by the other segments of the economic network, too. After a long period of successful implementations and diffusions, the economic network approaches an area of critical thresholds, simply because the advantages of further expansions are locked in along a path of decreasing returns and reach saturation limits. Having passed these thresholds however, the economic network undergoes a phase transition: it changes from a mode of expansion into a mode of rationalization. During this period, both an

extensive rationalization of the existing innovation design and a search process for new alternatives set in. Due to the fact that, on the one hand, the probability for search processes increases and, on the other hand, successful innovations are imitated, amidst a low profitability environment, in a comparatively rapid manner, the economic network will be driven, once again, in a critical threshold area whereby, after a short scramble period, in which one innovation turns out to be the most successful one, a new diffusion of an economic innovation sets in which, initially ... At this point the innovation cycle has been completed and reproduces itself *ad infinitum*, since a large number of firms participates in this process and decides, each for itself, in a matter of "bounded rationality".

Turning to the Kuhn-sketch the resulting sketch looks very similar at a structural level since only a few words have to be substituted. The economic innovation changes to a scientific paradigm, firms become research-groups, profit squeezes turn into accumulation of anomalies, etc.

The starting point lies in the diffusion of a scientific paradigm which, initially, has been proposed by a small set of risk-loving, imaginative and inventive research groups and which, in due course, finds acceptance and is imitated by the other segments of the scientific network, too. After a long period of successful problem solutions and diffusions, the scientific network approaches an area of critical thresholds, simply because the advantages of further expansions are locked in along a path of a decreasing problem solving effectiveness and produce an increasing number of anomalies. Having passed these thresholds however, the scientific network undergoes a phase transition: it changes from a mode of expansion into a mode of crisis. During this period, both an extensive adaptation of the existing paradigm design and a search process for new alternatives set in. Due to the fact that, on the one hand, the probability for search processes increases and, on the other hand, successful paradigms are imitated, amidst a low problem solving environment, in a comparatively rapid manner, the scientific network will be driven, once again, in a critical threshold area whereby, after a short scramble period, in which one innovation turns out to be the most successful one, a new diffusion of a scientific paradigm sets in which, initially ... At this point the innovation cycle has been completed and reproduces itself *ad infinitum*, since a large number of research groups participates in this process and decides, each for itself, in a matter of "bounded rationality".

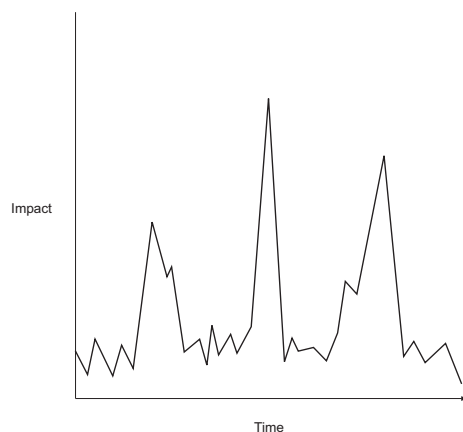
In turn, both sketches can be synthesized into a structural skeleton which can be applied to various areas outside science and the economy, most notably to cultural and artistic fields. New artistic styles, generated by single artists, groups or schools can be integrated into the subsequent structural skeleton in the same way as new life-styles which are explored by avant-garde groups, etc.

¹ On Schumpeter's work see above all Schumpeter 1954 or 1961.

The starting point lies in the diffusion of a configuration which, initially, has been proposed by a small set of risk-loving, imaginative and inventive network actors and which, in due course, finds acceptance and is imitated by the other segments of the network, too. After a long period of successful expansion and diffusions, the actor network approaches an area of critical thresholds, simply because the advantages of further expansions are locked in along a path of a decreasing effectiveness and produce an increasing number of un-intended effects. Having passed these thresholds however, the actor network undergoes a phase transition: it changes from a mode of expansion into a mode of consolidation. During this period, both an extensive adaptation of the existing designs and a search process for new alternatives set in. Due to the fact that, on the one hand, the probability for search processes increases and, on the other hand, successful configurations are imitated, amidst a lowly effective environment, in a comparatively rapid manner, the actor network will be driven, once again, in a critical threshold area whereby, after a short scramble period, in which one configuration turns out to be the most successful one, a new diffusion of a configuration sets in which, initially ... At this point the innovation cycle has been completed and reproduces itself *ad infinitum*, since a large number of network actors participates in this process and decides, each for itself, in a matter of "bounded rationality".

Following these three explanation sketches a substantial amount of research has been directed towards the specification of appropriate models for cyclical movements most notably in economics. Utilizing more and more advanced methods of time series analysis, several types of economic cycles have been proposed, ranging from a long term technology based Kondratieff cycles to medium term population-driven Kuznets cycles of 15 to 25 years up to short term business cycles of roughly four to six years. As a consequence of the multiplicity of different cycles time series data on innovation or investment exhibit an empirical pattern like the one depicted in Figure 1. Here, a time series shows several long-term peaks which are accompanied by periods of smaller ups and downs.

Figure 1: A Paradigmatic Configuration for Long-Term Cyclical Movements



Moreover, the explanation sketch by Joseph A. Schumpeter is considered as a paradigmatic example for a long-term cyclical movement where one can observe a succession of a diffusion process of a basic innovation, followed by a saturation phase which, in turn, is overcome by a new diffusion phase. Numerous models of Schumpeterian dynamics have been proposed as

generative mechanisms for this type of behaviour and the term Schumpeter-clock has become well-established in the economics literature, although, as Schumpeter himself noted, this type of innovation clock has to be qualified as a notoriously inadequate timing device.²

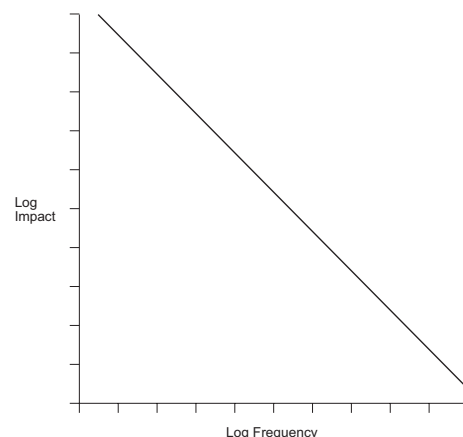
Towards Clockworks with Self-Organized Criticality (SOC)

Instead of following the path of cycles and cyclical movements, a radically new framework will be proposed which offers an entirely different perspective on the underlying generative mechanisms for various types of cycles. The new framework runs under the heading of self-organized criticality and has been developed by Per Bak and several collaborators in a number of articles and books.³ Self-organized criticality refers to a generic class of dynamic systems which are characterized by a high compositional complexity⁴, by both local and global interactions, by relatively slow dynamics, and, most importantly, by critical thresholds and phase-transitions. Dynamic configurations which organize themselves into a state of self-organized criticality can be described by a small set of general parameters and exhibit characteristically a power law distribution. In general, these power laws can be specified in the form of equation (1) where the number N of innovations with a certain impact can be expressed as a power of that impact:

$$N(i) = i^{-\tau} \quad (1)$$

As a consequence, the spectacular breakthroughs and the massive diffusion of new technologies are not seen as a single long-term recurrent cycle but as the peaks in a power law distribution of innovations which can be represented via Figure 2. Here, very large scale innovations with a massive impact lie in the upper end of a straight line on a double logarithmic scale whose lower end is marked by a large number of small or incremental innovations with minor impacts only. In short, basic innovations with a high i -magnitude are a rare occurrence only and incremental innovations with small i -values happen very frequently.

Figure 2: Self-organized Criticality and Power Law Distribution



² On Schumpeter clocks see e.g. Mensch 1977 or Weidlich/Haag 1983.

³ On self-organized criticality see Bak 1996, Jensen 1996 and for additional background material Barenblatt 2003 or Laughlin 2005.

⁴ Compositional complexity refers to, following Nicholas Rescher (1998), either to the number of building blocks or to the variety of different building blocks in a given ensemble.

Innovation Landscapes, Novelty, and Phase Transitions

Bringing in SOC-clocks with a seemingly cyclical behaviour of major outbursts in the form of economic, scientific, artistic or life-style revolutions needs a large amount of additional specification work since societal SOC-models should not be constructed along the paradigm cases of sandpiles, earthquakes or forest-fires. For SOC-clocks within societal arenas like the economy or scientific fields several domain-specific requirements and conditions must be put forward which are necessary for this type of process to emerge.

First, societal SOC-processes require a central overall performance criterion which is able to fulfil the role of fitness within biological SOC-models. Turning to the two frameworks by Schumpeter and Kuhn it is quite obvious that profits and problem solving or, more specifically, problem solving effectiveness⁵ are among the strong candidates for such an overall measure since average profits or average problem solutions are the crucial parameters for the reproduction of firms in an economic network or theories in a web of research programs.

Second, a societal innovation landscape is, in contrast to sandpile-avalanches, not characterized by a steady inflow of identical new elements. On the contrary, societal innovations can be separated by at least two different dimensions, namely by their degree of novelty and by their diffusion potential. The degree of novelty can be accounted for by the distinction between product and process innovations, whereas the diffusion potential leads to a distinction between basic and local innovations. Basic innovations are those which can be copied, incorporated or used by a large segment of an economic network. According to this definition, basic product innovations have the potential to diffuse throughout an economic web and start their diffusion process from a hitherto unoccupied niche of an economic network.

Third, the specification of an innovation landscape has to be undertaken in an entirely non-metaphorical way. Innovations typically do not occur on the top of already existing peaks, but in areas far apart and in the periphery of the central economic clusters. Considering the sequence of major innovation clusters, namely textiles, railroads, electro-chemical industries, automobiles it is interesting to note that these leading sectors started in peripheral areas within their overall economic landscapes. "Extremal dynamics is the universal key to self-organized criticality ..." (Bak 1996:135) Thus, existing data on the input-output structure of an economy have to be used for the construction of an innovation landscape, with well-defined center-periphery relations and distances between various sectors or clusters.

Fourth, self-organization alias selection plays an essential role within the SOC-framework since only a single cluster is able to pass a critical threshold for reconfiguring the entire economic landscape. In technology studies a lot of attention has been given to the fact that winning leading sectors were at various points in time highly contested with apparently attractive alternatives. The cluster of canals and steam-ships counted among the alternatives to railroads and cars at the turn of the 20th century exhibited a wide variety of engines and fuels.

Fifth, the diffusion of a cluster of product innovation leads to a phase transition and to a reconfiguration of the entire innovation landscape. It comes as no surprise that all leading clusters so far have been situated in the infrastructural domain of transport, energy and most recently information and have transformed the entire landscape into a new shape with new qualities and potentials.

Generative Mechanisms of Self-organized Criticality

It must be noted that the new approach to seemingly cyclical processes possesses considerable comparative advantages. First, self-organized criticality is able to account for a large class of complex dynamic systems which can be found in geological, biological or societal domains. In this respect, SOC qualifies as a highly trans-disciplinary framework and its models as robust with respect to different domains. Second, spectacular breakthroughs and incremental innovation are no longer seen as independent from each other, but as necessary and as recursively closed. Big spurts set the stage for smaller ones which, in turn, give rise to big ones. Third, self-organized criticality operates with a few key parameters only and puts its main emphasis on power law distributions which can be tested rather easily.

As a last step in this paper an explanation sketch will be offered which is able to synthesize the discussion so far. Here, the Schumpeterian explanation scheme undergoes a series of transformations and will be reformulated as a SOC-sketch in the following way.

An economic network is characterized by a steady proliferation of innovations, some of them in the contested terrains of already existing network clusters, some of them in the extremal area with low barriers to overcome. In the extremal arena, some of the innovations, due to their high inter-dependencies, form special clusters which, due to their infra-structural scope, are characterized by a high diffusion potential for the overall economic network. Once a new basic cluster has passed a critical distance to its existing alternatives, a major reconfiguration of the economic network sets in and shifts the established boundaries for contested and extremal terrains. Moreover, the new cluster of basic innovations finds acceptance and is incorporated by other segments of the economic network, too. After a long period of successful implementations and diffusions, the economic network undergoes a phase transition, simply because the advantages of further expansions are locked in along a path of decreasing returns and reach saturation limits. Consequently, the basic innovation cluster changes from a mode of expansion into a mode of rationalization or optimization. During this period, an extensive standardization of the existing innovation cluster which, however, has its limits and saturation barriers, too. Out of a sudden however, a new basic innovation cluster becomes visible in the periphery of the economic network. Due to the fact that the new infra-structural cluster offers high comparative advantages amidst a low profit and highly standardized environment, the new basic cluster is utilized in a comparatively rapid manner. Thus, the economic network will be reconfigured, once again, into a new landscape which, *inter alia*, shifts the established boundaries for contested and extremal terrains. In this way, the economic network exhibits a behavior of self-organized criticality, with very few major innovation clusters with a large impact for reconfiguring the economic

⁵ On problem solving effectiveness as an overall criterion for the evaluation of research programs, see above all Laudan 1977, 1981 or Donovan/Laudan/Laudan 1988.

landscape and with a large number of small innovations, some of them in the extremal domain, some in the contested arenas. Micro-economically, this type of system can reproduce itself *ad infinitum*, since a large number of firms participates in this process and decides locally, each for itself, in a matter of bounded rationality.

It would go well beyond this short paper to demonstrate the large number of comparative advantages associated with this specific SOC-sketch. Some of the most intriguing of these advantages lie in a radically different specification of societal innovation landscapes or in the recognition that a large number of small innovations, whether in science, economy, arts or life-styles, become necessary to generate large-scale breakthroughs and *vice versa*.

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Time in Cultural Analysis

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Time is on my side (The Rolling Stones)

This paper refers to relevant concepts of time and space in cultural theory (Cassirer, Assmann/Assmann (1990), Benjamin and others). It asks to what extent time is relevant for the understanding of culture/Culture in a broader sense (T.S. Eliot, Eagleton). It discusses the question which understanding of time is relevant for traditional and for (hyper)modern cultures.

In his theory of the *heterotopos*, Michel Foucault (1990) argues that the 19th history was obsessed by the idea of accumulating the past. It was, as he argues, the century of time. As Foucault points out, the 20th century, at least in its second half is/was - in contrast - an age of space, that means an époque of iuxta-position of the near and the far.

Traditionally, culture can be defined by the idea that it accumulates time. However, storing time also means that it disappears. Culture entails the promise of stable identity, of preventing change: that nothing disappears, that all is saved by the technique of storing. There are media of storing (writing, printing etc.) and there are techniques of decoding (techniques of remembering for example). In traditional concepts of culture but also in premodern cultures, the mode of time is *long durée*: duration, continuance, permanence or – to use a spatial metaphor - length. The myth which constructs at the same time the structure of traditional memory is a narrative matrix which organises the stability of a community against time and against forgetting. All the relevant symbolical material is saved by the myth which is ritualised in the calendar of the year. It is an archive before the archive. Wittgenstein, as far as he was interested in culture, was a more or less traditional thinker who like Hermann Broch was a keen reader of Spengler's *Decline of the Occident* (*Untergang des Abendlandes*). His contribution to cultural theory can be seen in his concept of *Sprachspiele* which are based on the idea of a stable grammar in and of culture. As in many other traditional theories of culture, in Wittgenstein, time is a dimension which is not in the centre of theoretical interest. One could say that traditional cultural theories are based on writing and on traditional material, such as stone and book. It was writing which enables the real possibility and the imagination that culture is a fixed, more or less unchangeable entity which delivers a fixed identity. So, the aspects which dominates in traditional cultures and also concepts of culture is duration (*Dauer*), the fixed time.

Ernst Cassirer's *Philosophie der symbolischen Formen* (*philosophy of symbolic forms*) is the only relevant theory of culture with a strong philosophical ambition and a clear post-kantian structure. It culminates in the idea to show and to demonstrate that philosophy itself is embedded into culture, that means in the ensemble of symbolic forms. Therefore, philosophy becomes a part of philosophy of culture. But as his analysis of the myth demonstrates, Cassirer neglects the narratological aspect of myths, the mere fact that myths are narratives with a certain and specific structure. He analyses myth only with regard to its rationality, to its logical structure and its *truth*, that means as a symbolic construction of reality parallel to sciences, language and arts.

Semiology and media theory have developed methodological tools which are more exact than Cassirer's concept of symbolic forms (which is a theory before the linguistic turn) in which two levels are mixed: the semiotic aspect (the difference between writing and icon/picture), and the relationship between systems of knowledge (myth and science). It is astonishing that Cassirer's philosophy also does not refer to the new phenomena in modern culture in his time, as film, electronic transmission of images (television) and language/music (radio) and also to the combination of semiotic systems. As one can show, all those new cultural and communicative media have a structure in which time is not only relevant but constitutive. However, it is Cassirer's merit that he has put the question as to whether traditional philosophy has to be embedded in a cultural context. The challenge of his theory is the idea to transform philosophy into a cultural theory which interprets philosophy and the sciences as one symbolic form, one access of the mind to *reality* which is not privileged compared to others (as arts and myth).

Modernity and hyper-modernity can be seen as an age in which the traditional concept of culture does not disappear at all but is overlapped by new cultural mechanisms: the individual and subjective *down-loading*, the recycling of the archive and the invention of the future by recollecting elements of the past and of present times, the importance of immediate time ("Just in time"). Past is available but no longer as a dreadful threat as it was for Marx, Nietzsche and Foucault. All that means that time does not disappear or become a phenomenon of second range but changes radically. In modern culture as in cultural analysis of our days, the temporal aspect becomes more and more relevant. In contrast to Foucault, one could say that the dominance of time in 19th century has not been substituted by the dominance of space; the relation between space and time, however, has dramatically changed especially since the existence of digital machineries in our cultures.

As the discourse about memory and reminding and concepts of narratology indicates (Bal (2002), Borso & Görling (2004), Müller-Funk (2002)), time has become an unavoidable key term in cultural analysis. There is no such thing as cultural memory without a kind of remembering that has a narrative structure. In contrast to the phantasm of immutability, memory passes in a process of discontinuity and re-contextualisation. In analogy to literary theory, it is important to differentiate between *Erzählzeit* (*time of story- telling*) und *erzählter Zeit* (*time of the events which will be told*).

It was Paul Ricœur (1986) who has shown that the structuralistic analysis of narratives fails in a decisive aspect. This aspect is time. In his analysis of time and narrating, the French philosopher connects the famous analysis of time in Saint Augustine's *Confessions*, which were extraordinarily important for Heidegger's *Sein und Zeit* (*Time and Being*), with Aristotle's analysis of myth. Thus, he can show that time is the key term for the understanding of the narrative structure. But one may also argue that time in its qualitative moments is structured by story- telling. But what is striking, is the aspect, that narrating is a *conditio sine qua non* for *downloading* of a specific kind of memory which has to do with subjective

reminiscence and identity. So, identity will be constructed and reconstructed always in an act of narrating. Culture is - to use a word from the ecological discourse - a form of recycling.

So one could say that all *post-structuralist* approaches bring back the aspect of time in the field of Cultural Analysis and Cultural Studies. In contrast to traditional concepts of cultural history the focus of theoretical interest moves from length to movement, from product to process, from stable identity to dynamic diversity. From linearity to discontinuity.

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Absolute und erlebte Zeit. Zur Richtigkeit geschichtlicher Darstellungen

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Von den verschiedenen in der Philosophie bekannten Zeitbegriffen seien für die vorliegende Untersuchung zwei herausgegriffen: Die „absolute“, physikalische, kalendarische Zeit und die Zeit, die im menschlichen kognitiven und emotionalen Geschehen das Weltbild mitbestimmt. Dieser zweite Zeitbegriff ist vor allem hier zu untersuchen, immer im Zusammenhang mit und in Gegenüberstellung zur physikalischen, kalendarischen Zeit. Dabei soll

- A. zunächst auf Zeitbegriffe eingegangen werden, die in historischen Darstellungen Anwendung finden und untersucht werden, ob die verwendeten Zeitbegriffe die Darstellungen so weit beeinflussen können, dass Ungenauigkeiten, Verzerrungen, sogar Verfälschungen entstehen können,
- B. weiters gezeigt werden, dass sich aus dem (noch näher zu erläuternden) Begriff der „erlebten“ Zeit zwingend ethische Implikationen ergeben,
- C. erörtert werden, ob und wie weit wir in der Lage und berechtigt sind, über Vergangenes moralische Urteile zu fällen.

A. Die *eine* Sichtweise, die einem alltäglichen Zeitbegriff wie auch den Anforderungen der exakten Zeitmessung entspricht, suggeriert einen Charakter von Zeit als einen Strom, objektiv bestehend, dinghaft und messbar. Es ist der Zeitbegriff, der unserer Uhrzeit entspricht. Ein *anderer*, ebenso alltäglicher Zeitbegriff erscheint in Ausdrücken wie „ich habe keine Zeit“, „das ist nicht zeitgemäß“, „zeitlos“ usw. Hier verschwindet der dinghafte Zeitcharakter, Zeit ist hier als „Reflexionsbegriff“ im Sinne Kants aufzufassen, als ein Begriff, der sich sinnvoll nur unter Bezug auf andere Begriffe des Verstandes oder der sinnlichen Wahrnehmung anwenden lässt.

Sage ich: „ich habe Zeit“, „die Zeit vergeht schnell“, „das ist nicht zeitgemäß“ und Ähnliches, meine ich nicht eine messbare Zeit im physikalischen Sinn, sondern eine „Ich-Zeit“, eine erlebte Zeit, die in ein subjektives Urteil eingeht. Bei der Aussage „ich habe Zeit“ sind einige aus Verstand und sinnlicher Wahrnehmung hervorgegangene Begriffe durch verstandesmäßige Reflexion aufeinander bezogen, miteinander verglichen worden: Die Uhrzeit, die geschätzte Dauer der geplanten Tätigkeit, das Wissen um den Zeitpunkt einer weiteren Verabredung, vielleicht auch das persönliche Interesse an der Person, der man mitteilt, Zeit zu haben usw. Heißt es „die Zeit vergeht mir schnell“ so drückt sich darin aus, dass mir Wahrnehmungen oder den Verstand beschäftigende Informationen in einer Zeitspanne zugehen, die ich als kurz empfinde. Hier treffen von außen kommende sinnliche Eindrücke und Informationen auf meine Erwartungshaltung. Am Ausdruck „die Zeit vergeht schnell“ zeigt sich eine eigentümliche Zweideutigkeit des verwendeten Zeitbegriffs: mit „schnell“ meinen wir schnell gegenüber einer mit Uhr und Kalender bestimmten absoluten Zeit. Wir stellen hier unbewusst zwei Zeitbegriffe einander gegenüber, den Strom der messbaren, absoluten Zeit und die Zeit als Reflexionsbegriff, den wir aus Handlungen und Wahrnehmungen schöpfen und der uns das Gefühl von Schnelligkeit gegenüber der absoluten, gemessenen Zeit gibt. „Zeit“ als Reflexionsbegriff ist ein „lebendiger“ Zeitbegriff, man

könnte sagen: die meiner eigenen Lebenswelt innewohnende Zeit. Auch bei Wittgenstein findet sich ein Hinweis auf die beiden Zeitbegriffe, wenn er von der „Übertragung des Zeitbegriffs der physikalischen Zeit auf den Verlauf der unmittelbaren Erlebnisse“ spricht und die „Verwechslung der Zeit des Filmstreifens mit der Zeit des projizierten Bildes“ kritisiert (*Philos. Bemerkungen*, V, 48-56).

Verwandt mit der hier vorgetragenen Zeitauffassung ist eine von Leibniz in einer Kontroverse zwischen ihm und Newton vertretene Meinung. Newton vertrat die Idee einer absoluten Zeit, die zusammengeht mit der Idee eines absoluten Raumes und, daraus folgend, einer absoluten Bewegung. Leibniz dagegen war der Meinung, zeitliche Bestimmungen müssten sich durch Beziehungen zwischen Messpunkten an sich verändernden Zuständen ausdrücken lassen, eine unabhängig davon bestehende Zeit gebe es nicht (Relationalismus). Dass Zeitgefühl auch ohne Raum und Bewegung möglich ist, zeigt folgendes Beispiel: Wenn ich Durst bekomme, den ich früher nicht gehabt habe, verweist das deutlich empfundene „früher“ auf ein Gefühl für Zeit ohne jedes Raumempfinden. Die Leibniz'sche Auffassung entspricht eher den vorliegenden Überlegungen und steht dem „lebendigen“ Zeitempfinden näher, auch wenn Leibniz physikalische Anwendungen seiner Auffassung nicht ausgeschlossen hat. „Lebendiges“ Zeitempfinden impliziert, dass wir als Wahrnehmende und Handelnde in eine uns umgebende Lebenswelt eingeschlossen sind und unser jeweiliges Zeitempfinden von dieser Lebenswelt mitbestimmt wird. Wie nun zu zeigen sein wird, führt die erlebte Zeit zu zwingenden ethischen Konsequenzen.

B. Der absoluten, nach Newtons Auffassung von uns unabhängigen Zeit stehen wir gleichsam passiv gegenüber; sie kann als von unseren Handlungen unabhängig gedacht werden, wie das z.B. bei physikalischen Beobachtungen der Fall ist. Zumeist aber sind menschliches Denken und Handeln eingeschaltet, das sind in der Zeit ablaufende aktive Prozesse, die notwendigerweise mit Sollen und Wollen verknüpft sind. Aus dieser logischen Verbindung mit Sollen und Wollen ergibt sich als weitere Konsequenz ein ethisches Moment für alle Vorgänge, die sich in der lebendigen, gelebten Zeit als menschliche Handlungen oder durch menschliche Handlungen verursacht abspielen. Das gilt sowohl für gegenwärtige, als auch für Handlungen, die der Historiker in die Gegenwart zurückholt. Dieses inhärente ethische Moment ruft zur kritischen Beurteilung des moralischen Status geschichtlicher Ereignisse auf, auch wenn es nur um die Zweckmäßigkeit von Handlungen zur Erreichung moralisch vertretbarer Ziele geht.

Historische Forschung trägt zunächst Fakten auf der Zeitachse der absoluten Zeit auf. Dabei kann sie aber nicht stehen bleiben, denn es ergeben sich sofort Fragen nach kausalen Zusammenhängen, nach Motiven handelnder Personen, kurz, nach Verknüpfungen im weitesten Sinn, was einen Übergang von der absoluten zur gelebten Zeit bedeutet. Wann immer wir zurückblicken auf vergangenes menschliches Handeln, kommt daher unvermeidlich die Frage, warum so oder so gehandelt

wurde, ob nicht auch anders gehandelt hätte werden können usw., und damit erscheinen die oben erwähnten moralischen Fragen.

Hier zeigt sich ein grundsätzliches Problem für den Historiker und für uns Nachfahren: Da die historische Darstellung handelnder Personen immer zur Frage führt, ob sie so handeln mussten oder auch anders hätten handeln können, müsste, um ein gerechtes Urteil abzugeben, der damalige Kontext, die damalige Lebenswelt rekonstruiert werden. Das ist eine im besten Fall nur näherungsweise lösbare Aufgabe. Denn zu fordern wäre hier eine exakte Rekonstruktion des Stands der Wahrnehmungen, Kenntnisse, Wünsche, Gefühle der damals Handelnden; all das müsste in unsere Gegenwart zurückgerufen werden. Und sollte das gelingen, bleibt doch bestehen, dass wir Heutige als Urteilende andere Kenntnisse und Einstellungen haben und schon aus diesem Grund niemals ein volles Verständnis für Vergangenes zu erwarten ist, ein Verständnis in dem Sinn: ja, so hätten wir auch gehandelt.

Diese Kontextgebundenheit scheint für viele Phänomene ohne Bedeutung zu sein, für Phänomene von „messbarem“ Charakter. Damit sind gemeint neben kalendarischen Daten die statistischen Angaben aller Art, Bevölkerungszahlen, Produktionsmengen, Stärken von Armeen usw., Beschreibungen von technischen, naturwissenschaftlichen, medizinischen Errungenschaften etc. Trotz der Möglichkeit, diese Daten exakt in die Gegenwart zu übertragen, bleibt ein Problem bestehen: Wie alle diese messbaren Phänomene von den damals Lebenden aufgenommen und interpretiert, gutgeheißen oder verurteilt wurden, welche Gefühle hervorgerufen wurden, wird sich einer exakten Übertragung in die Jetztzeit entziehen oder nur in einzelnen Fällen gelingen, wenn die persönliche Erinnerung Überlebender die Daten stützt. Umso schwieriger wird es, wenn es nicht um Messbares geht, sondern um emotionale Reaktionen gegenüber Regierungen, um Glaubensfragen, moralische Positionen von Betroffenen gegenüber Kriegen, Revolutionen, wirtschaftliche Umwälzungen usw. Dann versagt eine historisch exakte Wiedergabe völlig.

An dieser Stelle sei auf einen weiteren Umstand hingewiesen, der die Sachlage noch verwickelter macht: Die erlebte Zeit verläuft, abhängig vom Beobachter, beobachtetem Phänomen und Kontext unterschiedlich schnell. Fassen wir, wie in der Geschichtsschreibung zumeist üblich, zuerst große und spektakuläre politische Ereignisse ins Auge, wie etwa Kriege, Revolutionen, Friedensverträge, dann weiter Fortschritte auf technischen, medizinischen und ökonomischen Gebieten und schließlich, als ein drittes Gebiet des Geschehens, die Lebensgewohnheiten breiter Bevölkerungsschichten, so zeigt sich, dass im historischen Rückblick die Zeit in den großen spektakulären Ereignissen am schnellsten, im Bereich der Lebensgewohnheiten, des „privaten Lebens“ dagegen am langsamsten zu verstreichen scheint, dass hier auch eine gewisse Neigung zum Festhalten an Traditionen besteht, ein bewusstes Bremsen gegen Veränderungen, wogegen in anderen Gebieten der „Fortschritt“ aktiv betrieben wird. Der Geschichtsschreibung ist das nicht neu, insbesondere, seit auch das private Leben, das untergründig neben der „großen Geschichte“ abläuft, thematisiert wird (z.B. Braudel, der den Begriff der „longue durée“ für jenen langsam ablaufenden Zweig der Geschichte geprägt hat). Dazu kommt, dass das Tempo der Veränderungen zwischen sozialen Schichten, zwischen Stadt und Land, Völkern, Nationen usw. differiert. (Die interessante Frage nach den

Gründen für die Unterschiede im subjektiven Zeitempfinden muss hier offen bleiben. Vielleicht besteht ein Zusammenhang mit den Informationsmengen, die jedes Subjekt treffen). Eine Folge dieses unterschiedlichen Zeitbewusstseins, welches die Eindrücke so wahrnimmt, als würden sie verschieden schnell ablaufen, ist jedenfalls, dass diese Eindrücke auch als unterschiedlich intensiv empfunden werden; was langsam verläuft, sich kaum zu verändern scheint, wird vom schnell veränderlichen Geschehen, dem das Merkmal des Überraschenden, Sensationellen anhängt, in den Hintergrund gedrängt. Das gilt für unsere Vorfahren ebenso wie für uns, die wir die Vergangenheit beurteilen. Früher standen andere Ereignisse im Zentrum der Aufmerksamkeit als heute. Der Historiker, der uns Vergangenheit in *allen* Erscheinungsformen nahe bringen soll, müsste auch Unterschiede im Tempo der erlebten Zeit berücksichtigen.

C. Soweit die Sachlage. Damit komme ich zum letzten Teil der Überlegungen. Wir fühlen uns also berechtigt und verpflichtet, uns Vergangenes zu vergegenwärtigen, um danach unser eigenes Verhalten auszurichten und von unseren heutigen Positionen aus sachliche und moralische Kritik an den Handlungen unserer Vorfahren zu üben. Auch wenn ein kritisches Urteil immer möglich ist, erhebt sich doch die Frage, ob es auch gerecht sein kann angesichts der Tatsache, dass die Kontexte, in denen die Menschen früher gehandelt haben, weitgehend unbekannt bleiben und wir nur aus der Position unserer gegenwärtigen Lebenswelt urteilen. Müsste man diese Frage verneinen, wäre zu folgern, man könne aus der Geschichte nichts lernen und dürfe auch an vergangenen Handlungen nicht Kritik üben, insbesondere keine moralische. Das wäre sicherlich eine falsche Folgerung. Was ist also der Rahmen, den wir bei unserer Kritik und unserem Lernen aus der Geschichte beachten müssen? Einige Fallbeispiele können zur Klärung dieser Frage beitragen.

Angenommen, das Ziel einer Handlung sei nach früherer wie nach heutiger Auffassung moralisch vertretbar, die angewendeten Mittel nach *früherem* Kenntnisstand ebenfalls, nach *heutigem* dagegen abzulehnen. Diese Fälle betreffen z.B. Medikamente, deren schädigende Nebenwirkungen unbekannt waren, Baustoffe wie Blei oder Asbest usw. Fast immer geht es um Fragen in Technik, Naturwissenschaften oder Medizin. Eine kritische Beurteilung in solchen Fällen ist immer berechtigt, nicht aber eine moralische Verurteilung, wie das leider manchmal geschieht.

Auch in einem anderen Extremfall ist die Entscheidung leicht. Ein solcher Fall liegt vor, wenn vergangene Ereignisse und Handlungen nicht allein aus *heutiger* Sicht verwerflich erscheinen, sondern von solcher Art sind, dass wir annehmen müssen, sie würden zu allen Zeiten verurteilt werden. Bei solchen Ereignissen, die den Charakter eines ungeheuerlichen Bruchs menschlicher Tabus haben, erübrigt sich die Frage, ob wir auch ohne Kenntnis der damaligen begleitenden Umstände urteilen dürfen. Ein Beispiel dafür ist der Holocaust.

Wirklich problematisch aber wird die Frage nach Richtigkeit und Berechtigung von Urteilen bei Ereignissen, die in moralischer Hinsicht früher anders beurteilt wurden als heute. In unserem Kulturkreis werden z.B. bei Beziehungen zwischen den Geschlechtern die Abweichungen von den offiziell gültigen Normen heute viel milder beurteilt als noch vor hundert Jahren. Die diesbezügliche Einstellung hat sich rasch verändert, nachdem sie lange Zeit hindurch unverändert war. In anderen Kulturkreisen ist sie gleich geblieben, obwohl

auch dort die kalendarische Zeit um hundert Jahre weitergegangen ist. Ein Beispiel für das unterschiedliche Tempo von erlebter und kalendarischer Zeit.

Ein anderes Beispiel: Durch Jahrtausende waren monarchische Staatsformen im Kontext damaliger Traditionen, Überzeugungen, Gewohnheiten ganz selbstverständlich. Wir sehen in der verbreiteten Tendenz zu demokratischen Staatsformen einen Fortschritt im Sinne einer wünschenswerten Veränderung, würden aber doch nie unseren Vorfahren eine moralische Verfehlung vorwerfen, weil sie so lange in monarchischen Systemen gelebt haben und bereit waren, diese zu verteidigen, so wie wir heute unsere demokratischen.

Sklaverei bestand seit der Antike, wurde aber in den Vereinigten Staaten erst 1865 endgültig abgeschafft. Wir verurteilen Sklaverei heute und obwohl sie sicherlich härter zu verurteilen ist als etwa monarchische Staatsformen, bleibt unsere Entrüstung doch vergleichsweise gering. Wir sehen in der Sklaverei eine durch menschlichen Fortschritt überwundene Denkweise. Und was die Antike betrifft, gehört Sklavenhaltung so sehr zum Bild jener Zeit, dass das Leben damals anders gar nicht denkbar und in ökonomischer Hinsicht auch nicht funktionsfähig gewesen wäre.

Es ließen sich noch mehr Beispiele bringen für historische Phänomene, die wir zwar heute eindeutig ablehnen, moralisch aber doch nicht so hart verurteilen wie etwa den Holocaust. Die Praktiken der Inquisition oder der mittelalterlichen Gerichtsbarkeit, Menschenopfer bei den Mayas usw. wären hier zu nennen. All diese Fälle sind beispielhaft für unsere Urteile über Vergangenes. Aber es scheint nicht möglich, allgemein verbindliche Regeln anzugeben, wie solche historischen Fakten in moralischer Hinsicht beurteilt werden sollen. Am ehesten drängt sich das Bild auf, dass bei den genannten Beispielen unsere Vorfahren positive oder doch wenigstens nach unseren Maßstäben tolerierbare Ziele verfolgt haben, allerdings mit Mitteln, die wir heute entschieden ablehnen, dass wir aber immer dann milder urteilen, wenn wir Ziele und Mittel rückständigen und inzwischen überwundenen Ideologien und religiösen Vorstellungen zuschreiben können. Unser Gefühl für Fortschritt und die Überzeugung, urteilen und verurteilen zu dürfen, gehen Hand in Hand.

Es wurde schon darauf hingewiesen, dass der Strom der absoluten, kalendarischen Zeit und die lebendige, von Individuen erlebte Zeit verschieden schnell ablaufen können. Auch zwischen Individuen gibt es Unterschiede im Tempo der Veränderung ihrer Lebensweltbilder und im Tempo, wie Individuen darauf reagieren. So wird es immer wieder geschehen, dass einzelne „fortschrittlicher“ denken als andere. Auch entstehen die Veränderungen der subjektiven Lebenswelten nicht nur durch Einflüsse außerhalb menschlicher Einwirkungen, sondern auch in den Individuen selbst. Darum läuft die erlebte Zeit bei verschiedenen Personen, Gruppen, Nationen verschieden schnell. Die Einbindung in die eigene Lebenswelt und das Festhalten an ihrer Tradition kann so stark sein, dass selbst naturwissenschaftliche Einsichten verweigert werden durch Personen, deren geistiger Rang außer Zweifel steht (Goethes Farbenlehre, Einsteins Suche nach verborgenen Parametern, Machs Ablehnung der Atome). Ohne diesen Gedanken hier weiter zu verfolgen, sei darauf verwiesen, dass auch die *Möglichkeit* eines Paradigmenwechsels in den Wissenschaften (nicht der Paradigmenwechsel selbst) mit der Bereitschaft einzelner Personen erklärt werden kann, die langsamere Zeit des traditionellen Geschehens mit einer schnelleren erlebten Zeit zu vertauschen.

Ich hoffe gezeigt zu haben, was sich hinter der im Sprachgebrauch ganz selbstverständlichen Vermischung von absoluter und erlebter Zeit verbirgt und welche Einsichten durch eine Trennung, eine Entmischung dieser Zeiten zu gewinnen sind: Einerseits wird die Problematik deutlicher, die beim Versuch von „richtigen“ historischen Darstellungen und berechtigten moralischen Urteilen über Vergangenes entsteht. Andererseits wird auch ein wichtiger Grund gezeigt, wieso der Eindruck von Rückständigkeit oder Fortschrittlichkeit von Personen oder Gruppen eintreten kann. Er erklärt sich im unterschiedlichen Tempo der erlebten Zeiten dieser Personen oder Gruppen, deren Handlungen in ihrer Geschwindigkeit ja immer der erlebten Zeit entsprechen. Eine gewisse Ironie liegt darin, dass wir uns kaum jemals bewusst machen, wie sehr auch unsere eigenen Urteile vom Tempo unserer eigenen erlebten Zeit abhängen, wie weit wir selbst fortschrittlich oder rückständig sind.

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A Logical Analysis of A Series and B Series

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Introduction

McTaggart's alleged proof of the unreality of time consists of the following six steps.

1. Time can be described either as an *A series* or a *B series*.
2. Time cannot exist without change.
3. There is no change without an *A series*.
4. The reality of the *A series* leads to a contradiction.
5. There is no *A series*. (Conclusion from 4)
6. Time is not real. (Conclusion from 2, 3, 5)

The controversial step in this proof is the fourth one. Dummett (1960) and Mellor (1998) supported McTaggart's proof for the fourth step, whereas many prominent *A theorists* have rejected it (cf. Oaklander and Smith (1994) for recent discussions on this issue). The following analysis will show that *A* and *B series* are, actually, closely related and that bilateral translations between both representation systems are possible. It will be also demonstrated that a consistent theory for *A series* can be constructed.

1. A Rational Reconstruction of B Series

According to McTaggart, time positions can be linearly ordered by a particular relation (Citation is from Poidevin and Macbeath (1993)):

Each position is Earlier than some and Later than some of the other positions. To constitute such a series there is required a transitive asymmetrical relation, and a collection of terms such that, of any two of them, either the first is in this relation to the second, or the second is in this relation to the first. (p. 24)

Actually, this description is rather misleading; the relation should be transitive, *antisymmetrical*, and comparative. I call series of time positions characterized in this way *simple B series*.

(1) Theory for *simple B series*

- B1. Transitivity: $(t_1)(t_2)(t_3)$ (if $t_1 < t_2$ & $t_2 < t_3$, then $t_1 < t_3$).
B2. Antisymmetry: $(t_1)(t_2)$ (if $t_1 < t_2$, then not $(t_2 < t_1)$).
B3. Comparativity: $(t_1)(t_2)$ ($t_1 < t_2$ or $t_1 = t_2$ or $t_2 < t_1$).

A *simple B series* consists of positions that are linearly ordered by relation $<$. In discussions about McTaggart's time theory, a *B series* is usually identified with this *simple B series*. However, McTaggart also (probably without clearly noticing it) suggested another type of *B series* which I call *complex B series*. A *complex B series* consists of not only time positions but also events that are contents of time positions.

The series of positions which runs from earlier to later, or conversely, I shall call the *B series*. The contents of any position in time form an event. The varied simultaneous contents of a single position are, of course, a plurality of events. But, like any other substance, they form a group, and this group is a compound substance. And a compound substance consisting of simultaneous events may properly be spoken of as itself an event. (p. 24)

Here, McTaggart characterizes time positions as equivalence classes of events. As far as I know, nobody has tried to formalize this idea of McTaggart. It is one of the tasks of this paper.

(2) Core theory for *complex B series*

Theory for *simple B series*: B1&B2&B3.

B4. For any event e there is unique time position t that has e as a content. $(e)(\exists! t) \text{ content}(e, t)$.

In order to characterize time positions as equivalence classes of events, we need besides B4 another axiom IET that expresses the impossibility of *empty times*.

IET. For every time position t there is an event e that is a content of t . $(t)(\exists e) \text{ content}(e, t)$.

McTaggart seems to have accepted IET, but it is not necessary to form a *complex B series*. Hence, I treat IET only as an optional axiom and do not include it in the *theory of complex B series* (TCB).

By using relation *content*, function *time-position* can be defined. The definability of this function is guaranteed by B4. The introduction of this function enables one to define the fundamental *B-relations*, i.e. *earlier* and *simultaneous*, as well as *tense relations*, i.e. *Past*, *Now*, and *Future*.

(3) The *theory of complex B series* (TCB) consists of axioms B1-B4 and definitions BD1-BD6.

BD1. t is *time-position* of event e iff e is a content of t . $(t)(e) (t = \text{time-position}(e) \text{ iff } \text{content}(e, t))$.

BD2. Event e_1 is *earlier* than event e_2 iff $\text{time-position}(e_1) < \text{time-position}(e_2)$. $(e_1)(e_2) (\text{earlier}(e_1, e_2) \text{ iff } \text{time-position}(e_1) < \text{time-position}(e_2))$.

BD3. Event e_1 is *simultaneous* with event e_2 iff $\text{time-position}(e_1) = \text{time-position}(e_2)$. $(e_1)(e_2) (\text{simultaneous}(e_1, e_2) \text{ iff } \text{time-position}(e_1) = \text{time-position}(e_2))$.

BD4. Event e is *past* at t iff $\text{time-position}(e) < t$. $(t)(e) (\text{Past}(t, e) \text{ iff } \text{time-position}(e) < t)$.

BD5. Event e is *present* at t iff $\text{time-position}(e) = t$. $(t)(e) (\text{Now}(t, e) \text{ iff } \text{time-position}(e) = t)$.

BD6. Event e is *future* at t iff $t < \text{time-position}(e)$. $(t)(e) (\text{Future}(t, e) \text{ iff } t < \text{time-position}(e))$.

Here, we can see that TCB uses four different types of relations, whereas the *simple B series* contains only one relation $<$.

Type <event, event>: *earlier*(e_1, e_2), *simultaneous*(e_1, e_2).

Type <time position, time position>: $t_1 < t_2$.

Type <event, time position>: *content*(e, t).

Type <time position, event>: *Past*(t, e), *Now*(t, e), *Future*(t, e).

The following proposition is an immediate consequence from BD1 and BD5.

Proposition 1. Event e is *present* at t iff e is a content of t . $(t)(e) (\text{Now}(t, e) \text{ iff } \text{content}(e, t))$.

Now, we can prove that TCB characterizes events properly.

Theorem 1. It follows from TCB that events are *weakly linearly ordered*, namely relations *earlier* and *simultaneous* satisfy the following conditions.

1. *simultaneous* is an equivalence relation, i.e. reflexive, symmetric, and transitive.
2. *earlier* is a partial order, i.e. irreflexive and transitive.
3. Weak Comparativity: $(e1)(e2)$ (*earlier*($e1, e2$) or *simultaneous*($e1, e2$) or *earlier*($e2, e1$)).

Proof. The first condition follows immediately from BD3. The second follows from B1, B2, and BD2. The third follows from B3, B4, and BD1-BD3.

It is especially important that tense relations are definable within TCB, so that statements that involve tense become expressible there. For example, we can express "at $t1$, $e1$ is past, $e2$ is present, and $e3$ is future" by formula $Past(t1, e1) \ \& \ Now(t1, e2) \ \& \ Future(t1, e3)$. This suggests that TCB can express *A properties*.

2. A Rational Reconstruction of A Series

An *A series* is a series of time positions or events that are characterized by three *tense predicates*, i.e. *past*, *present*, and *future*. McTaggart's *A series* has three essential properties. First, tense is described as a property of events and not as an operator on propositions. Second, change is expressed through change of tenses. Third, he talks about how far (in the past or in the future) an event is. I call this characterization of tense *flux-view of tense*, which McTaggart explicates by using an example of the death of Queen Anne.

"But in one respect it does change. It was once an event in the far future. It became every moment an event in the nearer future. At last it was present. Then it became past, and will always remain past, though every moment it becomes further and further past." (p.26)

Inspired by McTaggart's *A series*, Prior proposed *tense logic*. However, tense logic does not satisfy any of the three features of the *flux-view of tense*. The standard tense logic does not have the operator of presence and it cannot express the distance of an event from the present time. Contrarily, I propose to use tense predicates, *P*, *N*, and *F* for *past*, *present* and *future* respectively and to interpret $FFN(e)$ as *more future than FN(e)*. By using this idea, I will define the *theory of complex A series* (TCA) and show that TCA satisfies all of McTaggart's requirements for *A series*. At first, I introduce some notations.

(4) Recursive definition of CTPs (*compound tense predicates*)

The set of CTPs is the smallest set that satisfies the following conditions.

- CTP1. *P*, *N*, and *F* are CTPs.
CTP2. If *X* is a CTP, then *PX*, *NX*, and *FX* are CTPs.

(5) Let *Y* be a *simple tense predicate*, i.e. *P* or *N* or *F* and *X* be a CTP.

- A0. Axioms that characterize *k* as integer.
N1. $(e) (Y(*0)X(e) \text{ iff } X(e))$.
N2. $(e) (N(*1)X(e) \text{ iff } X(e))$.
N3. $(k)(e) (Y(*k+1)X(e) \text{ iff } Y(*k)YX(e))$.
N4. $(k)(e) (F(*k)X(e) \text{ iff } P(*k)X(e))$.
N5. Definition of *indexed tense predicate* $Y[k]$: $(k)(e) (Y[k](e) \text{ iff } F(*k)Y(e))$.
We call $F(*k)Y(e)$ a CTP in *F-form*.

By using (5), we can reduce any CTP to a CTP in *F-form* and then to an *indexed tense predicate*. For example,

$PPNFFNNPPPPFF(e)$ is reducible to $P(*2)N(*1)F(*2)N(*2)P(*3)F(*2)F(e)$, i.e. $F(*1)F(e)$, i.e. $F[-1](e)$. The fact that time flows in direction to the future can be described by saying "index *k* in $F(*k)$ becomes always greater". Now, TCA can be defined.

(6) The *theory of complex A series* (TCA) consists of the following axioms and definitions.

- A1. Any event, sometime, becomes present. $(e) (E! k) F(*k)N(e)$.
A2. If event *e* is present, then *e* is not past. $(k)(e) (if F(*k)N(e), \text{ then not } (F(*k)P(e)))$.
A3. If event *e* is present, then *e* is past at the next moment. $(k)(e) (if F(*k)N(e), \text{ then } F(*k+1)P(e))$.
A4. If event *e* is past, then *e* remains past at the next moment. $(k)(e) (if F(*k)P(e), \text{ then } F(*k+1)P(e))$.
AD1. Future events are events that are neither present nor past. $(k)(e) (F(*k)F(e) \text{ iff } (not(F(*k)N(e)) \ \& \ not(F(*k)P(e))))$.

In order to demonstrate that TCA really describes the *flux-view of tense*, let us suppose that *d* represents the death of Queen Anne. Then, *d*'s change in the *A series* can be visualized as follows, where the right most tense shifts from future to present and from present to past:

..., $PPF(d)$, $PF(d)$, $N(d)$, $FP(d)$, $FFP(d)$,...

The same series can be described by using *F-form*, where index *k* in $F(*k)$ becomes always greater:

..., $F(*2)F(d)$, $F(*1)F(d)$, $F(*0)N(d)$, $F(*1)P(d)$, $F(*2)P(d)$,...

It can be also described by using *indexed tense predicates*:

..., $F[-2](d)$, $F[-1](d)$, $N[0](d)$, $P[1](d)$, $P[2](d)$,...

Now, the *flux-view of tense* can be expressed by using *indexed tense predicates*, when we accept that every moment the index becomes greater. For the sake of simplicity, let us assume that the death of Queen Anne took place at 0. Then, McTaggart's former description can be interpreted as follows.

- "It was once an event in the far future": $F[k](d)$, where *k* is a large negative integer.
"It became every moment an event in the nearer future": Every moment, *k* approaches closer to 0.
"At last it was present": $N[0](d)$.
"Then it became past": $P[1](d)$
"and will always remain past, though every moment it becomes further and further past": $P[k](d)$, for any *k* that is greater than 0.

Next, to reject McTaggart's claim of inconsistency of *A series*, I prove the following theorem.

Theorem 2. TCA is consistent.

Proof. Let *Z* be the set of integers and *R* be the set of real numbers. Suppose *M* to be a two-sorted structure $\langle\langle R, Z \rangle, I \rangle$ with interpretation function *I*, such that $I(k)$ is-in *Z*, $I(N) = \{a: 0 \leq a < 1, a \text{ is-in } R\}$, $I(P) = \{a: a < 0, a \text{ is-in } R\}$, $I(F) = \{a: 1 \leq a, a \text{ is-in } R\}$, $I(F(*k)N) = \{a: I(k) = a < I(k)+1, a \text{ is-in } R\}$, $I(F(*k)P) = \{a: a < I(k), a \text{ is-in } R\}$, and $I(F(*k)F) = \{a: I(k)+1 \leq a, a \text{ is-in } R\}$. Then, you can easily examine that *M* verifies all axioms of TCA. Thus, TCA is consistent, because it has a model.

Theorem 3. TCA implies T1 and T2.

- T1. If *e* is present, then *e* was future before. $(k)(e) (if F(*k)N(e), \text{ then } F(*k)PF(e))$.
(i.e. $(k)(e) (if F(*k)N(e), \text{ then } F(*k-1)F(e))$).

T2. If e is future, then e was future before. $(k)(e)$ (if $F(*k)F(e)$, then $F(*k)PF(e)$).
(i.e. $(k)(e)$ (if $F(*k)F(e)$, then $F(*k-1)F(e)$)).

Proof. Suppose $F(*k)N(e)$. Then, because of A1, not $(F(*k-1)N(e))$. Furthermore, because of A2 and A4, not $(F(*k-1)P(e))$. Thus, $F(*k-1)F(e)$ follows from AD1. Therefore, T1 holds. Next, suppose $F(*k)F(e)$. Then, because of A3 and AD1, not $(F(*k-1)N(e))$. Similarly, because of A4 and AD1, not $(F(*k-1)P(e))$. Thus, $F(*k-1)F(e)$ follows from AD1. Hence, T2 holds.

3. Relations between complex A series and complex B series

As we have seen, a *complex A series* and a *complex B series* are closely related. In this section, I will examine connections between these two. For this task, the following *bridging sentence* plays an essential role.

BS. Event e is a content of k iff e is $F(*k)N$. $(k)(e)$ (content(e,k) iff $F(*k)N(e)$).

By using BS, we can prove that TCA is strong enough to derive TCB and that tense relations correspond to CTPs in F -form.

Theorem 4. TCB follows from TCA and BS.

Proof. B1, B2, and B3 follow from A0. B4 follows from A1 and BS. BD1-BD6 hold, because they are definitions.

Theorem 5. It follows from TCA and BS that tense relations correspond to CTPs, namely the following sentences hold:

TC1. $(k)(e)$ (Past(k,e) iff $F(*k)P(e)$).

TC2. $(k)(e)$ (Now(k,e) iff $F(*k)N(e)$).

TC3. $(k)(e)$ (Future(k,e) iff $F(*k)F(e)$).

Proof. TC2 is obvious from BS, because $(k)(e)$ (Now(k,e) iff $k = \text{time-position}(e)$ iff content(e,k) iff $F(*k)N(e)$). From A2, A3, and A4, $(k)(m)(e)$ (if $F(*k)N(e)$, then (if $k < m$, then $F(*m)P(e)$)). We assume, at first, $F(*k)N(e)$. Now, suppose that there is j with $j < k$ & $F(*j)P(e)$. Then, it follows from A4 that for any n with $j < n$, $F(*n)P(e)$. However, this contradicts to $F(*k)N(e)$. Thus, $(k)(m)(e)$ (if $F(*k)N(e)$, then (if $F(*m)P(e)$, then $k < m$)). Now, we have $(k)(m)(e)$ (if $k = \text{time-position}(e)$, then $(F(*m)P(e) \text{ iff } k < m)$). This implies TC1. TC3 follows from TC1, TC2, B3, AD1, BD4-BD6, and Theorem 4.

To derive TCA from TCB and BS, we need A0 additionally, because TCA assumes that k is an integer.

Theorem 6. TCA follows from TCB, A0, BS, and TC1-TC3.

Proof. A1 follows from B4 and BS. Because of BD1 and BS, $(k)(e)$ ($F(*k)N(e)$ iff content(e,k) iff $k = \text{time-position}(e)$). Because of TC1 and BD4, $(k)(e)$ ($F(*k)P(e)$ iff $\text{time-position}(e) < k$). Then, A1-A4 follows from A0 and B1-B3. Furthermore, AD1 follows from B3, BD4-BD6, and TC1-TC3.

Conclusion

Our careful examination has shown that McTaggart's A and B series should be understood as *complex A* and *complex B series* respectively. I have also demonstrated how to characterize both series axiomatically and have proven consistency of *complex A series*. Furthermore, the fundamental correlations of both complex series have been explicated.

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Can Wittgenstein Explain our Knowledge of Meaning? A Pragmaticist Revision of his Conceptions of Interpretation and Criteria

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1. Introduction: The Problem with Wittgenstein's Explanation of Meaning.

In this inquiry I analyze Wittgenstein's conceptions of *use* and *criteria* for the meaning of our language. I interpret his conception of *explanation of meaning* of a word in its use in the language (PI: §43; PI: §49) and show that the knowledge of meaning of words must precede their use in language; otherwise, how may the members of the linguistic community know how to use them (PI §§197-202)? Hence, we have to explain how the communal conventions of meanings are established and used. I argue that Wittgenstein's conception of *ostensive teaching* of a language is central to the infant's acquisition of meaning conventions on her way to mastering the language (BB:17, PI: §§27-49). We cannot start our inquiry assuming the already existing communal meaning conventions because the problem is to explain their acquisition and how humans develop and operate their social communication (Bloor, 1997; Habermas, 1998). Hence, we face a paradox of learning in Wittgenstein's Investigations: the only possibility of acquiring word meaning is *inside* the verbal language-game, yet the *ostensive teaching* for the Meaning of the word cannot be a move in any language-game. Consequently, the infant cannot learn the word meaning either inside or outside a language-game. Therefore, in Wittgenstein's Grammatical Philosophy we cannot explain how language is learned and taught: either we already know mysteriously the language-games or we can never know them (Plato, *Meno*:80e).

The next problem is to understand what the *criterion* is for learning and using the meaning of the word in the language-game. We face a Fregean difficulty because if the criterion is a private-subjective experience, how do we know that different persons experience the same phenomenon, and if the criterion is external to the language-game and to our experience, how do we know that our experience represents it truly? Wittgenstein's device to maintain his conception of meanings in the language-game is similar to Frege's conception of objective Platonic *thoughts*, while Wittgenstein replaces them by his communal *conventions*, which come from nowhere (Neshet, 1987, 2002:X).

My conclusion is that we have to revise Wittgenstein's Grammatico-Phenomenological conception of *criteria* within the Pragmaticist theory of meaning and truth. The *criterion* of meanings should be the *proof* or nonverbal perceptual *quasi-proof* of the truth of their interpretation in propositions, which makes them *clear* by being *true* representation of reality (Neshet, 2002, 2004).

2. Wittgenstein's Conception of Explanation of Meaning of Words by their Use.

According to Wittgenstein the meaning of the word is given by the *grammatical rule* of a *language-game* which

connects a word with a specific criterion for its meaning in the language-game. Following the *grammatical rule of meaning* is performed according to our *conventions* about how to use this specific word in a proposition while asserting it in the language-game (Hintikka, 1986:201ff.).

[1] The Grammatical Rule of Meaning:

$\text{Meaning}(\text{Word}) = \text{Grammatical Rule}(\text{Word} \rightarrow \text{Criterion})$

According to Wittgenstein we can learn the meaning of a word either *inside* the language when someone explains a word for us by using other words whose meanings we already know, or by *ostensive teaching*, when someone shows us an object *outside* the language that the word is about. When Wittgenstein says "Let the use *teach* you the meaning" (PI: §212) he means that we can learn the rule of meaning of the word from the use of the word by others who already know its meaning. This *use* is the *criterion* for learning the *rule of meaning* and we cannot identify the *meaning* itself with the *use*, as some suggest (Neshet, 1992). To describe our use of the verbal language, Wittgenstein extended the framework of language to what he calls the *language-game*. This extension includes nonverbal activities, tools, samples, and objects, i.e., "the field of use of the expression" (Malcolm, 1958:50), pertaining to the operations of the language itself (PG §29; PI §§6, 7, 16, 23, 50).

[2] The Use of Language Expression:

$\text{Use}(W) = [\text{Rule of Grammar (Known Meaning}(W) \rightarrow \text{Application to "field of use" }]) \rightarrow \text{Use}^d]$

Accordingly, to know how to use a word is to know the rule of grammar operating the word with its *known meaning*, and applying it in the specific field of use (Use^d) of the language-game. The knowledge of word meaning must *precede* its use and only in *ostensive teaching* of words to an infant does she first learn the meanings of rules and words. Thereby we can see clearly how one can learn a verbal language without knowing any implicit conventions about the meanings of its expressions.

3. Wittgenstein's Problem with Ostensive Learning.

The predicament of *ostensive teaching* is that if it is a language-game then how the infant learns such a language-game without knowing any verbal language. Clearly, she learns the first conventions of a language-game instinctively and practically outside any verbal language-game, and she must learn it with her private pre-verbal language. According to Wittgenstein, however, without *public criteria* there cannot be any objective understanding of meanings of rules and words. This is probably the reason why Wittgenstein tries to avoid calling *ostensive teaching* a language-game and regards it only as a preparation for the language-games.

We may say: *nothing* has so far been done, when a thing has been named. It has not even *got* a name except in the language-game. This is what Frege

meant too, when he said that a word had meaning only as a part of a sentence. (PI §49)

We can see how Wittgenstein's problem with the *ostensive teaching* is connected to his rejection of the conception of private language (PI:174ff., 378ff.; BB:3-4). This paradoxical situation about how an infant learns the meaning of the first words in language can be due to Wittgenstein restricting the conception of learning to the verbal language alone. Consequently one has to learn verbal language meanings in a language-game one does not yet know; therefore, it is impossible to learn verbal-language, and with non-verbal language there cannot be any *certain* communication (PI: §202). Hence, the infant learns her first language-game with pre-verbal cognitive communication. Similarly we can explain the entire development of the language-game, how humans start to use language.

Our language-game is an extension of primitive behavior. (Z §545)

But what is the word "primitive" meant to say here? Presumably that this sort of behavior is *pre-linguistic*: that a language-game is based *on it*, that it is the prototype of a way of thinking and not the result of thought. (Z §541)

The explanation of the ostensive teaching must start from the instinctive and practical components of our perceptual operation and how they represent external reality and terminate in true judgments. This is Wittgenstein's difficulty with the relation of the basic empirical propositions to external reality. According to his Grammatico-Phenomenology, our "picture of the world" is the "reality" against which we evaluate other propositions (OC §§94f.; PI §§354-5).

The propositions describing this world-picture might be part of a kind of mythology. (OC §95)
If the truth is what is grounded, then the ground is not true, nor yet false. (OC §205)

However, the criteria for meaning and truth are both in the system of language-games and constitute its foundations (OC §§80ff.). For Wittgenstein, the ostensive definition is problematic as a move to establishing meaning because it does not have the *certainly* he claims grammatical rules to have (PI §§31ff.). For him only rational justification inside the language-game can be certain, and such justification is based on already accepted *empirical propositions* of our inherited background. Yet this relation of linguistic expressions to their meaning *criteria* is the most primitive and genuine grammatical relation: without it the grammatical rules *in the language* cannot be established.

4. Wittgenstein's "Paradox of Interpretation" and the Meaning of Rules, Words, and Propositions.

In his discussion on the interpretation of meaning of rules Wittgenstein shows that under some understanding of *interpretation* we arrive to a paradox about following rules.

But how can a rule shew me what I have to do with at this point? Whatever I do is, on some interpretation, in accord with the rule.--not what we ought to say, but rather: any interpretation still hangs in the air along with what it interprets, and cannot give it any support. Interpretations by themselves do not determine meaning. (PI:§198)

This is the case with Wittgenstein's kind of hermeneutic conception of *interpretation*.

This was our paradox: no course of action could be determined by a rule, because every course of action can be made out to accord with the rule. The answer was: if everything can be made out to accord with the rules, then it can also be made out to conflict with it. And so there would be neither accord nor conflict here.

It can be seen that there is a misunderstanding here from the mere fact that in the course of our argument we give one interpretation after another; as if each one contented us at least for a moment, until we thought of yet another standing behind it. What this shows is that there is a way of grasping a rule which is *not an interpretation*, but which is exhibited in what we call "obeying the rule" and "going against it" in actual cases.

Hence there is an inclination to say: every action according to the rule is an interpretation. But we are to restrict the term "interpretation" to the substitution of one expression of the rule for another. (PI:§201)

I argue that Wittgenstein's "Paradox of Interpretation", as I call it, comes from a wrong conception of *Interpretation*, like the "liar paradox" which comes from a wrong conception of *truth* (Neshet, 1997). Wittgenstein's conception of *Interpretation* is of endless operations in which we replace "one interpretation after another." The epistemological base of this conception of interpretation is Wittgenstein's Phenomenological conception of language-game, neither inside nor outside of which can we reach any *confrontation* with *reality* (PG: §68). Yet only by such confrontation we can prove the *truth* of our *interpretation* without continuing it endlessly. But without such proof "Interpretations by themselves do not determine meaning." Due to this paradoxical situation, Wittgenstein rejects *Interpretation* as a way of understanding the meanings of expressions (Baker & Hacker, 1984:19).

To overcome the "paradox of interpretation" Wittgenstein had to invent a mysterious conception of "grasping a rule which is *not an interpretation*" (PI: §201). Without having any epistemological explanation of how we learn the rules, understanding them and controlling their use, we cannot distinguish between "obeying the rule" and "going against the rule" in actual cases", which is only a description of a behavior in respect to already established conventions. Therefore, we have to accomplish a radical revision of the epistemology of our acquiring the meaning and the truths of our cognitions (Tarski, 1969; Neshet, 2002). I suggest moving from the premisses of Wittgenstein's grammatico-phenomenological conception of knowledge of meanings to Pragmaticist realism, to understand the *criterion* not as the phenomenon but as the *proof of the truth of the interpretation of the meanings* of our cognitive signs to "make our ideas clear", to know their *meanings*.

5. Wittgenstein's Conceptions of Criteria and Symptoms and how they are Distinguished.

Without Wittgenstein's mysterious "grasping", what are the *criteria* for the pre-verbal behavior for creating and learning new conventions of a verbal language-game? According to Wittgenstein, the tacit presuppositions of our language-games are our basic *empirical propositions*, the basic "descriptions" of our form of life activities. These are the indubitable *criteria*, our norms against which we measure

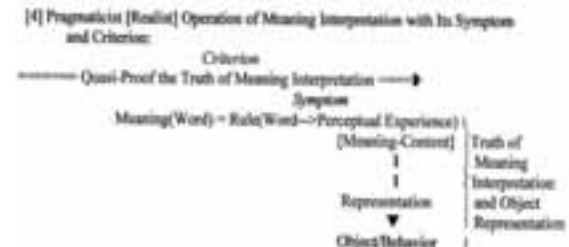
the truth and falsity of other propositions, the meanings of their words, and our right or wrong behavior in following the rules of our language-games (OC: §§94ff.). But how we acquire these *criteria* and how is the conception of the *criteria* distinct from the conception of *symptoms*? Some interpreters suggest that the distinction is not comprehensive and systematic because it follows a variety of the ordinary language usages of these terms. Wittgenstein suggests a relative distinction between *criteria* and *symptoms* because it is not clear how the normative criterial justifications of meaning and truth differ from the empirical inductive logic of symptoms (BB:24-25, 51, PI: §§322ff., 354f.). The distinction between criteria and symptoms seems to be between the grammar of conventions and the sense-impressions experience by which we acquire the former (OC: §§94ff.). Our basic propositions are our basic conventions but as such cannot be derived from other conventions, and since they are not just arbitrary propositions, they must be somehow proved to be true representation of our reality. Without confrontation of the language-game system with reality through the sense-impressions experience, our common-sense world-picture will remain only *mythology* without any explanation of the development of our form of life through replacement of the norms of one language-game by the norms of a new one (OC:§94ff.). But Wittgenstein, in his Grammatico-Phenomenological Investigations, cannot explain such confrontation with reality.

[3] Wittgenstein's Rule of Meaning and the Criterion or Symptom for Its Application:



What is the Criterion by which we "explain" or "define" the Meaning of the Word? Some Wittgensteinians call the explanation of the nature of the criteria for the meanings of the rules and words in the language-game "criterial semantics", as distinct from "truth-conditions semantics." What is the nature of this Criterion? Is it for the *meaning* of the word or for the *truth* of the ostensive teaching, or for both? According to Wittgenstein it is for the meaning of the word, but since the first basic words can be learned only in the *ostensive teaching* how a private experiential phenomenon can be an objective criterion for the meaning of its name? Therefore, the *true perceptual representation of the name's object* is constitutive for the *criterion* in the *ostensive teaching*. The *Meaning of the word* and the *Truth of the ostensive teaching* are connected, and without them the entire move cannot work. Wittgenstein's epistemological problem lies in his severing the connection between the *interpretation* of cognitive meanings inside the language and the representation of reality outside it. This must lead to an endless series of interpreting criteria and to the impossibility of representing reality. The question is whether Wittgenstein can explain the meaning of our language without connecting the experiential meaning-content and the truth of such experience. The experience of the *feeling of meaning* can only be the *symptom* of understanding the meaning of the word, and not its *criterion*, if it has to be a conventional norm and therefore certain. The *symptom as feeling the meaning* of a word is one's reflection on the relation between the word and the *meaning-content of experiencing* an object. If the feeling of meaning of a word is only the *symptom of understanding* its *initial-vague meaning*, how may we establish it as *clear meaning*? The *criterion* for such meaning cannot be any phenomenal experience or external object but rather the *quasi-proof of the truth* of our *interpretation* of the initial-

vague meanings of the components of the perceptual judgment. The conception of *quasi-proof*, which I developed from the Peircean cognitive semiosis, is the perceptual instinctive self-controlled proof of our perceptual judgments (Nesher, 2002). The following is a Pragmaticist-Realist reconstruction and an alternative to Wittgenstein's rule of meaning in ostensive teaching.

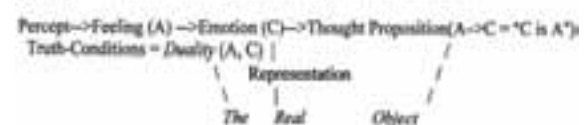


Here the *symptom* is the Feeling of initial-vague Meaning-Content of one Perceptual Experience with Object/Behavior. The *criterion* is the *quasi-proof* of the *truth of the Interpretation* of the *initial-vague meanings* synthesized in the Perceptual Judgment *Representing* the real Object/Behavior. Hence, the feeling of "wet and cold" is only a Symptom of experiencing rain, the initial-vague feeling of Meaning-Content which without the proof the truth of its interpretation is still doubtful (PI: §354). This is distinguished from the Wittgensteinian conception of the *criteria* as phenomena which belong to the grammar of language-game without being proved a true representation of external reality, and which thus can be defeasible (McDowell, 1983:369ff.). This Pragmaticist epistemology of the Criterion as the Quasi-Proof of the Truth of the Interpretation of Meaning is not the *truth-conditional conception of meaning*. It is not the *truth-conditions* that determine the meaning of the Word but the *criterial proof* upon the truth-conditions, which are components of the proof operation (Nesher, 2002).

6. Conclusion: Pragmaticist Theory of the Truth of Interpretation and Representation.

My conclusion is that with the Pragmaticist theory of meaning interpretation and the proof of its truth, we also prove our knowledge of reality. These proved true cognitions are the communal conventions of our form of life. The problem of Wittgenstein's two philosophical perspectives is that neither the Tractarian *formal semantic model* nor the *grammatico-phenomenological* Investigations can explain human cognitive behavior and its meaning and truth. Thus neither Analytic Philosophy nor Philosophical-Phenomenology can explain our representation of the reality in which humans operate and develop their lives (Nesher, 2004). The pragmaticist revision of Wittgenstein's conception of criterion is also a solution to the Fregean Puzzle of "compositionality" and the "hermeneutical circle" paradox.

[5] Pragmaticist Proof the Truth of the Interpretation of Meaning:



We begin our perceptual operation from the initial-vague cognitive meanings of Feeling A and Emotion C as experiences of the Real Object. If there is a *Coherence*

between A and C then their Interpretation in the proposition $A \rightarrow C$ is proven a true representation of the same *Real Object*. Therefore, the Interpretations of A and C are True and their Meanings are *certainly clear* as components of true $A \rightarrow C$ being *true representation* of the real object. This can be seen as a solution to the Fregean "compositionality" and the "hermeneutical circle" that through reflective control over a complete proof, not a formal proof but the Peircean trio sequence of Abduction, Deduction, and Induction, we can avoid any vicious circle or an infinite regress (Neshet, 2002). We do not prove the truth of the meanings of the proposition's components but the truth of their interpretation-synthesis in the proposition itself. We prove the interpretation because every proof is an interpretation of the assumptions and every complete proof is a true interpretation.

This is not a sort of *Verificationist Theory of Meaning* since the proof of the truth of the proposition "C is A" only makes *certainly clear* the meanings of its initial-vague components A and C. According to the Logical Positivist Verifiability Principle of Meaning a proposition is meaningful if, at least in principle, it can be verified or falsified in the formal semantics. This *Verificationist* principle has the function of eliminating metaphysical propositions that are meaningless because they are unprovable as true or false. According to my pragmaticist theory of meaning and truth every human experience has some initial-vague meanings and in the *interpretation* we can make the meaning-ideas *clear and distinct* representation of reality. Metaphysical propositions also have experiential meaning-contents as our utmost empirical generalizations, but in distinction from Kant and the contemporary neo-Kantians, e.g., Putnam, we can evaluate them empirically. If such propositions have not been proven true or false they remain doubtful, but a doubtful proposition is meaningful though it is still vague. Thus I reconstruct Wittgenstein's conceptions of *meaning* and *criterion* with the Pragmaticist theory of meaning and truth.

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Time, Homogeneity and Phenomenology

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For brevity's sake, I will take for granted some points which certainly should deserve a more detailed discussion. These points can be summarized by the opening sentences of the *Philosophical Remarks*. There, Wittgenstein says that now he does not have phenomenological language as a goal, just after having said that a proposition is completely logically analyzed if its grammar is made completely clear, no matter what idiom it may be written or expressed in. It seems to follow from these two sentences taken together that the construction of a phenomenological language is tantamount to a complete logical analysis of our language. What Wittgenstein is abandoning then is the idea that this logical analysis must result in the construction of a special language (a language whose *notation* obeys to the *logical* grammar - as in *Tractatus* 3.325 -, in which to each object of thought there corresponds an element of the propositional sign - as in *Tractatus* 3.2). If this is correct, then the opposite of a phenomenological language, the hypothetical or physical language or, more simply, *our* language must be conceived as a language whose propositional signs do not specify visibly, so to speak, the form of their sense. Now let us turn to what seems to be the rationale for this rejection: the analysis of time ('primary time', as Wittgenstein says, but also 'memory's time') reveals that it is impossible to 'picture' the temporal determinations. This result is to be found in the seventh chapter of the *Remarks*.

We can distinguish in this chapter VII three different sections. The first one (from paragraph 67 to 69), shows - on the basis of the description of what could be termed 'the best phenomenological language possible' - that it is not possible to eliminate completely the hypothetical aspect - a language such this just described would still be 'hypothetical' and any thing 'below' it would just cease to be a language. The final conclusion of this first section shows clearly that it is the temporal aspect of the world that renders impossible the construction of a phenomenological language: 'Isn't it like this: the phenomenon (...) contains time, but isn't in time (...) Whereas language unwinds in time. // What we understand by the word 'language' unwinds in physical, homogeneous, time' (Wittgenstein 1975, p. 98; Rhees omitted the term 'homogeneous' - cf. Wittgenstein 1994, and the page 28 of Typescript 209, in Wittgenstein 1998 - but there is no reason to do so, and this word is important, as we shall see).

Then follows a second section (from paragraph 70 to 74), of a more positive character, introduced by an 'on the other hand...'. On the other hand, I can realize the analysis with respect to the other aspects, although not the temporal one. Thus, starting from the 'physical' representation of the Euclidean space that extends out around me and in which I can locate myself, analysis will show that it consists in a 'mixture of visual space and the space of muscular sensation'. As a result of this analysis of my perception of space, I discover that in it we cannot find an 'I' to which it relates, that this 'I who perceive' is the confusion between two different spaces (visual and muscular). The origins of this analysis are known: they go back to Berkeley, but they are renewed in the time of Wittgenstein by authors as Mach and Poincaré. But, more interestingly, it is impossible not to recognize in this section of chapter VII something as a version *in extenso* of the aphorism 5.631 of the *Tractatus*: it starts describing 'the world as I found it' and concludes by showing that in this description there's no mention of an 'I'. Its purpose, then, seems to be to indicate - quickly - that the

project of a complete analysis is disturbed *only* by the temporal aspect, and that it can be pursued with the other aspects of reality.

Aphorism 75 opens the third and last section of chapter seven. The analysis of visual space was completed, and now Wittgenstein seems to come back to the subject of the possibility of a phenomenological language (although this possibility was already set aside). This section starts asking how phenomenological language treats time, and goes on considering a new 'model' of a phenomenological language.

Let us review quickly the first section. In it, I want to stress three points. Wittgenstein starts assuming *that he could remember all its sense-data*. In that case, he asks, what would prevent me from describing them in a non-hypothetical way? My first point, then, is this assumption of an absolute memory.

I could describe the visual images that I saw in the following way: through plaster-cast figures *on a reduced scale and shaped only until the point where my vision had effectively reached* (the back of these little statues, for example, would not be shaped, and they would be shaded as inessential). The second point, then, is this 'symbolic negligence': although this description tends to a natural syntax (the round symbolizing the round, the red symbolizing the red, etc), there is no need to be strict here.

Until here, says Wittgenstein, everything would be fine. But then it asks: what about the time I take to make these little statues? He assumes that *they would be ready in the same speed in which my memory goes*. This is the third point, that contrasts with the second. There - in the case of the visual aspects -, we had no reason to be strict - the reproduction could be made in reduced scale, with some parts blurred by a shading as inessential; here, with regard to time, he excludes the idea of a *scale*: what he calls for is the *same* speed.

Finally, Wittgenstein concludes: but let us assume that I *read again* this description - isn't it now hypothetical, after all? The text is not quite clear, but there seems to be no doubt about the fact that the problem has to do with the temporal aspect; this aspect is emphasized in the third paragraph, just after having said that 'until now everything goes fine' (and, as we said, the end of this first section is quite explicit about the temporal nature of the problem).

The first question, then, is the following one: why Wittgenstein assumes such a colossal memory? We must first notice that what is assumed is not a colossal trustworthiness of memory. For *in the world of the data* memory is the *source* of the concept of 'past', memory gives me immediate access to the past, it is trustworthy *ex definitio* (cf. Wittgenstein 1975, p. 62 and p.82). What is colossal is the *extension* of memory. But it will be nonsense here to imagine that this total extension is needed in order to give an *integrally* truthful description. The phenomenological language is not characterized by only enunciating true propositions, but by specifying its sense completely.

It seems to me that the only way in which this assumption could be construed is to tie it to the determination of the temporal localization - and, here, the presence of the bergsonian vocabulary of the 'homogeneous

physical time' is decisive. If the time of the world of the data - in contrast to the physical time - is heterogeneous, I cannot apply to it a fixed ruler, I cannot determine a certain instant of this time by the repeated application of a certain 'temporal ruler' (something as 'five minutes ago'). The idea, then, which commands this assumption is to determine the temporal position of an event by the insertion of the event-picture that will describe it in a series of event-pictures similar to that one in which the event described is inserted.

It is not difficult to see what will be the problem, then: such a series of picture-events will not fully determine the flow of experience that it nevertheless tries to describe. What it will fail to determine is, so to speak, the 'rhythm' of this series of events. This failure of the description was not noticed at first because at the moment of its *production*, it was produced as a *copy*. At the moment in which I produce one determined statue, when I am 'writing this description', I use as model one definite event that is temporally situated. When I produce the description, I know that this statue represents *that* past visual image because *I am instituting it as a representative of that one*. But when, instead of producing the description on the basis of the model, I try to 'read' in the very description the indication of the instant of the past time that is intended by such and such a statue, I do not find this indication.

But was not the identity of 'rhythm' guaranteed by the fact that the production of statues goes on *in the same speed in which my memory goes*? What must be noticed is the fact that Wittgenstein here alludes to the speed of my memory and not of the remembered facts, in contrast to what occurred with the visual aspects. There, Wittgenstein does not allude to what I remember to have seen, but to what 'really was seen'; but here the speed is not the speed 'in which they really had been seen', but the speed 'in which my memory goes'. The point is not that perhaps my memory deceives me, but that the memory that 'has a present speed' is a temporal process successive and not simultaneous to the recollected temporal process. To say that it preserves the same 'rhythm' is, strictly, to assume that I can superpose the present time to the past time - that is, to assume that time is homogeneous. So it is the heterogeneity of the time of the *data* that prevents the figurative language from completely determining its sense. And so, it is this heterogeneity that blocks the phenomenological language: every language 'unwinds in the homogeneous physical time' in the sense that there is a rhythm - a '*durée*' - which the language could not fix. This interpretation seems to be confirmed also by the third section of this chapter VII, to which we will now turn.

As we saw, after having concluded, in the first section of the chapter, that language is necessarily 'something physical', after having showed, in the second section, that except for the temporal determination all the others determinations can be completely pictured, in the third section, Wittgenstein seems to come back to the idea of a phenomenological language (to be true, this move must be differently construed, but such a discussion would take too long) and to consider a new model of phenomenological description. Wittgenstein starts by saying that we are able to recognize two time intervals as equal. He will assume - to simplify matters - that changes in the visual space are discontinuous and in time with the beats of a metronome. Then, he says, I can give a description of this process.

It seems clear to me that the equality of time intervals that we are able to recognize as equal refers to simultaneous and not successive intervals of time. That is, what I am able to recognize as equal is the time interval between two successive changes of my visual space and

the time interval between two successive beats of the metronome. If this is so, what Wittgenstein is trying with this new model is clearly the change from an absolute determination of the temporal localization to a *relative* determination of this localization. I specify the temporal position of an event by specifying at 'how many metronome beats' it is to be found of the present moment.

On the other hand, clearly the absolute determination did not disappear of sight. What symbolizes, here, is *the beat of the metronome*, and what the relative determination (the 'rhythm') fails to provide *per se* is introduced, in the description, by the rhythm of the symbol, the rhythm of the beat of the metronome. It is not the simultaneity between beat and visual change that is described: this simultaneity is part of the *method of description*. Or, in a very simple way: since reproduction of the temporal process was impossible for the fact that two lengths of successive times could not be superposed, we turn to a *simultaneous* reproduction.

I hope to have made my point: the bergsonian opposition between the physical, homogeneous representation of time and the heterogeneous time of immediate experience is a central clue to a correct reading of this seventh chapter of the *Remarks*, and therefore to a correct reading of Wittgenstein's dismissal of the phenomenological language. But I will end with a few words about the result of the analysis of this new model, just not to let Wittgenstein's argument unfinished.

Wittgenstein says that in this description everything hypothetical is avoided *apart from what is contained in the presupposition that the description is given to me independently of the part of it that is before me now*. At first sight, this description determines, by its very temporal rhythm, the temporal rhythm of the process it describes - and if it was so we will have after all some kind of phenomenological language. But this is an illusion: the temporal determination was not *pictured*. The temporal relations between the various phases of the symbol do not symbolize the temporal relations between the various phases of the symbolized simply because a past phase of the symbol, being past, *is not*, and so cannot symbolize (as a 'negative fact', in the *Tractatus* could not *per se* symbolize - cf. 5.5151).

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Mneme und Nachträglichkeit: einige Bemerkungen zum Verhältnis von Sprache, Zeit und Gedächtnis nach 1900

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Neue Perspektiven in der Betrachtung subjektiver Zeit stehen im Mittelpunkt folgender Betrachtungen, die sich auf zwei Begriffe – einen aus der Sprachkritik Fritz Mauthners (mneme) und einen aus der Psychoanalyse (Nachträglichkeit) – stützen. Die Sprachkritik wies auf den engen Zusammenhang von Sprache, Gedächtnis und Zeit hin, während die Psychoanalyse auf zwei verschiedene Zeitlichkeiten aufmerksam machte: die der historischen Chronologie und die der (Selbst)interpretation. Bei beiden wird die strenge Linearität der Zeit durchbrochen und eine Wechselwirkung zwischen Gegenwart und Vergangenheit zugelassen. Beiden Betrachtungsweisen liegt, wie im folgenden gezeigt werden soll, ein neues (dynamisches) Verständnis von Gedächtnis zugrunde.

Schon zu Beginn des letzten Jahrhunderts herrschte eine Pluralität von Zeitkonzepten und schon damals wurde die Dualität von Naturzeit (Zeit ohne Gegenwart) und Geschichtszeit (Zeit mit Gegenwart), bzw. mathematischer oder physikalischer Zeit und ‚gelebter‘ Zeit thematisiert. Gleichzeitig standen Denker wie Mauthner und Freud unter dem Einfluss der damaligen begrifflichen Modelle der Naturwissenschaft. Demnach verliefen materielle Prozesse in der objektiv messbaren Zeit und wurden prinzipiell als irreversible Abfolge von bestimmten Zuständen, die aus bestimmten Zeitpunkten bestehen, interpretiert. So mussten sich auch psychische „Prozesse“ genauso sukzessiv in einer von irreversibel stattfindenden Ereignissen gekennzeichneten Zeit vollziehen. Nach der Elektrodynamik zu Beginn des 20. Jahrhunderts wären in der von irreversibel stattfindenden Ereignissen gefüllten Zeit materieller Prozesse alles Vergangene der weiteren Veränderung ausgenommen. So könnte nichts, was zu einem bestimmten Zeitpunkt stattfand, zurückwirken auf etwas, das zeitlich früher vorlag. Sowohl die Sprachkritik (Mauthner und Gustav Landauer) als auch die frühe Psychoanalyse (Freud) ahnte bereits, dass das psychische Leben ganz anders verstanden werden müsse, nämlich als subjektive Geschichte, die sich nicht mehr von einer externen objektiven Beobachterposition eindeutig ablesen ließe.

Gedächtnis und Zeit sind zentrale Themen von Fritz Mauthners Sprachkritik. (Auch Gustav Landauer, der jahrelang mit Mauthner korrespondierte und ihn bei der Verfassung seiner Werke unterstützte, merkte einmal an, dass Zeit vielleicht die wichtigste Frage der Sprachkritik überhaupt sei.) Im Widerspruch des *In-der-Zeit-Denkens* („Unser Denken ist in der Zeit, während die Zeit in unserem Denken ist“) zeigte sich ein ähnliches Dilemma, wie im Versuch, mittels der Sprache gegen die Sprache anzukämpfen. Die Zeit ist für Mauthner sowohl „das Wirklichste an der Wirklichkeit“ als auch „imaginierte Größe“. Seine Analyse des Zeitbegriffes in seinem *Wörterbuch der Philosophie* beginnt resignativ: „Siehst du denn nicht, welch ein Wortquatsch das ist? Da denkst du über den Begriff der Zeit nach und wüßtest nicht einmal zu sagen, ob er zu der Welt da draußen oder der Welt da drinnen gehört. So lass die Frage liegen, ob du im allgemeinen und überhaupt den Kopf gegen die Wand oder die Wand gegen den Kopf zu rennen vorziehst.“ (Mauthner 1910/11, 608)

Raum und Zeit als ererbte Metaphern

Mauthner stimmt mit Kant überein, dass der Zeit keine subjektunabhängige Realität zukomme. Zeit habe laut Sprachkritik ebenso keine sprachunabhängige Realität, denn die Zeit gelte (neben dem Raum) als eine Bedingung der adjektivischen Welt des Seins, aber auch als eine Bedingung der verbalen Welt des Werdens. (1910/11, 603) Mauthner definiert Zeit nicht in Verbindung mit dem Raum, denn für ihn gibt es einen grundsätzlichen Unterschied zwischen den Vorstellungen vom Raum und denen von der Zeit. Zeit ließe sich nicht als Abstraktion von Raum denken, denn wir haben das deutliche Gefühl einer *Dauer*, ein (trügerisches) Gefühl: die Zeit sei „relativ, viel relativer und täuschender, als es die Raumempfindungen sind.“ (1910/11, 63) Zeit berge sich in einer leeren Hülse der Veränderung, dem Bewusstsein des Früher oder Später, mit anderen Worten: dem Bewusstsein einer *Zeitdauer*. Landauer hingegen stellt den Raum und die Zeit gegenüber, um sich der subjektiven Zeit zu nähern. Durch den Raum hätten wir ein ‚Rückwärtsleben‘, Gedächtnisbilder, Erinnerung. Zeit für ihn war alles, was immer nach vorne stürzt. Nur über den Umweg des Raums hätten wir ein Rückwärtsleben: Gedächtnisbilder, Erinnerung. Durch den Raum wäre auch die Zeit in Vergangenheit und Zukunft zerspalten. (1903, 19f.) Im zweiten Abschnitt seiner *Skepsis und Mystik* (mit dem Übertitel *Die Welt als Zeit*) beschreibt er die kantischen Anschauungsformen - Zeit, Raum und Kausalität - als ererbte Disposition zur Orientierung oder um ererbte Metaphern. Wie Mauthner schon beobachtet hatte, hätten die frühesten Metaphern eine geheimnisvolle Übereinstimmung mit der Wirklichkeit. Irgendwo deckten sich die Metaphern mit der Wirklichkeit. (1903, 20) Doch Landauer geht einen Schritt weiter als Mauthner und behauptet, dass es den Raum gar nicht gebe: „Es gibt keinen Raum; was uns räumlich beharrend erscheint, ist eine zeitliche Veränderung; was uns im Raum bewegt erscheint, sind die wechselnden Qualitäten zeitlicher Vorgänge.“ (Landauer 1903, 52).

Gedächtnis als aufgestaute Zeit

Die Sprachkritik bedient sich der verbreiteten Metapher der strömenden Zeit (ein Bild, das Mauthner im übrigen passender für die Zeit fand als für Wärme oder Elektrizität, die, wie die Zeit aus der Zukunft in die Vergangenheit stürze.) Auch in anderen Schriften im ersten Drittel des 20. Jahrhunderts, wie in denen von William James und Henri Bergson, stößt man auf Ausdrücke wie „stream of thought“, „psychologischer Fluss“ oder „psychologische Strömung“. Maurice Halbwachs beschreibt das Denken als Fluß, der „unaufhörlich vorwärts strebt, von Wahrnehmung zu Wahrnehmung übergeht.“ (1985, 123) Wenn Mauthner naturwissenschaftliche Begriffe wie Kraft und den damals aufkommenden Begriff Entropie auf die Zeit anwendet, ist er sich aber bewusst, dass es nur Bilder sind, die den Fluss bzw. das Verschwinden der Zeit bestenfalls beschreiben, aber niemals erklären können. Bei diesen Bildern bleibt die Zeit stets „gerichtet“, nicht umkehrbar.

Dem Gedächtnis sei es hingegen eigen, uns zum Innehalten zu zwingen, uns zeitweilig von jenem Strom abzuwenden, um wie der Sprachkritiker, auch der linearen Ausrichtung widerstrebend, hinzufügt: eine *Querrichtung* einzuschlagen. Hierin sieht er eine Verbindung von Zeit und Gedächtnis: „Man denke an eine gestaute und an eine fließende Wassermasse. Dem fließenden Wasser lässt sich die Zeit ja gut vergleichen. Nur aufstauen lässt sich die Zeit nicht. (...) Wirklich nicht? Ließe sich nicht das Gedächtnis auffassen als der einzige Fall einer gebundenen, einer potentiellen Zeitenergie? Ich kann mir – in der Phantasie – das Gedächtnis als *aufgestaute Zeit* vorstellen, zunächst das unbewusste Gedächtnis der organischen Vererbung, zuletzt das Gedächtnis des Menschenhirns.“ (1910/11, 496)

Mneme als allgemeine Funktion der organischen Materie

Schon in seinen *Beiträgen zu einer Kritik der Sprache* (1901/02, Bd.1, 448 ff.) definiert Mauthner die Sprache und das Denken als eine *Tätigkeit* – eine Bestimmung, die er auch auf das Gedächtnis ausdehnt. Doch er beschränkt sich nicht nur auf diese Bestimmung. Mit Gedächtnis bezeichnet er auch im Sinne von Ewald Herings *mneme*-Begriff die Fähigkeit von Organismen zu Reproduktionen irgendwelcher Art (Vererbung, Instinktverhalten, Gewohnheiten, Erinnerungen) und die Summe der dadurch erworbenen kollektiven und individuellen Dispositionen, Spuren oder Engramme. Er bringt das Gedächtnis auch mit dem Lernen in Zusammenhang, d.h. der psychischen und/oder organische Möglichkeit eines Organismus, aus Erfahrung zu lernen, das Gelernte in irgendeiner Form über die zeitliche Dauer des Lernprozesses hinaus zu speichern und unter bestimmten Bedingungen zu einem späteren Zeitpunkt wieder in Verhalten zu aktualisieren. Gedächtnis kann sich ferner auf die Fähigkeit des Organismus beziehen, sich an vergangene Erlebnisse mehr oder weniger bewusst erinnern zu können. Mauthners Gedächtnisbegriff ist insofern mehrdeutig, als es eine Überlappung all dieser psychologischen und physiologischen Definitionen gibt. Einerseits ist er beeinflusst von den (etwa von Flechsig und Ewald Hering geprägten) allgemeinen physiologischen Theorien organischer Reproduktionsvorgänge, andererseits übernimmt er viele der Begriffe der damaligen Gedächtnispsychologie wie etwa Assoziation, Disposition, Reproduktion, Vergessen so wie die Interferenztheorie des Vergessens.

Zusammenhang von Sprache und Gedächtnis

Mauthners Versuch einer Synthese von physiologischen und psychologischen Gedächtnismodellen ist weniger bemerkenswert als seine Verbindung von Gedächtnis mit einer bestimmten Tätigkeit, nämlich mit derjenigen der Sprache. Zentral für ihn ist auch das Verhältnis von Sprache und Gedächtnis im Zusammenhang mit der Teilung der Zeit in Vergangenheit und Gegenwart. Er unterscheidet hier zwei Sprachen (im Sinne von Ferdinand Saussures *langue* und *langage*): „Die Sprache, die meine gegenwärtige Tätigkeit ist, mein gegenwärtiges Hervorbringen von Worten, ist unweigerlich gebunden, in jedem Laute abhängig von der Sprache, die nichts ist als Erinnerung, die Erinnerung des Menschengeschlechts und besonders meines Volkes.“ (Mauthner 1910/11, 364) Mauthner beobachtet auch, dass es unmöglich sei, festzustellen, ob die Tätigkeit des Gedächtnisses, der

Sprache von der Vergangenheit oder Gegenwart beeinflusst sei.

Ähnlich formuliert findet man diesen Gedanken bei Maurice Halbwachs: „Jede noch so persönliche Erinnerung, selbst von Ereignissen, deren Zeuge wir allein waren, selbst von unausgesprochenen Gedanken und Gefühlen, steht zu einem Gesamt von Begriffen in Beziehung, das noch viele andere außer uns besitzen.“ (1985, 71f.) Als Arbeit, Bewegung, verweist das Gedächtnis auf eine andere, sehr wichtige Tätigkeit des Gehirns: das *Vergessen*. (S. 364) In den *Beiträgen zu einer Kritik der Sprache* weist er darauf hin, dass es eine wichtige Eigenschaft des Gedächtnisses sei, alle Erfahrungen zu merken, die einer vorgefaßten Meinung, der vermeintlichen Wahrheit entsprechen, alle Erfahrungen hingegen zu vergessen, die dem Vorurteile widersprechen. Mauthner erklärt dies mit seiner biologischen Deutung der Grundeigenschaft des Gedächtnisses, das nach ihm ein wesentlich *falsches* Gedächtnis sei – nicht nur in der Sprache. Überall – sowohl in der biologischen Anpassung als auch bei der Bildung der sprachlichen Begriffe und ihrer Anwendung – könne man eine Eigenschaft des Gedächtnisses feststellen: Ähnlichkeit wird fälschlich für Gleichheit gehalten. (Die Bedeutung des Vergessens, des Versprechens wird später in der Psychoanalyse noch klarer herausgearbeitet!)

Individualgedächtnisse und das Kollektivgedächtnis

Landauer beschreibt das Gedächtnis als den psychischen Apparat, mit Hilfe dessen wir etwas Vergangenes, Vergessenes in unser „Oberbewußtsein hinaufbezwingen“. (1903, 54) Er kritisiert, dass Mauthner das Gedächtnis mitunter als eine Art objektiven, ohne Bewusstsein funktionierenden, mechanischen Apparat betrachtet. (1903, 51). Landauer lässt nur die Existenz eines subjektiven Gedächtnisses zu, unterscheidet aber zwischen Gedächtnis und Übergedächtnis. Wie Mauthner verbindet er das Gedächtnis mit dem allgemeinen Prinzip der Vererbung (*mneme*): „Wie uns unsere Zufallssinne durch Vererbung gemeinsam sind, ebenso ist uns das Gedächtnis und also auch seine „Formen“ vererbt und gemeinsam. Die Vernunft ist nicht ein Organ, das die Orientierungen in der Wirklichkeit erst ermöglicht, sondern umgekehrt: diese Orientierungen lassen etwas in uns zurück – und wir erhalten es schon durch Vererbung – , das man Vernunft oder Gedächtnis nennen kann. Was ist aber denn dieses Gedächtnis zuletzt? Was ermöglicht, dass wir nicht nur Eindrücke haben, sondern, dass etwas zurückbleibt, als ob wirklich etwas Gebendes auf etwas Empfangliches, etwas Hartes auf etwas Weiches und doch wieder Ähnliches auf Ähnliches sich eingedrückt hätte?“ (1903, 43)

Auch Mauthner kann keine richtige Antwort darauf geben, es sei nicht möglich, das Gedächtnis zu ‚erklären‘, man könne es bestenfalls mit Worten beschreiben: Das Gedächtnis stecke hinter der Illusion des Ichgefühls, das Ichgefühl hingegen stelle aber erst durch das Gedächtnis das Kontinuum Zeit her, den Strom der Zeit aus der Zukunft herunter, in die Vergangenheit herab, durch die Gegenwart hindurch. In Mauthners Rekurs auf das Gesetz von der Trägheit der Masse und der Erhaltung der Energie sieht Landauer aber eine höchst fruchtbare Metapher. (1903, 33): „Er verweist auf das Gesetz von der Trägheit und der Erhaltung der Energie; auch im geistigen Leben kann vielleicht keine Empfindung ganz verloren gehen; was uns übrig bleibe, seien dann eben die Gedächtnisse.“

Demnach könne auch im geistigen Leben keine Empfindung ganz verloren gehen. Was uns übrig bleibe, seien eben diese „Gedächtnisse.“ Wie die Zufallssinne (ein von Mauthner geprägter Begriff) ist das Gedächtnis (und seine Formen (Metaphern)) ‚vererbt‘.

Für Mauthner und Landauer gibt es nicht nur einzelne Individualgedächtnisse, sondern auch ein kollektives Gedächtnis, das als Artgedächtnis (Mauthner), als Übergedächtnis (Landauer) beschrieben wird. Es ist bezeichnend, dass Mauthner nicht nur die Sprache, sondern auch das Bewusstsein mit Gedächtnis gleichsetzt. Das Unbewusste hat für ihn eine durchaus negative Konnotation, was vielleicht mit seiner Zurückweisung von Eduard von Hartmanns *Philosophie des Unbewussten* (1901/02, Bd.1, 615) zusammenhängt. Für Landauer hingegen ist das Unbewusste eine wertvolle Anschauung, er weist hin auf die „psychische und physiologische Bedeutung des angeblich Unbewussten“, das er als eine fast unheimliche Macht, die „die Ahnenwelt auf meine Leiblichkeit wie meinen Geist ausübt, eine unentrinnbare Herrschaft“ beschreibt. (1903, 14) Landauer nimmt Freuds Entdeckung der Zeitlosigkeit des Unbewussten vorweg, wenn er im Zusammenhang von der Vererbung von der Aufhebung von Vergangenheit, Gegenwart und Zukunft spricht.

Nachträglichkeit: Erinnern als (Re)konstruktion

Mit dem Begriff der Nachträglichkeit gelang es Sigmund Freud Ansätze einer dynamischen Erinnerungs- und Gedächtnistheorie zu entwickeln, die die Struktur subjektiver Zeitlichkeit besonders berücksichtigt. (Folgendes Zitat fasst seine Sicht des Gedächtnisses gut zusammen: „Ich arbeite mit der Annahme, dass unser psychischer Mechanismus durch Aufeinanderichtung entstanden ist, indem von Zeit zu Zeit das vorhandene Material von Erinnerungsspuren eine Umordnung nach neuen Beziehungen, eine Umschrift erfährt.“, Brief Sigmund Freud an Wilhelm Fließ, 6.12.1896) (Green, 10f.) Die Übersetzung der von Freud nach 1895 geprägten Begriffe „Nachträglichkeit“ und „nachträglich“ wirft auch ein bezeichnendes Licht auf die Unterschiede des Zeitempfindens im englischen, deutschen und französischen Sprachraum. Während die englische Übertragung (*deferred action*) auf eine eher *lineare* Konzeption von Zeit hindeutet, so deutet die französische Wiedergabe des deutschen Begriffes (*après-coup*) auf ein mehr retroaktives Wirken von Zeit hin. (Faimberg, 2005, 1)

Auch der deutsche Begriff Nachträglichkeit lässt sich auf zwei unterschiedliche (sich scheinbar ausschließende) Weisen auslegen. Man kann zwischen einer „kausalistischen“, die Nachträglichkeit mit einem durchaus naturwissenschaftlichen Verständnis gleichsetzt, und einer „hermeneutischen“ Nachträglichkeit unterscheiden. (Kettler, 309) Um diesen Unterschied zu klären, konnte man auf den Unterschied von zwei Zeitlichkeiten hinweisen: die der historischen Chronologie und die der Selbstinterpretation. Erinnern beruht nicht auf unveränderlichen Eindrücken, die nur wieder vergegenwärtigt werden müssen, sondern vielmehr auf der Reinterpretation subjektiver Vergangenheit, wobei auch der Raum subjektiven Erinnerns sozial /sprachlich konstituiert sei. Freuds Erinnerungs- und Gedächtnistheorie befreit sich von der hartnäckigen Vorstellung, dass Erinnerung und Gedächtnis vor allem das Verhältnis einer Gegenwart zu übrig gebliebenen oder aufbewahrten Spuren ihrer Vergangenheit darstelle. Etwas, das gewesen ist, wird

‚vergessen‘, aber auch vielleicht ‚erinnert‘ werden, muss in der Zwischenzeit irgendwo „im Gedächtnis behalten werden. Gegen dieses reduzierte Verständnis spielt die größere Komplexität eines zwar immer von einem Individuum erlebten, aber nicht allein aus eigener Kraft, sondern vielmehr sozial konstituierten Zusammenhangs von Vergangenheit, Gegenwart und Zukunft.

Für Freud (und ansatzweise auch Mauthner) ist das Gedächtnis nicht nur eine Art Behälter, Bibliothek oder Archiv (von sogenannten „Gedächtnisspuren“), es repräsentiert auch eine Tätigkeit. Die entscheidende Einsicht der freudschen Nachträglichkeit ist, dass die subjektive Aktivität des Erinnerns eine Re-interpretation ist – kein Wiedererkennen von gespeicherten Gegenständen, sondern ein erneutes Verstehen.

Ein Zitat von Paul Valéry aus dem Jahr 1921 faßt diesen Perspektivenwechsel in der Betrachtung von Zeit, Sprache und Gedächtnis gut zusammen:

Das Gedächtnis ist also nicht Akkumulation, sondern *Konstruktion*. Der Inhalt des Gedächtnisses ist Akt – aktuelles Ereignis. Sein Inhalt wird nicht aufbewahrt. (Valéry, 1973, S. 441)

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On Time Travel

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In his best-known 1895 novel, HG Wells describes a time machine by means of which it is possible to visit the past as well as the future. He shows that time is a dimension of the world, namely, the forth dimension of the space. The time machine utilises this time propriety and enables the time-traveller to visit the past or the future, as he wills. The time-traveller has a watch indicating the time on Earth, so he knows exactly the moment at which he can stop the time machine and step out of it.

Relying on the idea that physical laws have a symmetry with regard to time, modern scientists sustain the possibility of time travel, although not in the sense envisaged by Wells. The conceptual possibility of time travel is more challenging a notion than the physical possibility of time travel (Putnam 1962, p. 668). But the arguments against this possibility are very strong. If time travel in the past would be possible, someone could kill his grandfather and thus generate a contradiction. If time travel in the future would be possible, someone could travel in a remote future, at a time when he is already dead.

A well-known answer to this objection is that the possible world where time travel took place is a most strange world, different from ours in fundamental ways (Lewis 1993, p. 134). D. Lewis shows that the law of identity and the law of non-contradiction are not violated in this world. There is a personal identity of the time-traveller, because there is a space-temporal continuity: the person who steps into the time machine is the same person as the one who steps out of the time machine. To demonstrate that the principle of non-contradiction is not violated, D Lewis proposes two thought experiments showing that Tim can travel in the past and, although he has the possibility to kill his grandfather, he does not do so. Then, Tim does not and cannot kill his grandfather, because it is logically impossible to change the past. Lewis shows that there is no contradiction here, because both propositions are true. The compatibility is made possible by the fact that „can“ is equivocal.

My objection is that, although “can” is equivocal, in the second situation the term is used in a stronger sense. Whereas the first „can“ is factual, the second one is logical: it depends on the laws of logic. The problem with D. Lewis' two propositions („Tim doesn't but can, because he has what it takes“ and „Tim doesn't, and can't, because it's logically impossible to change the past“) is not generated by the sense of the term „can“, but by the impossibility of time travel. Tim does not kill his grandfather, and he can not kill him, not because it is impossible to change the past, but because it is impossible to travel in time.

D. Lewis would object that his intention was the same, but we should remember that he wants to demonstrate the conceptual possibility of time travel. He sustains that there are two kinds of time, the personal time of a particular time traveler, measured by his wristwatch, and the external time, measured by some other watch (Lewis 1993, p. 136). For instance, for a time travel into the past, the watch shows 8 at departure and 9 at arrival, and the external watch shows 8 at departure and 7 at arrival. For time travel in the future, the external watch shows 8 at

departure and 10 at arrival, the personal time being the same like in the past.

The basic difficulty with this solution is that the existence of the two different kinds of time does not preclude the possibility of other kinds of time. A consequence of the theory of relativity is that time is related to space, but also to speed. There is the system of the time machine with the speed v_1 , in which the passing of time is different from a system where the speed is v_2 . It is necessary to consider another time, the third one, and so on.

Another difficulty about time travel is that the existence of the different kinds of measurements of time implies the existence of certain systems that observe the second law of thermodynamic, while the others systems do not. Let's suppose a time travel in the past. The consequence is that in this possible world the second law of thermodynamic is violated, since the past is the state of the universe in which the entropy is small. To travel in the past is to travel from a universe with large entropy into a universe with smaller entropy, which is impossible.

Faced with these difficulties, one can object that Tim can travel in time, but he has the obligation not to intervene in the development of an event (Lucas 1973, pp. 47-48). Also, Horwich sustains that “it is crucial to recognise the distinction between *changing* the past and *influencing* the past. Time travel would allow one to influence the past, but not to change it. Changing the past is indeed logically impossible. However, no such contradictions are involved in the idea of influencing the past. There is nothing tricky about this. The same considerations apply to the future. Here again, we have influence, but certainly cannot bring about an event that will not occur” (Horwich 1987, p. 116)

Such arguments are misleading. First of all, it is difficult to see how someone can travel in a world that he is not seeing, hearing or feeling. Supposing that it is possible to travel in a space without people, animals, etc. I think that time travel is conceptually impossible, considering the difficulties shown earlier. Second, let's suppose that the distinction between changing and influencing is intelligible. The problem with the possibility of time travel does not depend on the fact that the time-traveller can change or only influence something, but on the arguments used to support this enterprise. It is obvious that the sheer presence of the time-traveller in a world induces a change (or influence) in that world.

A very natural solution proposed by the supporters of time travel is an appeal not to some property or other of the world, not to some property or other of the laws of the world, but to the properties of time. As it is well-known, there are theories of time in which time is continuous or discontinuous, linear or circular, non-branching or branching, one-dimensional or many-dimensional, etc. The solution is based on the affirmation of a non-standard topology of time. For instance, one can sustain that a travel in a circular time is conceptually possible (Gödel 1949; Horwich 1987). In a gödelian world the space-time has two parts. There is an internal cylinder whose light cones are parallel to the central vertical axis. The rest of space-time surrounds the cylinder. In the outer part the

time dimension is circular, threading the light cones which are perpendicular to the central axis (Horwich 1987, pp. 113-114). It becomes obvious that the departure point of the time travel might be earlier than the arrival point.

To resolve the paradoxes of time travel regarding Leibniz's law, Horwich presents a mental experiment in which Charles is clean-shaven in 1960, has by 1970 grown a beard, and then travels back to 1960. The first Charles, Charles I, is the same person with the time-traveller, Charles II. Leibniz's law sustains that Charles I and Charles II should have the same properties. But Charles II is bearded, while Charles I is not. What is needed is the temporal index of the propriety. The Charles-proper-time is determined by a clock that Charles carries with him. If the property having a beard in 1960 is used proper-timelessly to mean having a beard in 1960 at some Charles proper time or other, then it is true of Charles I and of Charles II that they exemplify it. Also, if some proper time index is built into the property, then it is either true or false of both. When it is said that Charles I has a beard in 1960 and Charles II does not, the proper-time index is suppressed. When it is made explicit, we say that Charles I has no beard in 1960 at some proper time t , and Charles II has a beard in 1960 at some different proper time t' (Horwich 1987, p. 115).

This appeal to a proper time t , at which Charles has no beard in 1960, and a proper time t' , at which Charles has a beard in 1960, shows a fundamental presupposition of the time travel: time travel is like the travel by water. Time travel is realised by the means of a kind of substance, independent of matter, speed, space etc. Besides, the temporal logic can solve the difficulties as to the personal identity of the time-traveller, but does not solve the problem of the identity of the world. The objection that we want to pose is that the world in which Charles has a beard in 1960 is different from the world in which Charles has no beard in 1960. In other words, if time travel is possible, the travel does not take place in one and the same world.

Let's modify the last thought experiment in order to see things clearer. In 1970 Charles has the possibility to travel in time, but he wants to go back in time not to 1960, but to 1760. In order to be one and the same world, it is necessary that the world from which he has the point of departure should have the same properties with the world in which he arrives. The world from which he goes in 1970, w_1 , has the property that contains a person named Charles. The world in which he arrives, w_2 , does not have this property. Agreed, it can be said that when Charles arrives in w_2 this world has the property to contain a person named Charles. Another property of w_1 is to contain a person named Charles, born in 1950 and who in 1970 travels back in time. What should we say about the world w_2 ? Should we say that this world is strange? Our answer is that the world w_2 is impossible, since in 1760 w_2 does not contain a person named Charles, born in 1950 and who in 1970 travels back in time and it contains a person named Charles, born in 1950 and who in 1970 travels back.

Once we have arrived at the notion that it is difficult to see how can there be travel in the past or in the future of the one and the same world, the following question becomes possible: what does it mean to travel in the past or in the future of another world? In order to answer such a question, an appeal to modal logic and to metaphysics of modalities is necessary. It is obvious that a theory that accepts that the possible worlds are as real as our world, should also accept that this travel is not a time travel, but a travel like that by plane.

The last aspect of our analysis is the travel in branching time. Let's suppose the story (partially modified) of Leibniz from *Theodicy*: we see a branch, w_1 , in which Sextus goes at Rome, he commits adulteries, he is a traitor to his country; we see a branch, w_2 , in which Sextus goes to a city resembling Corinth, he finds a treasure, he dies at a high age; we see a branch, w_3 , in which Sextus goes to Thrace, he marries the daughter of the king, he succeeds him. To travel in this branching time is to travel from one branch to another. It is obvious that the difficulties are the same: Leibniz's law is violated. Even if the story can be made consistent (Lewis 1993, p. 146), one and the same world has different properties.

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The Present as the Only Reality: Picture Theory and Critique of Causality by Hertz and Wittgenstein

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1. The Problem

Looking back at the *Tractatus*, Wittgenstein notes on May 6, 1930:

16 years ago when I had the thought that the law of causality is insignificant in itself & that there is a way of regarding the world which does not bear it in mind, I felt the beginning of a New Era.
(Wittgenstein 2003, p. 21)

The use of the past tense suggests that Wittgenstein was now wondering whether his feeling 16 years ago was illusory and that he had failed to bring about the New Era. In another reflection on the *Tractatus* Wittgenstein questioned its conception of the world as a totality of picturable facts:

When someone says 'everything flows', we feel that we are hindered in pinning down the actual, the actual reality. What goes on on the screen escapes us precisely because it is something going on. [...] Isn't this false picture that of a strip of film that runs by so quickly that we don't have time to perceive any picture? (Wittgenstein 2000, 427f., compare Wittgenstein 1993, 189f., 101f., also 336 and 356f.)

Wittgenstein is realizing here that a world in flux is something other than a quick succession of pictures. At the same time, if one can't pin down the actual reality by slowing down the film, is there any way at all of doing so? This dilemma (compare Stern 1995) was dramatized in the film *Wittgenstein Tractatus*, by Peter Forgács. A filmmaker who deals with historical subjects and works with documentary material, Forgács put Wittgenstein's picture theory as well as his critique of causality to a special kind of test.

As in all of Forgács's films, the pictures we see in *Wittgenstein Tractatus* come from his archive of European home movies, primarily from the 1930s and 40s. What we see are records of actual events and while we see them, the grainy, scratchy quality of the filmstock is a constant reminder that we are seeing memorable, yet banal, and often happy moments in the lives of people who have died by now, many of them perishing in concentration camps, on the battle-field, in their cities and homes. In the fifth segment, for example, we see what looks like the film of an amateur anthropologist who visits a gypsy village and entices the villagers to dance for the camera. Forgács slightly enhances the initial awkwardness of this encounter by beginning with a slow succession of stills of a man standing in the doorway of his hut and of women shyly, graciously turning away from the camera's gaze. All the while, the following words run across the screen and are spoken by the narrator: "Everything we see could also be otherwise. Everything we can describe at all could also be otherwise" (TLP 5.634). These words are repeated a minute or so later when the film has sped up, when a man has taken the lead to dance, coaxing the women to burst into an exuberant romp.

Everything we see could also be different? This is surely not true for Péter Forgács who works with found footage, with pictures that, once recorded, can no longer

be otherwise. And surely it is not true for those Gypsies who, like the Jews, were subject to Nazi persecution and extermination – they cannot undo their history. (Forgács's film shows us that everything we see could have been different, that there is no necessity to what was as it was and happened as it happened – and that is the tragedy of the dead. It also shows us that everything we now see in the past can no longer be otherwise, no matter how haphazard we judge it – and that is the tragedy of the living. But the medium of film also recovers a present for these moments past: In a naive and curiously cheerful way these dancing gypsies are still there, dancing happily on the screen, no matter what their place in history.)

Wittgenstein wrote and Forgács quotes that "[i]n the world everything is as it is and happens as it is" and "all happening and being-so is accidental" – it has no force of necessity, thus need not be so (TLP 6.41). Forgács also exposes a causal influence, however, that is unaccounted for by the *Tractatus*. The camera itself, its presence and its coaxing changes what we see. Everything we see can be different: first they are shy, now they dance, but if some causality is responsible for the transition, then perhaps the dancing could not have been different, after all.

Forgács's pictures are true and in a sense must be true because they were true. On Wittgenstein's account, however, a sentence is true only if it pictures a state of affairs that actually obtains. The sentence "The gypsies were dancing" fails this test, as does "the gypsies will be dancing." Do these statements refer to states of affairs at all or do they refer to a time at which a corresponding statement in the present tense is true or false? The *Tractatus* offers no answer to questions like these. Instead, it denies that there is a "passage of time" (TLP 6.3611). It postulates "the present as the only reality" and this postulate serves as "a norm of representation" which underwrites a knowable world in which descriptive sentences can agree with how things are and in which one can do without the law of causality (Wittgenstein 1994, pp. 1f., compare Wittgenstein 1969, §321). By the same token: "That the sun will rise tomorrow, is a hypothesis; and what this means is: we don't know whether it will rise" (TLP 6.36311). What makes a statement about the future into a hypothesis is that, within the framework of the *Tractatus*, we cannot specify its truth-conditions and that there is no past that might confer causal necessity to the future. Since the statement has no determinate meaning it marks only that we do not know.

2. A Hertzian Interpretation of 6.36 to 6.36311

The discussion so far suggested an intimate connection between the critique of causality and the picture theory of the *Tractatus*. It culminates in the statement that there is no such thing as a passage of time. That statement, in terms, figures centrally in the section dedicated to "If there were a law of causality, it might run: There are natural laws" (TLP 6.36), ending with "That the sun will rise tomorrow, is an hypothesis" (TLP 6.36311). Like TLP 6.32, 6.35, 6.37 and – most obviously – 6.34, this section owes

considerably to the philosophy of Heinrich Hertz. (6.361 is one of two occasions where Hertz is cited. For reasons of time and space, I cannot consider this reference here.) If the present is the only reality and if there is no such thing as a passage of time, a law of causality could not add anything to the assumption of natural laws. Here, the designation of a cause does not mark a necessary temporal priority but marks instead an interpretation of a spatial asymmetry that is introduced through the form of representation. Both points are made by Hertz and reappear in 6.3611:

6.3611 We cannot compare any process with the "passage of time" – there is no such thing – but only with another process (say with the movement of the chronometer).

Hence the description of a temporal sequence of events is only possible if we support ourselves on another process.

It is exactly analogous for space. When, for example, we say that neither of two events (which mutually exclude one another) can occur, because there is *no cause* why the one should occur rather than the other, it is really a matter of our being unable to describe *one* of the two events unless there is some sort of asymmetry. And if there *is* such an asymmetry, we can regard this as the *cause* of the occurrence of the one and of the non-occurrence of the other.

According to Heinrich Hertz, the task of physics is to refer phenomena that take place in time and properties that depend on time to time-independent properties of material systems (Hertz 1956, §§307-314). A connection in a material system is lawful if it obtains independently of time (§119), compare TLP 6.361: "In the terminology of Hertz we might say: Only *lawful* connections are *thinkable*." In other words, mechanical properties become objects of physical thought just to the extent that they can be deduced from the Fundamental Law that establishes time-independent connections (§§308f.).

In the first book of his *Principles of Mechanics*, Hertz considers time, space, and mass in an *a priori* fashion. In an explicitly Kantian manner he derives the geometry and kinematics of material systems from inner intuition and the forms of logic (§1). Accordingly, "the time of Book 1 is the time of our inner intuition" and space is the Euclidean space of our representations (§2). The second book makes the transition from transcendental preconditions of experience to physical science; it is dedicated to the "mechanics of material systems." Accordingly, book 2 "will understand times, spaces, masses as signs for objects of external experience" (§296). Time is now defined by comparison with another process (say with the movement of a chronometer):

We determine the duration of time with the help of a chronometer according to the number of strokes of its pendulum. We fix the unit of duration through arbitrary agreement. As trait for definite moment serves its temporal distance from another moment that is fixed through further arbitrary agreement. (§298)

A temporal sequence can now be related to the reversible kinematics of a material system, a shortest path, for example, as prescribed by Hertz's Fundamental Law. This arbitrary co-ordination serves as a law of projection or transformation "by means of which we translate external experience, that is, concrete sensations and perceptions, into the symbolic language of our inner picture" (§302).

And while this rule of projection does not keep us from imagining "time" as a continuous quantity that is not itself dependent on any mechanical process, it renders senseless for the purposes of mechanics the question whether the chronometer provides a true or absolute measure of time: It is sufficient for the rule "to determine such measures as enable us to express without ambiguity the results of past and future experiences" (§304). As "time" thus becomes a part of our picture of external objects, that picture is no longer constrained merely by internal necessities of thought but becomes answerable to experience: Experimental physics can now distinguish within "the infinite world of phenomena" those "finite groups of masses which can exist independently as free systems" (§307) and to which the Fundamental Law applies straightforwardly. Absent any causal influence, "[i]n a system of bodies which obeys the fundamental law there is neither any new motion nor any cause of new motion, but only the continuance of the previous motion in a given simple manner" (§320).

Now, Hertz defines space similarly in terms of an arbitrarily chosen scale and a specific position as relative location through further arbitrary agreement (§299). Further, since force is restricted to contact-force, force and counter-force are from the start conceived as arbitrarily interchangeable (§456), making it equally arbitrary to assign the term "cause" to one and "effect" to the other. Thus, the notion that mind and nature, that sentence and world are models of one another (§424 and 428, compare TLP 4.04) gives us simultaneously the picture theory of language and a critique of causality. What remains are laws of nature, but this cannot be said but is shown by the lawful connections between material systems in a present that is the only reality (TLP 6.36f.).

3. The Limits of the World

Mechanical properties become objects of physical thought just to the extent that they can be deduced from the fundamental law that establishes time-independent connections. What cannot be so deduced is no mechanical property in the first place (§318). In particular, any system that contains a living being poses no mechanical problem in the first place but lies beyond the limits of language and thus of the world of mechanics (§320-322, 330, compare TLP 6.342).

Wittgenstein's elaboration of TLP 6.36 ends with 6.36311: "That the sun will rise tomorrow is an hypothesis; and that means that we do not *know* whether it will rise." In the context of Hertz's and Wittgenstein's restriction of scientific language to a lawful present and the representation of dynamic models, this remark arrives at a Humean point on a distinctly non-Humean route. "So why does [Wittgenstein] say we do not know that the sun will rise?" Elizabeth Anscombe asked and proposed a bold answer: "Not, I think, because the facts may falsify the prediction, but because there may not be any more facts: as in death the world does not change, but stops" (Anscombe 1965, 14, compare Anscombe 1971, 12 and 80). Indeed, if the world is "my world" at any given present time (TLP 5.641, 6.431), no causal law can underwrite the continuity from yesterday and today to tomorrow, even as all the recorded facts will be represented according to a single plan in terms of lawful connections and the eternal continuance of material systems.

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Schlick's Early Conventionalism

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In his early writings, Moritz Schlick developed a philosophical understanding of the new physics of relativity based on the geometric conventionalism pioneered by Henri Poincaré. Because of the new context created by the advent of Relativity, Schlick's efforts required the extension of Poincaré's conventionality of space to include time, as well as a complete re-thinking of the role of simplicity in the choice of geometries. Unfortunately, Schlick's account is susceptible to misunderstanding, so much so that the very type of conventionalism he proposed is sometimes misconceived. (Friedman 1999, 22, 73) Indeed, Schlick's basic argument for the conventionality of space and time proceeds from a consideration of the indistinguishability, on observational grounds, of distinct theoretical systems. This suggests an epistemic conventionalism, founded on the empirical underdetermination of theoretical choices reminiscent of Pierre Duhem. It might thus seem bizarre that Schlick would draw on the intellectual legacy of Poincaré in what appears to be a Duhemian underdetermination argument. Schlick's reliance on Poincaré's conventionalism not only seems strange in light of his epistemological arguments for conventionalism, these arguments would also seem to frustrate his efforts to discover a distinguished conventional component in scientific thought. For implicit in the Duhemian argument is a holistic conception of theoretical systems, which antecedently undermines any effort to recover a distinction between conventions and ordinary scientific claims. Thus one is led to believe that Schlick's argument for conventionalism provides no basis for a principled distinction between the conventional and the empirical.

Once, however, it is recognized that Schlick's conventionalism is semantic, pertaining to the representational form of a theoretical system, it becomes clear that a principled distinction between a representational system and the empirical claims expressed in it is already presupposed. To use the adjective 'semantic' is not to suggest that he possessed any inkling of the formal, semantic ideas that blossomed in the 1930's work of Tarski, Carnap, and Gödel. On the contrary, most of Schlick's discussion is couched in an informal terminology of 'concepts', 'judgments', and 'definitions'. Rather, to characterize Schlick's view as 'semantic conventionalism' is to emphasize that it was the representational machinery of scientific thought which he regarded as conventionally chosen. This is offered in explicit contrast to a conventionalism founded on epistemological considerations concerning the relations of evidence to scientific belief, and which asserts the conventionality of a choice of belief systems. In the present, limited context, it is not possible to discuss the proto-semantic ideas which Schlick eventually developed as background for his conventionalism. It is, rather, only possible to look at his introduction of semantic conventionalism in his understanding of the physics of Relativity.

Schlick's first foray into the realm of Relativity was his influential 1915 essay, "The Philosophical Significance of the Relativity Principle," in which he argued that the development of Special Relativity was not only a scientific accomplishment of the first magnitude, but a philosophical one as well. The scientific achievement of Special Relativity --its simplification of the physics of rectilinear motion through the modification of the concept of time--

bore profound epistemological implications, for it challenged the leading philosophies of the day -- the neo-Kantian conception that fundamental scientific concepts are given apriori and the positivist notion that such ideas are drawn exclusively from experience. Rather, Schlick argued, the precepts governing the foundational notions of science should be regarded as conventions, which may be adopted, rejected, or modified when doing so advances empirical theory. Schlick sent a copy of the paper to Einstein in December 1915, who commended it as "among the best which have until now been written about relativity" --not only because it displayed "a complete command" of the physics involved, but also because other philosophical work on the topic was not "nearly so clear". (Einstein 1915)

Schlick began his discussion by considering two options for dealing with the fact that no physical means suffice to distinguish inertial frames or, alternatively, that no uniform, rectilinear motion can be detected relative to the ether. The first alternative, due to Lorentz and Fitzgerald, accommodates experimental findings through the postulation of compensating contractions of moving bodies in the direction of motion. This approach preserves the absolute space and time of Euclid and Newton, as well as Galilean kinematics, while explicating experimental failures to detect the absolute rest of the ether by positing a real effect of absolute motion on length. The other alternative was presented by Einstein, in the form of the principle that all uniform, rectilinear motion is relative. Einstein's principle denies the presupposition of an absolute time reference, allowing that two spatially separated events which are temporally ordered in one way for a given system of reference may be ordered differently for a distinct, yet equally legitimate system. Contractions of length are then a consequence of the relativity of reference frames: the length of a measuring rod depends on its velocity for a given frame of reference. (Schlick 1979, 160-1) Strictly speaking, both the Lorentz-Fitzgerald hypotheses and the Principle of Special Relativity accommodate the experimental facts with equal facility, they are observationally equivalent, or "both theories do the same thing". (Schlick 1979, 162) Yet Einstein's approach involves only a single physical hypothesis while the Lorentz-Fitzgerald view depends on a number of 'special' auxiliary hypotheses. With respect to the number of distinct hypotheses employed, Einstein's solution is clearly the simplest. Thus the argument for the relativity principle comes to rest on the issue of simplicity.

Prima facie, the present situation appears to be a competition between two competing systems of hypotheses, one based on the Lorentz-Fitzgerald treatment and the other on the Principle of Relativity, where the experimental evidence underdetermines the choice between the two. Consequently, the choice turns on pragmatic considerations --in particular, the respective simplicity of the alternatives. It is at this point that Schlick invokes the authority of Poincaré, comparing the observational equivalence of the Lorentz-Fitzgerald and Einstein approaches to the possibility of using different geometries as a basis for physical theory. As Poincaré argued, there is no reason why it is not possible to formulate physical theory in such a way that it incorporates a non-Euclidean geometry and yet yields the same observational consequences as classical Euclidean-

Newtonian physics. Of course, the use of a geometry besides Euclid's would require compensating changes in the formulation of physical laws. Thus, physically equivalent descriptions of reality may result from the adoption of different reference-systems, different choices of underlying geometry combined with differently formulated physical laws to compensate for the underlying changes. (ibid.) Such matters can never be settled by rigorous proof or empirical evidence, so their resolution depends on practical considerations and simplicity of the resulting systems is foremost among them.

Of course, Poincaré is justly celebrated for comparing the relationship between alternative geometries to that of distinct languages. (Poincaré 1905, 41-3) And his remark that "the axioms of geometry (...) are only definitions in disguise" shows that his geometric conventionalism was, at bottom, semantic –that is to say, it concerned the mechanics of representation. (Poincaré 1905, 50) By citing Poincaré, Schlick is making the point that the situation *vis à vis* the Lorentz-Fitzgerald hypotheses and the Principle of Special Relativity concerns their respective modes of representation. This is clear from the results of his 1910 essay on "The Nature of Truth in Modern Logic". (Schlick 1979, 41-103) Implicit throughout Schlick's discussion of the concept of truth is an objective distinction between the representational framework in which scientific claims may be formulated and those claims themselves. In this context, Schlick explained that a true hypothesis is one which is univocally coordinated with a definite state of affairs, through the coordination of its symbolic elements with the things involved in the situation. (Schlick 1979, 93-96) Inherent in Schlick's discussion is the distinction between a representational scheme, or symbolic framework, and the statements or hypotheses formulated in that framework. Every statement belongs to a system of signs, or a representational framework, which necessarily involves arbitrary, non-representational features, artifacts of the mechanics of representation. It is thus possible that two different formulations, belonging to distinct sign-systems, may both portray reality with equal accuracy and hence both would be true. Consequently, a given situation could be univocally coordinated with any number of distinct statements, all of which are true, and each of which belongs to a different representational system. These sign-systems will differ depending on purely arbitrary features they incorporate to facilitate representation.

In the present case, the point is that both Lorentz-Fitzgerald's and Einstein's solutions are univocally coordinated with the facts, and "can both be reckoned true". (Schlick 1979, 170) For the Lorentz-Fitzgerald hypotheses and the Relativity Principle belong to different representational systems and each is, relative to its respective sign system, an accurate description of reality. And the point of mentioning Poincaré is to compare the Lorentz-Fitzgerald versus Einstein situation to the "possibility of using alternative geometries in our physical description of the world, without detracting from the univocal nature of the description". (Schlick 1979, 168) Analogously, Einstein's principle alters the conventions governing the concept of simultaneity, resulting in a univocal description of the same observational facts as the Lorentz-Fitzgerald approach.

All this was soon changed with the advent of General Relativity and, in 1917, Schlick published a long essay in *Die Naturwissenschaften* on "Space and Time in Contemporary Physics". Schlick's essay was re-issued as a monograph in three successive editions, translated into

numerous languages and, in fact, the English translation of the third edition is still available in an inexpensive paperback.

In one of the most philosophical sections of the essay, Schlick noted that Poincaré's geometric conventionalism was founded on the Kantian insight that space itself can never be the object of physical inquiry, never the subject of perception and measurement. Rather, it is only the behavior of bodies in space that forms the object of study, so that the resulting physics is "the product of two factors, namely the spatial properties of bodies and their physical properties in the narrower sense." (Schlick 1979, 169; Cf. also 230-233) Thus, Poincaré concluded, we are free to choose either factor quite arbitrarily, so long as the product agrees with experience. And just as Poincaré isolated two factors in the treatment of the motion of rigid bodies, in general any true theory may be regarded as the product of a reference-system, or representational scheme, and the judgments formulated in that framework. Distinct systems of judgments, formulated in different representational schemes, may be univocally coordinated with physical reality, and thus equivalent in every respect. Of course, Poincaré further insisted that simplicity is the primary desideratum and, since Euclidean space is by far the simplest of the available alternatives, physicists will always choose Euclidean geometry. Unlike Poincaré, who identified the simplicity of the reference system as the primary desideratum guiding the scientist's choice, Schlick reckoned that the simplicity of the physical descriptions formulated in a specific representation scheme was the principal criterion of choice. Of course, the simplicity of any description of reality depends directly on the system of representation it presupposes and two physically equivalent descriptions may well differ in complexity, depending on correlative differences in the reference systems they respectively presuppose. And since representational schemes are wholly determined by conventions, scientists will always select the system of reference that results in the simplest description of physical reality.

In General Relativity, a new representational scheme, involving a geometry of variable curvature rather than the Euclidean geometry of classical physics, is adopted. Unlike the case of Special Relativity, which expressed the same empirical content as its competitor, though in a distinct representational framework, General Relativity involves changes in the empirical content as well. For General Relativity implies observational effects, like the alterations in stellar positions during the solar eclipse observed by Eddington, which are not implied by the classical physics of Newton. Moreover, Schlick's understanding of conventionalism has already departed, in principle, from Poincaré's. Poincaré had insisted that physicists will always choose the simplest geometry and that is undeniably Euclid's. Following Poincaré, Schlick recognized that geometry alone does not depict the object of physics --the motion of bodies-- but only provides the representational scheme for the depiction of physical motion. Since the description of motion is the principal goal of physical theorizing, the criterion for the choice of geometry is the simplicity of the resulting description of motion, not the simplicity of the geometry itself. Thus Poincaré was mistaken when he concluded that physicists will always opt for Euclidean geometry as a framework for the description of motion. Rather, they should employ whatever geometry allows for the simplest representation of reality. If a non-Euclidean geometry serves this purpose best, then so much the worse for Euclid, and Poincaré, too.

Space and time are never objects of measurement in themselves; only conjointly do they constitute a four-dimensional scheme, in which we arrange physical objects and processes by the aid of our observations and measurements. We choose this scheme in such a way that the resultant system of physics assumes as simple a form as possible. (Schlick 1979, 240)

Nor, for that matter, is the simplest overall formulation of the combination of physics and geometry the appropriate desideratum, as Einstein maintained. (Einstein 1921, 235-6) Rather, it is the simplest expression of the theory's empirical content which is desirable, even when this requires complicating the representational scheme or, in the present case, the underlying geometry. Since, moreover, transformations are specified by the theory which provide the transition to equivalent formulations, the distinction between empirical content and the representational scheme in which it is expressed is determined by the theory itself. Thus the scheme of representation employed by a particular scientific theory may be altered without affecting what the theory represents as objective. Ultimately, a representational framework merely provides a scheme for relating observations, and all observations concern spatio-temporal point-coincidences. Indeed, all measuring devices --whether they rely on pointers, scales, mercury columns, water-levels, or even clocks-- rely on point-coincidences to indicate their findings. In a sense, Schlick notes, the whole of physics may be regarded as the product of attempts to systematize the occurrences of these point-coincidences. Moreover, any feature of a given system of physics which is not reducible to point-coincidences lacks physical objectivity.

Such coincidences are therefore, strictly speaking, alone capable of being observed; and the whole of physics may be regarded as a quintessence of laws, according to which the occurrences of these space-time-coincidences takes place. Everything else in our world-picture which can *not* be reduced to such coincidences is devoid of physical objectivity, and may just as well be replaced by something else. (Schlick 1979, 241)

Indeed, any change in representational scheme, however arbitrary, which results in the transformation of the coordinates of every physical point as a continuous, single-valued function of its previous value leaves all point-coincidences unaffected. Since the point-coincidences remain undisturbed by the transformation, there is no physically objective difference between the original representational scheme and its transformation.

All world-pictures which lead to the same laws for these point-coincidences are, from the point of view of physics, in every way equivalent. (Schlick 1979, 241)

Since the transformations that produce arbitrary changes in the representational scheme are specified by the theoretical framework itself, the difference between the conventional and the empirical, the arbitrary and the objective, is a determinate, principled distinction.

The establishment of grounds for distinguishing the conventional component of systems of scientific thought further separates Schlick's semantic conventionalism from Duhemian epistemic conventionalism. Nor were Schlick's essays on Relativity his only writings during the period which presented and developed his semantic conventionalism. In his correspondence with Hans Reichenbach, as well as his criticisms of neo-Kantian treatments of Relativity, the conventionalist theme was frequently reiterated. These efforts culminated in the second edition of his classic *General Theory of Knowledge*, where the difference between conventions and genuine scientific claims was cast as the distinction between definitions and empirical judgments. (Schlick 1974, Sec. 11) The path from this demarcation to the Logical Positivists' distinction between the analytic and the synthetic is, of course, a troubled one, on which there is little agreement. Unfortunately, it is not possible to further elaborate this developmental history in the present context. Rather, it must suffice for now to have established the semantic character of Schlick's conventionalism and the foundation of a principled distinction of the conventional component of scientific belief. The further details of the history of this distinction in Schlick's writings is a tale which must await another day.

Note

* The present essay is derived from a much longer treatment, "Geometry, Convention, and the Relativized Apriori". The view herein described as 'semantic conventionalism' is not to be confused with the idea that, in matters of meaning, "there is nothing interesting to discover and everything to decide upon". (Coffa 1991, 320).

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New Aspects of Wittgenstein's Picture of a Cube in the *Tractatus*

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1. Introduction

Wittgenstein's picture of a cube (TLP 5.5423) is not merely a geometrical issue but a metaphor of epistemological importance, since here he presents a consideration concerning an object and its picture or pictures.

However, in this paper I want to use the term "projection" in not only its geometrical sense: as Wittgenstein, in a semantic sidestep, borrows the term from psychoanalysis too, we must regard this term as being an element of two languages spoken by two different groups of scientists. This presents two different aspects – a geometrical and a psychoanalytical one. In his LFM, Wittgenstein even makes a pun in which it is possible to interpret his use of the word "projection" in both ways. The pun, in which Wittgenstein uses the word "projection" in a dual way, runs as follows: "But you could imagine the shadow world to consist simply in a copy of Euclid's *Elements*. There is no need to project the thing into a universe of its own" (LFM, 1975, Unit XV, page 149).

Interestingly enough, the Dutch mathematician Luitzen Egbertus Jan Brouwer uses the psychological aspect of the word "projection" in his philosophical writings: he states that it should be investigated "why certain systems of symbolic logic rather than others may be effectively projected on nature" (Brouwer, 1913, page 84).

2. Cubes and Pseudo Cubes

The core argument of my presentation is the question of how objects in three-dimensional space can be constructed which have, under appropriate projection, a picture which might originate from a cube. Mathematically, this is to ask about inverse mapping, which leads in its direction from the picture in two-dimensional space to the original object (the "Ding an sich"). So we proceed in the following two steps:

1) We take an edge model (not a solid model) of a cube in R^3 and construct a picture of it in R^2

2) We ask about inverse mapping: we investigate the variety of edge models in R^3 that have the same picture as the cube in R^2 . What is surprising about this question is the fact that there are quite a lot of edge objects that render the same picture in R^2 as the edge model of a cube. Since they are in some sense "relatives" of the cube, I want to give a succinct name to this class of objects:

Definition:

An edge model in R^3 that has the same picture under an appropriate projection as a cube is called a pseudo cube.

Assertion:

There are many pseudo cubes in R^3 of a kind which have segments of straight lines as edges, but the edges may also be curved. There is at least one pseudo cube which is not topologically equivalent to the conventional cube: the edges of this special pseudo cube are convoluted as compared to the conventional cube.

3. Curved Spaces were Being Discussed around 1915

In his early years, Wittgenstein had at least two partners with whom he could discuss geometrical issues. The first one was Herr Jolles, with whose family he lived in Berlin. He was a geometry teacher and the relationship of young Ludwig to the Jolles was a very personal one, so that it is quite likely that Wittgenstein used the opportunity to get acquainted with insider knowledge on this subject. It is certainly true that we do not know very much about Wittgenstein's Berlin years, but his contact with Herr Jolles is likely to have been a source of knowledge for him.

The contact with Russell was also valuable in this respect, because Russell (see Volume 1 of his autobiography, page 132) had an intimate knowledge of Non-Euclidean Geometry, a fact mentioned by Wittgenstein in his LFM on at least two occasions, whereby the first one is of strategic importance (1975, Unit XVIII, page 172, and Unit XXXI, page 289). Around 1915, Non-Euclidean Geometry was something relatively new and its epistemological impact could be clearly seen, because a second blow to conventional geometry was dealt by Einstein's Relativity Theory. Both concepts teach us that our world is not rectangular, but a certain curvature is inherent in the space we live in. The difference between Non-Euclidean Geometry and Einstein's Relativity Theory is the fact that Non-Euclidean Geometry is done on surfaces with constant positive (the sphere) or constant negative curvature (the pseudo sphere), whereas in Einstein's universe curvature depends on the masses present. The basis for the Non-Euclidean Geometries is Gauss's insight that on any curved surface the tangent circle with maximum and the tangent circle with minimum curvature are perpendicular to each other and therefore the Gaussian measurement of curvature ($c = 1/(R_{\max} \cdot R_{\min})$) is a well-defined concept for the measurement of the curvature of a surface at a given point.

4. Seeing as an Active Enterprise as Seen by Kvasz

The contribution of Ladislav Kvasz (1998) is remarkable insofar as it is not a plain historiography but a reconstruction of a history of ideas dealing mainly with non-Euclidean geometry. Here, we can see how the development of projective geometry is a logical forerunner of, and prerequisite for, the development of the revolutionary ideas of non-Euclidean geometry. Gauss, Lobatchevsky and Bolyai jun. are frequently named when it comes to this important part of modern mathematical historiography, but it is clear from documents that Ferdinand Karl Schweikart contributed his own portion as well, as can be seen from Meschkowski (1980).

Here, I intend to present the crucial point of Kvasz's argument in a concrete example. He compares the problem of not being allowed to draw the horizon on the canvas in projective geometry with the existence of improper points in the Cayley-Kleinian model of hyperbolic geometry. This model was published by Beltrami in 1868 and it claimed wide attention and was accepted as a proof that non-Euclidean geometry can be assumed without

contradictions, although of course in our present-day post-Gödelian view it is only a relative proof of consistency, because as a clear presupposition it must be assumed that Euclidean Geometry is free from contradictions.

If we want to investigate the axiom of the parallels in the Cayley-Kleinian Model, we draw a segment of a straight line within the circle (which here represents the universe) and we draw the two limit parallels. In his argument concerning the "implicit interpretative subject" (page 150) Kvasz argues, that we can either see the circle as a Euclidean circle or as an absolute line (= far line) of a model of hyperbolic geometry. This ambiguity means that there are two aspects contained in this drawing which leads to odd conclusions, because the two limit parallels do not intersect with the basic straight line in the drawing as a hyperbolic model – yet, if we see an ordinary Euclidean circle in this drawing, they do intersect. The points of "intersection" are improper points (limit points) in the hyperbolic model.

What is important for us here is the fact that the geometric drawings are iconic in the sense that an agreement has to be made between the creator of the drawing and the people with whom he is communicating as to what should actively be seen in the drawing.

Kvasz compares the line of this circle with the horizon in projective geometry in the sense that they both consist of improper points which constitute something like the ominous "infinity", because they are limit points. The ambiguity of geometrical drawings shows that conventions are always involved when the viewing of a picture takes place.

5. Rules, Laws and Methods of Projection

Now, let us have a look at the *Tractatus* – particularly what Wittgenstein writes about projection in it. He presents to us two concepts, which could be put into relationship with one another by saying that they are opposed to each other. But it is also possible to say that one of the two concepts is a variant of the other. I am talking of the "law of projection" (4.0141) and the "method of projection" (3.11). I have the impression, that the term "rule" and the term "projection" are connected closely in Wittgenstein's view.

In his manner of arguing, Wittgenstein was strongly influenced by logic and mathematics, and here he wants to prove the following theorem.

The picture of the cube found in TLP 5.5423 is ambiguous, which can be expressed in mathematical terms by saying that the mapping of the projection P is not injective (unique), but there are two "Dinge an sich", D1 and D2, which are not equal to each other, but whose pictures under P are equal:

THERE EXIST D1 and D2 in R^3 with $D1 \neq D2$ and $P(D1) = P(D2)$

In later examinations of the topic, Wittgenstein found that the number 2 of variants of the picture of a cube is far too small to serve as an estimation, but there are many more "Dinge an sich", which I call pseudo cubes. They are generated by admitting pseudo edges which are curved and by displacing some or all of the corners of the cube. But it is also possible to generate "Dinge an sich" by having pseudo edges which are composed of several segments of straight lines, so that they contain within

themselves pseudo corners that are not seen in the projected picture of the pseudo cube.

6. Curved Lines Render a Straight Line as a Picture Under Appropriate Projection

In 2003, I came across the problem of curved lines with straight lines as pictures under certain projections. I have described this idea in "Wie Wittgenstein die Gödel'sche Katastrophe durcharbeitet" (Ohmacht 2003, page 52 ff.).

Formulated as a mathematical theorem, this idea runs as follows:

Theorem concerning curved lines with straight lines as pictures (weak version): if a segment of a straight line is given, then there exists a projection (be it a central projection or a parallel projection), and there exists a curved line, which exactly renders the given straight line as a picture under the selected projection.

We can formulate an even stronger version of this theorem.

Theorem concerning curved lines with straight pictures (strong version): if a segment of a straight line is given, then (except in degenerate cases) for each parallel projection and for each central projection there exists a curved line which exactly renders the given straight line as a picture under this projection.

An argument for proving the two versions of the Theorem is the following: we take two points of the given segment of a straight line and we consider a plane (a plane of projection), which is given

a) by the two points selected and the direction of the projection (if it is a parallel projection)

b) by the two points and the centre of the projection (if it is a central projection).

Then, any curved line on the selected plane of projection renders the given segment of the straight line as a picture under the projection under consideration.

In the following argument, I use only the weaker form of the Theorem, but I wanted to mention its stronger form for the sake of completeness.

7. The Issue of the Picture of a Cube in Wittgenstein's *PI*

What Wittgenstein says in the TLP about the picture of a cube is not his final comment on this issue - he continues to be intrigued by the problem of the adequacy and ambiguity of pictures. There are several remarks on the topic in his *Philosophical Investigations*: Aphorisms 139 to 141, particularly, represent an interesting enlargement upon the topic. For reasons of space, it is not possible to discuss it here in detail. But the kernel of Wittgenstein's argument in the PU can be stated: projections can be maximally free and, in some sense, wild:

Wittgenstein might here have thought of the following projection:

IF the original object is a triangular prism, THEN the result of the projection is a cube,

OTHERWISE the above standard projection is applied.

My decisive point in interpreting Wittgenstein here is, that he wanted seeing to be seen as an active process which incorporates a lot of freedom in it.

8. Conclusion

There do exist pseudo cubes of, at least, the following kind:

- 1) Edge models which are derived from cubes by displacing one or more of the corner points and bending the edges in such a way that they remain segments of straight lines
- 2) Edge models which are derived from conventional cubes by replacing the straight edges with curved pseudo edges, provided that the curved pseudo edges remain within the plane of projection defined by the original (straight) edge.
- 3) A second ordinary cube may be hidden behind the first ordinary cube so that the "Ding an sich" consists of two cubes, but the picture looks at if it were only one cube.
- 4) It is possible to change (3) by punctuating the two cubes, so that one of the two cubes consists only of transcendental points and the second cube consists only of algebraic points.

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The Private Language Argument and Phenomenological Perspective

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One may, first, suggest the Robinson Crusoe version of the private language argument that simulates the situation of the language spoken by an isolated person and understood solely by him. But this makes no crucial point.

Secondly, we must mention Kripke's celebrated interpretation of the private language argument. Kripke claims the section 201 of Wittgenstein's *Philosophical Investigations* to be the conclusive thesis of his private language argument. One of Kripke's points is the emphasis on the linguistic community besides the following of rules. In my view, too strong an emphasis on the linguistic community may likely keep our focus on the issues of rules and justification and away from genuine problems concerning the relation between experience and language; particularly the question of the pre-linguistic. Further, pre-linguistic strata would be cut off as vicious mental entities.

Instead of the previous two, I will go along a third way by examining the examples Wittgenstein proposed concerning the question of the private language with regard to this pre-linguistic experience.

The three major results are as follows: first the impossibility of a private language. Secondly, the rejection of the ostensive explanation of the meaning of words entails from the first. Thirdly, concerning the issue of private experiences, there is no naive denial of the existence of such private sensory experiences in Wittgenstein. This consequence will also provide us with a clue to discussions of proto-phenomena and the flux of the lived time.

In the *Philosophical Investigations*, Wittgenstein asks the reader to image a situation where a person invents a language to name his private inner experiences as follows: "The individual words of this language are to refer to what can only be known to the person speaking; to his immediate private sensations. So another person cannot understand the language" (*PU*, §243). This language is invented in order to be used by only one person and therefore it is incommunicable in principle. The uncommunicability of this private language implies at least two presuppositions. One is that there are private objects we call sensations, which only the person who possesses them can have access to. Another is that the meanings of words are their referents (so-called ostensive definition of meaning, in other words, the bearer theory).¹

A crucial question follows from these presuppositions. If this sort of private language is impossible, are our sensations also denied? "What would it mean to deny the existence of pain?" (*NL*, p.314) Wittgenstein does not seem to deny the existence of our natural sensations, although they are beyond verbal expression. It appears that these two presuppositions correspond to the questions of the ostensive definition of meaning and the extent of the privacy of our sensory experiences respectively. The example of section 258 highlights the dilemma of the supposed private language use.²

Let us imagine the following case. I want to keep a diary about the recurrence of a certain sensation. To this end I associate it with the sign "S" and write this sign in a calendar for every day on which I have the sensation—I will remark first of all that a definition of the sign cannot be formulated. But still I can give myself a kind of ostensive definition. How? Can I point to the sensation? Not in the ordinary sense. But I speak, or write the sign down, and as it were, point to it inwardly (*PU*, §258).

In such a way the person creates a private language. The meaning of a word in this language is taken to be its referent. In so far as private sensations are supposed to be private entities within a private subjective realm, the language-user can point to private objects inwardly. Therefore, the definition of the private word that stands for a private sensation has to be realized by an act of pointing to. But what is the purpose of this definition? It merely serves him for his own usage. Wittgenstein continues as follows:

—But what is this ceremony for? For that is all it seems to be! A definition surely serves to establish the meaning of a sign. —.....—But "I impress it on myself" can only mean: this process brings it about that I remember the connexion right in the future. But in the present case I have no criterion of correctness. One would like to say: whatever is going to seem right to me is right. And that only means that here we can't talk about 'right' (Id.).

As to the private sensation, we do not need any criteria. Because of its complete arbitrariness, "whatever is going to seem right to me is right", and he is never able to decide whether he is using the word correctly or not in the future. There is no end to his checking: "As if someone were to buy several copies of the morning paper in order to assure himself that what it said was true" (*PU*, §265). It is obvious here that the private language user falls into a dilemma. Either he has no criteria for correct use within the private language or he must appeal to a criterion from outside his private language. This is because the criterion must be something independent. The word has no use because it lacks any rule for its use. Thus, either it is not a language at all or it loses its privacy.

The gist of this example is to elucidate some presuppositions of that private ceremony. One of them is the assumed private objects within a private realm. That is, an invention of a word can be performed, giving meaning by a private ostensive definition. Another presupposition that falls under suspicion is "a conception of correctness," or "right." However, we cannot deny to recognize a relationship between the private word and ordinary language, such as "right", "correct", or even "sensation" (*PU*, §§261, 265). If this presupposition is rejected, then we cannot talk about the private language at all. We would even scarcely be permitted to say that "S" is a "name" of a "sensation." This very point undermines the entire project of creating a private language.

¹ Kenny, 1971, p.204.

² Ref., Kenny, 1971, p.216.

The question to what extent our sensations are private remains unanswered. Instead of consulting examples of color sensation, here we will focus on the issue of "pain."³

Wittgenstein's argument about 'pain' seems to be devoted to attack the very idea of "the private object model of sensation."⁴ A sensation such as 'pain' is never a private object and the ostensive definition is simply derived from a misunderstanding of language games surrounding the word "pain" (*PU*, §290). So long as we consider a sensation to be a private object, i.e., "if we construe the grammar of the expression of sensation of the model of 'object and designation' the object drops out of consideration as irrelevant" (*PU*, §294). This is from the celebrated simile of "a beetle in everyone's private box." "I am in pain" is not "a picture of a fact" which can be compared with reality as to whether it is true or false.⁵ I would like to call this misconception of sensations as objects a sort of ontological fallacy. In my view, the situation where the expression of sensations stands in need of criteria would be created by the strong inclination to identify or to describe sensations as objects to be known just like external things. This inclination tempts us to objectify what cannot be inherently objectified, i.e., our own living experiences. This inclination turns out to be a fallacy because it is absurd for me to know or doubt whether or not I have such and such sensations. This is a violation of the grammar of description of sensation, too. The fallacy may well result in the rejection of private experience itself. But on the contrary, Wittgenstein never rejects the experience of sensations, beyond their verbal expressions. A groaning patient, a wriggling fly or moaning, and other "natural expression (behaviors) of sensations reveal the "foothold" for us to talk about the real existence of sensations (*PU*, §284, II, p.179).

We then come to the following conclusions. Since ostensive definitions may be in certain circumstances "quite inessential to the language-game" (*PU*, §669), the bearer theory of meaning itself belongs to one of sophisticated language-games. However, we do not need to exclude inner experiences. Whereas private objects are said to be dropped out of the consideration just like "a wheel that can be turned though nothing else moves with it" (*PU*, §271), inner experience, as being something pre-linguistic, is the indispensable part of the system of meaning. In the light of the thought of the latest Wittgenstein, groaning, moaning or wriggling remain ineffable but such primitive expressions (so-called pain-behaviors) reveal the basis of language games.

He puts it as follows: "Presumably that this sort of behaviour is pre-linguistic: that a language-game is based on it, that it is the prototype of a way of thinking and not the result of thought" (*Z*, §541).⁶

In order to thematize this "prototype" or "the proto-phenomenon" (*PU*, §654), we have to let language games themselves narrate the sequence of possible events and practices. It is said that the enactment of a language-game itself is a proto-phenomenon. This idea of "proto-phenomena" makes an end to further explanations and thereby provides a cure for the immense anxiety for an absolute foundation. We needn't seek a further foundation in any private internal realm nor in the third realm of Platonic character. Every element of meaning will be found

within the scope of proto-phenomena. Investigations of meaning may be carried out internally (immanently in Husserl's sense) and logically within this framework. This is because this conception of phenomena has nothing to do with phenomenalism, sense-data theory or any kind of scientific naturalism. Furthermore, Wittgenstein is not denying a foundation for language-games. Ideas such as "an ungrounded way of acting" (*OC*, §110) and "pre-linguistic" or "primitive behavior" (*Z*, §545) may be manifested as solid grounds.

The concept of a "proto-phenomenon" is a genuine starting point to survey "depth grammar" (*PU*, §664),⁷ through just the seeing of language-games. In this sense, the "proto-phenomenon" is fundamental. However, what Wittgenstein sees are ordinary facts and everyday activities. What is therein surveyed is a "depth grammar" that is neither spatio-temporally nor causally determined. To attain a survey of the basis of language-games, then, means to arrive at the ultimate ground called "Form of Life."⁸ And even though the conception of "Form of Life" is understood as "natural conventions," the meaning of this word "natural" must neither be interpreted scientifically, nor culturally. Instead, by "natural" it is implied that there are natural as well as necessary restrictions any human being must obey, namely the a priori of Life-World in Husserl's sense. I think this may be one of appropriate destinations to which a route that starts from the private language argument leads.

As we have just seen, Wittgenstein's theory of meaning rejects anything hidden behind the proto-phenomena, i.e., private mental objects as referents of sensation words.

Sensations are not completely hidden processes inside a subjective, closed realm open only to privileged personal accesses.⁹ They are not described nor referred to, on the contrary, "the verbal expression of pain replaces crying and does not describe it" (*PU* §244). This pain-experience is the lived proto-phenomena in Wittgenstein, and for Husserl the proto-I, as an anonymous flux of time may experience it. Wittgenstein never rejects such experience but he rejects the concept of the mental as hidden processes that take part in determining meaning. Husserl also declares his standpoint concerning his method to investigating the concept of meaning as follows:

The first thing, therefore, is to consult the experienced world, purely as experienced. Immersing myself wholly in the flow of my world-experiencing and ... I direct my regard to what is experienced (*Hua XVII*, §96 a).

... [T]here is nothing to 'postulate' or to 'interpret suitably', but only something to bring to light. Thus alone can that ultimate understanding of the world be attained, behind which, since it is ultimate, there is nothing more that can be sensefully inquired for, nothing more to understand. (Id.)

The concept of Life World in Husserl has something to do with Wittgenstein's Form of Life. But there appears to be a crucial gap between Wittgenstein's concept of world without "subjectivity" and Husserl's transcendental subjectivity. Wittgenstein's "expressionless point" of "I do –" has "a definite sense, separate from all experience" (*PU* §620). This remarkable awareness of the freedom of human activity will never be reduced to the temporal causal relations.

³ Ref., Strawson, 1971, pp.30-1. Strawson points out clearly that there are differences between the ways colors and pains are ascribed to persons.

⁴ Ref. Hanfling, 1985, pp.15f.

⁵ Kenny, 1971, p.222.

⁶ Ref., Wittgenstein *OC*, §599; *Z*, §545

⁷ Ishiguro, 1967, p.41.

⁸ Stueber, 1996, p.33.

⁹ See Kenny, 1971, p.211.

This seems to be contrasted with Husserl's proto-I that precedes every kind of experience.

Although everything is given to the experience of such subjectivity for Husserl, there is no outer meaningful world besides this subjective Life World. And the fundamental intersubjectivity underlies this Life World, this is in no way a private inner realm. The anonymity of flux of time consciousness may thus mean the proto-phenomena in some sense. I also believe that to objectify private objects as immediate experiences opposes Husserl's very thesis of Intentionality as well as his method.

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Outline of an Argument for a “Therapeutic” Reading of Wittgenstein’s *Philosophical Investigations*

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1. Text-immanent vs. Contextual and Theses vs. No-theses Approaches

Methodological issues in the interpretation of Wittgenstein’s *Philosophical Investigations* (PI) include dichotomies between text-immanent and contextual and theses and no-theses approaches. Baker and Hacker’s *Analytical commentary* refers continuously to Wittgenstein’s Nachlass and thus involves a *contextual approach*, while von Savigny’s *Kommentar für Leser* consciously adopts the method of strict *text-immanent interpretation*. While von Savigny’s argument for his text-immanent approach is not impeccable, prevalent defences of contextual approaches are equally problematic. The dichotomy between theses- and no-theses-approaches concerns PI’s relation to theses. While one group of scholars, though on different levels and in varying degrees, sees the PI as a work that advances philosophical theses and also theories, another sees it as a work that rather dissolves philosophical theses and theories through a number of “therapies”, which are not systematically interrelated. Representatives of the first group would also claim that the PI propose philosophical therapies; however, they regard them as connected in a system, and even their most minimalist interpretation understands the PI as developing and defending theses, e.g. about grammar and linguistic rules. In recent years, this position was attacked by the late *Gordon Baker*, who says that in the PI “[n]o fact (even one about ‘our grammar’) is stated, no thesis advanced” (Baker 2004:45).¹

Interestingly, Baker used earlier to hold the opposite position and argued that Wittgenstein’s collaboration with Waismann on a systematic presentation of his philosophy shows that Wittgenstein, incl. his PI, was positive about systematic philosophising, and that therefore “it cannot be mistaken in principle to try to fit Wittgenstein’s remarks together into a philosophical system” (Baker 1979:245). The early Baker’s reasoning seems to rest on certain false methodological assumptions. First, the justification for “fitting” an author’s work “into a philosophical system” is not dependent on whether this undertaking is in agreement with the author’s intention. Second, the fact that Wittgenstein may have been positive about systematic philosophising at a certain point does not entail that this is also valid for the Wittgenstein of the PI. Now, where the later Baker argues contextually for the contrary therapeutic reading, this is, for the same methodological reasons, equally problematic. Consequently, notwithstanding the great significance, which the later Baker’s work has for understanding the PI’s therapeutic nature, his justifications are nevertheless often contextually fallacious and therefore as problematic as were his earlier for the opposite position. Contextual fallacies deceive both defenders and opponents of the no-theses approach, when they argue their respective and opposed approaches with reference to earlier or later statements or activities by Wittgenstein. This is partly due to the fact that both

defenders and opponents of the theses-approach often adopt an uncritical attitude to the issue of the special place the PI occupies, or at least, might occupy, in the context of Wittgenstein’s work, extending views valid for certain parts to the whole “later Wittgenstein”, including the PI, or views valid for the PI, to the whole “later Wittgenstein”.

Looking at PI interpretation in general, the four approaches – text-immanent, contextual, “theses”, and “no-theses” approach – combine to *four principal readings*: (i) a text-immanent “theses” reading; (ii) a contextual “theses” reading; (iii) a text-immanent therapeutic reading; (iv) a contextual therapeutic reading. Thus, the adoption of a text-immanent vs. a contextual approach seems to be neutral to the choice of a “theses” vs. a “therapeutic” approach. While both von Savigny and Cavell read the PI text-immanently, the former reads it in the “theses” way, while the latter reads it in the therapeutic way. While both the early and the later Baker read the PI contextually, the former reads it in the “theses” way, while the latter reads it therapeutically. While both von Savigny and the early Baker read the PI in the “theses” way, the former reads it text-immanently, the latter contextually. Thus, it seems that to read the PI therapeutically or as advancing theses depends as much on text-external factors, such as one’s conception of and expectations to philosophy, as on the PI text itself.

2. Elements of an Argument for a Therapeutic Reading of the PI

Each of the mentioned four types of principal readings of the PI entails a different set of answers to a group of questions, including whether it is sufficient or necessary to rely on the text alone, or whether it is necessary to include contextual elements in order to pick the correct interpretation; whether it is necessary for philosophy to advance theses and theories; whether text-immanent approaches yield “therapeutic” or theses-readings, and, whether contextual approaches yield “therapeutic” or theses-readings. *Arguments against strict text-immanentism or strict contextualism* will be able to point out that the questions and answers of both partly rest on (in fact, shared) fallacious metaphysical assumptions about what a text is and what text-understanding is. *Arguments against theses-readings* will be able to appeal to the fact that the truth of the position that it is necessary for philosophy and philosophical interpretation to advance theses and theories is not established, but rather debated, and that *text-immanent theses-readings* of the PI are yielded by this position’s premises rather than by a text-immanent reading as such. (It should, however, not need mentioning that it is not this particular position which is under scrutiny here, but the view, that the PI encourage this position.)

In the following, the outline of an argument is presented, which defends the view that a therapeutic reading of the PI is proper, and which proceeds text-immanently in the first place. The argument consists of two steps, where first evidence is put forward for the view that *a text-immanent reading yields a therapeutic reading*, and

¹ This statement is from “*Philosophical Investigations* §122: Neglected Aspects”, which was originally published in Arrington/Glock 1991 and introduced the “later Baker”.

where it subsequently is established that also *contextual data* support the therapeutic reading. What this therapeutic reading amounts to in detail and in what sense it informs the discussion of prominent philosophical issues, cannot, however, be elaborated here further.

A crucial issue in the argument concerns the role of certain *obstacles, difficulties* - both of structural nature and at specific points in the text - which one meets in the PI (I would like to call them "*skandaloi*", Greek for "stumbling blocks"). A close text-immanent reading of the PI cannot ignore frequent ambiguities in phrasing and, more generally, a prevalent lack of precise meaning and a dominant presence of incoherence and also inconsistencies in the text. These obstacles are largely addressed by von Savigny in his commentary and yield the three questions which he considers crucial from a methodological perspective: "Wer spricht?", "Worum geht es?", "Wo gehört das hin?". Interpretational responses to these obstacles generally adopt one of the following approaches: (A) The obstacles result from Wittgenstein's "incapability" to produce a linear and systematic text; this is thought to be supported by the PI Preface, where the author describes his problems in bringing his thoughts in a linear way together into a "whole" (e.g. Hilmy 1987). It is argued that Wittgenstein himself, however, wished to achieve a systematic presentation of his theses, and consequently, it is in the interest of Wittgenstein that we supplement what Wittgenstein himself was unable to achieve by providing the text of the PI with an explication of its inherent (but stylistically contaminated) argumentative and linear structure, thus rendering the thesis content visible and systematic. (B) An alternative approach, however, is to regard the obstacles not as accidental mistakes and deficiencies, which Wittgenstein himself would have wanted to avoid, but to try to go along with the text as it stands, without attempting to unify its content into a linear argument - an approach exemplified early on by Cavell 1962. (B) can be applied and carried out on a purely text-immanent basis. However, defenders of A often invoke contextual confirmation, and therefore, anticipating contextual support, it can be pointed out already here that there actually is strong counterevidence against (A) stemming from extra-textual sources. Thus, insofar as (A) rests on the argument that Wittgenstein was unable to produce a linear and systematic text and *therefore* produced the PI in their peculiar form, (A) and the theses-reading rest on false premises. Clearly, Wittgenstein has shown in a number of cases that he was indeed quite able to present and develop theses in a systematic, linear and argumentatively well-connected manner.

The therapeutic reading can, first of all, claim that it is more adequate to the text to proceed on its premises and to accept its obstacles-dimension, without excluding in advance the possibility of the obstacles having an important function, than to alter it in favour of a smoothed coherent reading which is required by the theses-approach. There are two other features, which are easily underplayed by "theses" readings, but taken seriously by therapeutic readers who are willing to see the form of the PI as PI internal; these are PI's strong *dialogical structure* and their *metaphorical language*. In addition, the defender of the therapeutic reading will surely also be able to better utilize specific points made in *certain individual remarks* (e.g. PI §18), or in larger portions of text (such as the passages collectively referred to, justly or unjustly - see Savigny 1991, as the "*philosophy chapter*") and, last but not least, the *paratexts*, which include the motto, the title and the preface.

Reference will be made below to contextual data that support the view that the PI's special form, including their non-linear and non-systematic character, are not the result of a personal shortcoming, but rather the vehicle for the content and method which the PI sought to carry. However, if the argument is to be established primarily on a text-immanent basis, then for this purpose, only text-immanent data can be admitted. But in order to validate the claim that a text-immanent reading yields a therapeutic reading we nevertheless need *contextual corroboration of a special type*. For it is possible, that our PI reading is based on a text that is not authentic and authoritative. Indeed, it has sometimes been questioned whether the paratexts, which are an important element of the argument for the therapeutic reading, are part of the PI that Wittgenstein intended, or whether they were put there by the editors without authorisation. Contextual data clearly show that the PI paratexts are authentic parts of the PI, and, more generally that the PI edition of 1953 and its follow-ups are in fact fairly trustworthy editions. Consequently, if it is true that the PI elements described here, incl. the paratexts, support a therapeutic reading, then such a reading cannot be weakened or falsified by the claim that it is based on a PI edition which is misrepresentative of its source.

Before we can deal with the *contextual support*, in order to corroborate further the text-immanent therapeutic reading, we must first distinguish two kinds thereof. One can for example refer to other contexts and invoke passages, which support the view that Wittgenstein and the PI have a therapeutic program. Or, sections of the PI can be interpreted in the light of their earlier versions, as for example thus: "The ambiguity of section x is clarified if we interpret x in the light of remark y, which is a precursor of x." This kind of methodology is often used in Wittgenstein scholarship; however, it can be fallacious, as pointed out above. The contextual support, which is in our focus here, is of the following kind: We should refer to the specific textual and stylistic developments that occurred *during* the composition of the PI rather than to precursors, ancestors and relatives of the PI remarks. Consequently, this support is of a kind that, although concerned with the context of the PI's origin, is much more internal than the first can be, since it is intimately connected with the shaping of the PI and its remarks. Therefore, in this argument one will not so much use the context to interpret the meaning of certain remarks in the light of earlier remarks or meanings, but rather study differences and changes in order to see what new elements were introduced in the making of the PI, and what old elements were left out.

Here the relevant contextual data can only be sketched (see further Pichler 2004). In short, they include the following elements: (a) In late 1936, Wittgenstein dismissed the form of the *Brown Book* as suitable for his envisaged second (third) book and consciously adopted for the PI a different form, that of the album. The development from Ms115, second part, to Ms142 is the primary witness for this shift from the book-form to the album-form. (b) For the PI, in late 1936 content, method and form were merged to such an extent that they became inseparable. The development that led to this merging and the reasons for it are described by Wittgenstein himself in a series of preface drafts. (c) The genesis of individual remarks and parts of the PI bears witness to their conscious redaction towards a text that becomes unfavourable to a theses-reading and encourages a therapeutic reading. That fits well with the often-described experience of PI remarks being much "clearer" in their earlier versions.²

² Earlier versions of this paper have been presented in 2004 at seminars at the Brenner Archives in Innsbruck and at the Philosophy of Language Institute in Lisboa. I would like to thank the participants in these seminars and my Bergen colleagues Kevin Cahill, H. Johannessen, K.S. Johannessen and S. Säätelä for comments.

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Beyond the Process and Object. Remarks on Time Recognition

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1. What is time? This most often stated question will be the subject of our analysis. Let us note that both the question and possible answers lie within a certain class of metaphysical concepts of the world. In this class we find not only the view concerning time as an independent entity but also the concept of an independent immanent subject, who is able to reflect within his/her structure those immanent qualities of the object.

It is not, however the only sensible question one can state. Another would sound like this: what is time measured by us (cognitive subjects)? This question, seemingly ignoring the objective immanent qualities of time, concentrates on epistemological (almost pragmatic) effects we as active agents can reach. This question is justified by our actual ability to observe physical time. Any physical measurements of time are, de facto, indirect – based upon spatial correlation observations. What is more, the connection between spatial measurements and their relation to time does not come from either theoretical rules or metaphysical convictions but is rather the matter of a well established practice taking place in all human civilizations.

The third way to formulate the question of time asks: what is time recognized by us? The answer to this question is the aim of the present paper. Let us note, that behind such declaration, lie several aspects characteristic for present tendencies in formulating the cognitive questions. Firstly, the ontological aspects are not ignored although they are restricted to the actual abilities of an ideal cognitive subject to recognize the world. Secondly, one has to allow multiple ways of recognition resulting in complementary (aspectual) answers. Thirdly, such way of stating the problem of time is justified by the present state of science, which slowly but consequently, changes its foundations from Cartesian (substantial) analysis to a holistic approach, where the subject and the object of cognition are subsystems of the whole system. These subsystems are strongly bound to each other with several feedbacks. Such a statement is not purely metaphorical but refers to the scientific facts revealed by non-local character of quantum mechanics, self-organization phenomena in dissipative systems, environmental aspects in evolution theory, naturalistic approaches in sociology (e.g. Memetics) and the inability to explain intelligence by purely computational models of artificial intelligence. All those scientific facts reveal the inability to fully explain the reality within neither the traditional Aristotelian approach based on immanentism and isolation principle nor the Kantian subjective cognizable world referring to and resulting from our perception and construction phenomena rather than to really existing noumena that are hidden from our view.

2. Contemporary science explicitly shows that it is man who recognizes the universe. There still is the objective world but it is seen by a subject who has certain epistemic capabilities at his/her disposal. The knowledge is the knowledge of the world although it is our knowledge. Our uniqueness is not just an assumption but merely the result of the fact that we are both subjects and objects of cognition. Another question worth stressing here is something already present in antiquity. Knowledge (theory) is contrary to practice. They are just two different aspects

of cognition which are related to each other and require optimization of their information content.

3. From the very beginning of the European philosophical tradition, the answers were sought for the first type of the question about the world and time. There were two ways of world description possible. One denying the ontological status of motion and the other which considered movement as fundamental principle of matter. In contemporary philosophy the dispute between these two approaches can be identified as the discourse between reistic and processualistic approaches to the nature of being. The two approaches result in two different views on both time perception and ontological status of time.

In the Aristotelian world, the foundation of changes are things, which preserve a mysterious "genetic identity" despite the changes they are subject to. This allows for talking about an object as a sequence of states of the same thing. Such sequence is different from the unchangeable foundation. Consequently the ability of cognition is accidental. The world of things is governed by the laws of logic and only by "God's mercy" there exists a subject, who possesses the structure of the language analogous to the structure of the world. Thus the subject is able to construct "real" projections of both isolated structures into each other.

In the Heraclitean world, in which there are no things which are not moving, the ontological aspect of the dispute is pointless.

We can treat the two different approaches only as two complementary ways of world description.

A special place in ontological dispute is taken by Plato's less recognized views. In his construction of the world there is complementarity between the structure of ideas, which is unchangeable, and the dynamics (*chora*), which is undividable into the states of things. The "becoming" things result from the synthesis of the two. The stability of things does not mean that they cannot change in time. It is rather a mathematical project placed beyond time. Similarly *chora* is rather an analogy of virtuality than an ordered entity of any kind – including the time order. Another characteristic feature of platonic or neo-platonic views was the question of actual abilities to recognize the world. What exists in a certain precise way although our cognitive capabilities are as they are – aspectual, incomplete and imperfect. It can be seen in Plotine, St. Augustine as well as in contemporary scientific paper. An example can be the efforts of gravity quantization by de Witt.

4. One could try to handle the problem of priority of time and processes on the epistemological basis referring to the question of which is prior in our perceptual cognition. Here we have to admit, that the constructivist approach is widely represented (Locke, Berkeley, Kant). Generally almost all philosophers analyzing the perception of complex objects based their concept on the assumption that simpler ideas (being the parts of complex ones) should be perceived easier and thus appear first in our consciousness. Kant, however, still claiming that complex objects are synthesized out of simpler ones, places time not within that which is perceived but inside our minds. This opens the question, whether time and space are

ontologically prior to the things and processes or are they just specific for the human species' capabilities to introduce an order within perception. As to the latter, our ability to place beings within the frames of time-spatial forms of perception would be, from contemporary materialistic perspective, a certain kind of adaptive qualities resulting from the evolutionary scheme of natural selection. Thus biology would be the science to answer the question of perceptual priority. Concerning the importance of survival, recognizing the qualities of things around us is important to prevent starvation while the ability to react to movements is important for both preventing starvation and avoiding danger. This encourages us to state that psychological experience of time flow perception is rather the way our minds (brains) handle the incoming perceptual data about processes around us.

The fundamental questions arising in the epistemological approach are:

- (i) Can we recognize actual limits of sensual perception in the presence of the necessity to decide, at least hypothetically, the ability to perform repeatable acts of perception based not upon the practice but on the general necessary rules concerning the metaphysical structure of the world?
- (ii) Are we right in following the theses of empiricists saying that the images arise in senses? To what extent are those „senses“ a description of the reality of just a metaphor?
- (iii) Is an analysis, decomposition of the images, something that happens in further acts of perception or is it just the opposite – the image is composed in mind from aspects given by the senses?
- (iv) Is the image purely subjective in an individual sense or are there elements of cultural background engaged in its composition?

No matter what is the answer, any empiricist's view has to take them into consideration.

Instead of searching the answer to the question of meaning of the empiricism, let us have a look at some problems concerning the last type – the question of time in our recognition. There is a common conviction, that time is either an external reality, which is strongly bound to our psychical experience or a kind of primary data within our cognitive apparatus, which does not need any further explanation. In the first case time is seen as a continuous, homogenous, oriented medium in which present, past and future are cleanly separable. This is questioned by contemporary science: physics – special relativity theory, quantum mechanics as well as by information science – namely the question of the analog/binary transformation, which is present also within the research into the relations between the psychical and physical states. The last problem influences the problem of intentionality as a result of an evolution process. Is it possible that an „intentionally“ acting consciousness arose from evolution theory? In technical jargon this would correspond to the question: what sense does it make to produce a receiver when there is no transmitter.

5. In what sense is cognition perceptual (sensual)? There are several arguments, coming from contemporary science, showing that our conviction about “internal” time flow perception is false. In fact we are only able to perceive time as a set of moments which are neither point-like nor easily separated. The empirical results from psychological observations reveal that we are unable to separate acoustic signals coming one after another quicker than few

percent of a second. What is even more interesting is that we are able to interpret a picture in an unchangeable manner (as a steady object) only for a certain period of time. This again shows that we are rather fitted to perceive processes than separately time and things that change in time. Information production is sensual perception. (decomposition and re-composition). Which distinguishes the reistic and processualistic approaches is the way sensual perception is proceeded to result in world description in its linguistic form. If the primary ideas in mind are time and things, the world picture has to be composed of the two resulting in things which undergo certain changes. On the other side, if we consider processes as basic empirical concepts are minds must decompose them into time and things. Such decomposition can be done in many ways. We can treat time as completely independent of our perception of real processes (such an approach is characteristic for instance for Newtonian world) or we can recognize time as an order within processes. The latter is characteristic for the general theory of relativity where the notion of time is given rather through its measurability. This leads to different concepts of local and global time and is based on the principle that causal relations are more fundamental than our subjective intuition of time flow.

6. Time and memory (quasi-platonic intuition of time order) What intuition lies in a statement saying “I am now thinking of time”. The notion of “now” definitely cannot be understood as a moment of time the way we understand it in physical description of the world. Such a moment cannot contain any thought – including the one mentioned above. Thinking is a process and as a process requires time or we should rather say requires “freezing” of a certain period of time to keep a thought in our memory. Are we thus bound to say that process is what we really perceive in our consciousness? The answer is positive as long as we want to understand consciousness as our thoughts of our acts of perception.

On the one hand, we would like to treat time as ontologically fundamental while, on the other, we are conscious of our actual ability to perceive not the time itself but the processes which are best understood as changes in time. Maybe this is the real reason why we have such problems in understanding time.

7. Time and cybernetic hypothesis. The question of time “perception” by computer systems deserves a special discussion. There we have important differences as compared to our intuition of time order. Without going into details one should mention at least two aspects relative to the previous remarks. It is obvious that consciousness of time requires memory. No matter whether the computations are done by one processor or cluster of processors, to note the differences between the past and the present both have to appear in memory at the same moment of physical time. This requires preservation of partial results of computing processes in so-called buffers of memory. From the physical perspective they are just past events, but from the perspective of computation procedure they are a part of the present computational process. Is this also the way our brains work?

The other question arises in parallel processing of information. There the question of the present state of memory is less important than the question of actual having finished all jobs needed to complete the task. This means that all other processors “have to wait” for “the slowest” one.

One more remark, concerning the relation between material structure and intuition. Time, usually, is described in particular relation to observation of cyclic processes.

Movements of celestial bodies, or a moving hand of a watch are processes, which we understand as periodical. It does not much matter that in fact we idealize such processes claiming that the periods of two consequent cycles are identical. It concerns rather the practice or technique of time measurements. More important is the question whether any cyclic processes can appear in the world where processes are irreversible. This is the question of how strong is the influence of our Newtonian idealization on recognition of measurement procedures. We can either assume that the universe is a mechanism in which cyclic processes are present or accept life as a dissipative process.

8. Let us summarize. Time is an object difficult to define. Any categorical statement is unavoidably clouded by metaphysical hypotheses which establish the necessary boundary conditions in defining time. Such hypotheses concern not only the world around us but also the subject who is defining time.

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Time in the World: Clocks and Diaries

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To explain what we today call the *tensed time* of past, present and future and the *tenseless time* of dates, Wittgenstein uses the metaphor of a film projector. The pictures on the filmstrip correspond to the dated events of physics, the pictures on the canvas to their immediate experience in the present (Wittgenstein 1984, 81-83). The metaphor not only shows the difference of the tenseless filmstrip and the tensed canvas, but it also highlights their complementarity. They are connected in the process of projecting, to which both filmstrip and canvas are essential.

In the following analysis of clocks and diaries I will take two cues from Wittgenstein's film-metaphor of time: Firstly, the guiding supposition that like canvas and filmstrip clocks and diaries are not only different but complementary, and secondly the hope that looking at these temporal entities may help to understand time itself.

1. Definitions

A *clock* is a material entity we use to tell the current time or to measure durations. In the following I will look only at *modern clocks* which share the same metric and are synchronized to show the current time. A *calendar* is the metric of time and the sequence of time-units (historically, the number of days in a year). A *diary* is a material entity that gives the dates of planned and recorded events, usually by written names or descriptions of events beside an inscription of the calendar. In the following I will analyze those *modern diaries* using the same calendar as modern clocks.

I will ignore some properties of contemporary clocks and diaries: The emphasis on natural cycles of days, months and years, the resulting unsystematic time-units and the different durations typical of clocks (minutes and seconds) and diaries (years, weeks, and days). In the following, I will speak about idealized clocks and diaries that refer to the same parameter t ranging over the real numbers.

2. Social Reality

Clocks and diaries pass Searle's test for social objects: They would not exist if there never had been humans or other sentient beings (Searle 1995, 11). It is the *assigned function* (ibid., 13-23) of clocks to tell the time and of diaries to date events. This explains the possibility of their *malfunctioning*. A clock that does not move at all, which Lewis Carroll characterizes as being right twice a day (Mellor 1981, 47), is in fact malfunctioning all day. In the following I will be concerned only with those clocks and diaries fulfilling their function.

The rules of time-keeping are systematically prior to clocks and diaries (cf. Searle 1995, 36). They are *constitutive rules* of the form "X counts as Y in context C" (ibid., 27-29): For a community with the *collective intention* of time-keeping some constantly changing continuants count as clocks and some continuants which do not change on their own accord count as diaries.

My thesis that clocks and diaries are part of social reality, as Searle describes it, implies that what they tell,

namely the current time and the date of events, are "objective facts in the world, that are only facts by human agreement" (ibid., 1). These *institutional facts* of tensed and tenseless time presuppose a *performative utterance* (ibid., 34, 54f.) of "Now it is t ". Some speech act like Pope Gregory XIII saying "Now it is October the 15th of the year 1582" was constitutive of the coordination of clocks and diaries called the "Gregorian Calendar".

3. Metaphysics

To investigate the metaphysics of clocks and diaries, I use the mereological distinction of temporal and spatial parts. I call a material entity an *event* iff its parts are temporal or it is the temporal part of another entity and a *thing* iff its parts are spatial or it is the spatial part of another entity. Thus a song and its stanzas are events and a book and its pages are things.

The metaphysical difference of clocks and diaries is that of events and things: The time-signals of a clock are events, for they are temporal parts of the steady process which keeps the clock on time. The time-markings of a diary are things, because they are spatial parts of the inscription the diary uses to date events. This difference of events and things of course concerns only the *signs*, not the gadgets themselves. Clocks and diaries alike are changing things and their changes are events. But in the case of clocks the events (the movement of the hands over the numbers inscribed on the dial) are significant, while in the case of diaries things (the inscriptions of the numbers themselves) carry the meaning.

The metaphysical thesis that there are eventlike and thinglike temporal signs is compatible with both perdurantism and endurantism: Clocks and diaries are social objects while endurantism and perdurantism are theses about the ultimate building blocks of reality. Endurantism can give *ersatz*-events and perdurantism can give *ersatz*-things, and they have to do so in any case to account for ordinary talk about events and things (Sider 2001, 61f., 77).

The metaphysical difference of clocks and diaries is bridged by an *isomorphism* (a bijection preserving some structure). It maps the temporal series of eventlike time-signals given by the clock onto the spatial series of thinglike inscriptions of dates in the diary and preserves their sequence. The isomorphism is obvious when the hand of a mechanical clock moves over the calendar inscribed on the dial: The inscribed number is a thing, but the hand moving past it is an event.

Wittgenstein's film-metaphor can be used to explain the metaphysical difference and complementarity of clocks and diaries. The events of a clock showing the time are like the pictures on the canvas, the thinglike inscriptions of dated events in a diary are like the pictures on the filmstrip, and the isomorphism connecting events and things is given by the process of projecting. In fact, a film projector could be used to build a clock. Inscribe the calendar onto the filmstrip, each date on the appropriate number of consecutive pictures, and start the projection at the right moment. For the duration of the film the canvas will show the right time.

4. Semantics

To describe the semantical difference between clocks and diaries I employ a truth-conditional criterion. A sentence has *tensed meaning*, iff its truth-values can depend on the time of its occurrence; otherwise it has *tenseless meaning*. This criterion cannot be applied directly to clocks and diaries for their signs are no sentences. But there is a detour via those *associated sentences* known to every competent user of clocks and diaries. For every time-signal "t" of a clock the associated sentence is "Now it is t". For every inscription "t" beside an "E" denoting an event in a diary the associated sentence is "E occurs at t", where "occurs" is tenseless. "Now it is t" is true iff uttered at t, and therefore has tensed meaning. "E occurs at t", if true at all, is true with no temporal qualification, and therefore has tenseless meaning. By extending the criterion of tense from sentences to all temporal signs, it follows that clocks have tensed meaning and diaries have tenseless meaning. This must be seen as an important semantical difference, because it is generally accepted among today's philosophers of time that tensed and tenseless meaning cannot be reduced to each other (Oaklander et al. 1994, 17-153).

The semantical and metaphysical differences of clocks and diaries are interdependent, because events are transient whereas things persist. The time-signals of a clock refer to the time of their own occurrence and therefore cannot be things which may be encountered many times but must be events of adequately short duration. Conversely, it is natural to use thinglike signs to diarize the dates of events.

Despite their semantical difference clocks and diaries are connected on the semantical level for they are coreferential. In "Now it is t" and "E occurs at t" the schematic letters "t" refer to time-units of the *same calendar* and in particular cases may refer to the *same time*. The semantical fact of coreference naturally finds its metaphysical analogue in the isomorphism mapping the eventlike signs of a clock and the thinglike signs of a diary, because this isomorphism is induced by these events and things standing for the same times.

5. Reasoning

In modern time-keeping communities clocks and diaries play an important role in theoretical and practical reasoning. Here their complementarity is more obvious than in their metaphysics and semantics, for in many temporal inferences one cannot use a clock without a diary nor a diary without a clock. In the following *practical inference* context-free knowledge is used to generate indexical belief which can motivate an action:

P1: The talk starts at 2 p.m.
P2: Now it is 1 p.m.

C1: The talk will start in one hour.

In the following *theoretical inference* indexical belief resulting from experience is transformed into context-free knowledge:

P3: Now there is a solar eclipse.
P4: Now it is 1 p.m.

C2: At 1 p.m. occurs a solar eclipse.

The importance of these two kinds of inferences for practical and theoretical reasoning lies in the following two facts: Indexical belief (C1) is an essential ingredient of

every motivation of an action (Perry 1979), but in modern societies most actions are coordinated in a context-free way (P1). Scientific knowledge (C2) has to be context-free, but can only be supported by experience (P3), which is essentially indexical. In his discussion of time in physics and experience, Wittgenstein remarks: "Our sentences are verified only by the present." (Wittgenstein 1984, 81, my translation).

In both inferences it is the clock which joins indexical belief and context-free knowledge (P2, P4). The diary, however, plays different roles. In practical reasoning a fixed diary is among the "input" of the inference (P1), whereas in theoretical reasoning the change of a diary is the "output" (C2). In Wittgenstein's metaphor practical reasoning is like the projection of planned events from the diary onto the canvas. To accommodate theoretical reasoning's changing the diary by recording events the metaphor must be supplemented by a camera to produce a new filmstrip.

6. Logic

The mathematics of our temporal inferences is a simple matter of adding and subtracting, but it is difficult to formalize the logic of clocks and diaries. The syntax of tense logic does allow the expression of neither *metrical* indexical belief, nor the associated sentences of clocks and diaries. Tense logic has to be enriched by a metric and the tools hybrid logic offers to merge syntax and semantics.

Metric tense logic can account for metrical indexical belief, for it has the operator $F(h) =$ "It will be the case after the duration h" (h may be zero or negative so that $F(h)$ covers all tenses). Hybridization adds the satisfaction operator and nominals. The *satisfaction operator* $T(t, p)$ reads "p is true at t" and can express the entries of a diary. "E occurs at t" becomes $T(t, e)$ with $e = E \text{ occurs}$. *Nominals* are formulas true at exactly one time (Ohlström et al. 1995, 216ff.). In *metric* hybrid tense logic I use the operator N to get from the real number t to the nominal $N(t) =$ "It is now t".

The theorems underlying the above practical and theoretical inferences can now be stated. If p is true at s and it is now t then p will be true after the duration s-t:

$$T(s, p) \wedge N(t) \rightarrow F(s-t) p$$

If p is true now and it is now t then p occurs at t:

$$p \wedge N(t) \rightarrow T(t, p)$$

In the formulas $N(t)$ and $T(t, p)$ of hybrid tense logic the difference and complementarity of clocks and diaries are once again visible. Though N and T are functions of the same argument t, they satisfy different theorems. For instance: $N(t) \rightarrow \neg FN(t)$ whereas $T(t, p) \leftrightarrow FT(t, p)$.

7. The Metaphysics of Time

Clocks and diaries, though different, are complementary. As social objects they are coordinated by a performative speech act (2). Their metaphysical difference is bridged by an isomorphism mapping things and events (3) induced by their coreference, which connects their tensed and tenseless meaning (4). In practical and theoretical reasoning clocks and diaries are mutually dependent (5). In their logic, the same number can be the argument of a nominal and of the satisfaction operator (6).

Ascending from the investigation of temporal entities to the metaphysics of time itself, the complementarity of clocks and diaries can be taken as indicative of the *unity* of tensed and tenseless time. – In my analysis of clocks and diaries, I have tried to get by on as little metaphysics as possible. I am committed only to the existence of events and things in the weak sense necessary to analyze social reality. Perhaps this much really suffices and one can refrain from ontological commitments concerning persistence and time: Time would *appear tensed* if represented by eventlike signs (i.e. of clocks) and it would *appear tenseless* if represented by thinglike signs (i.e. of diaries), but there would be no fact of the matter between the tensed and tenseless theory of time. Accordingly, there really would be nothing more to time than *the relative movement of events and things*. In Wittgenstein's picture: Time would correspond neither to the pictures on the filmstrip nor to the pictures on the canvas, but to the relative movement of the filmstrip and the canvas, in short, to the projection itself.

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The Notions of State of Affairs, Fact and Situation Reconsidered

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1. Existing Interpretations

Nowadays, we could say that there are three main interpretations of the notions of state of affairs, fact and situation in the literature: the classical interpretation (CI), the standard interpretation (SI) and Peter Simons' interpretation (PI) which differs a great deal from the previous two. CI follows from Russell's interpretation of the distinction between *Tatsache* and *Sachverhalt* that is to be found in the introduction to the *Tractatus*. It considers *Sachverhalte* as atomic facts and therefore holds that every *Sachverhalt* is a *Tatsache* but only some *Tatsachen* are *Sachverhalte* (Cf. Anscombe, 1959, pp. 29-30; Black, 1964, pp. 27-72). Moreover, supporters of CI think of all complex entities as concrete constituents of the world and as all being facts. Therefore, they do not see situations as being significantly distinct from facts and atomic facts and do not recognize anyone of these categories as admitting possible entities. By contrast, SI supporters view *Sachverhalte* and *Sachlagen* as possible complex entities represented by propositions independently of their truth or falsity, *Sachverhalte* being here the "atomic possibilities" and *Sachlagen* those represented by molecular propositions. They thus think that these differ importantly from facts which are taken to be the propositions' truth-makers. According to them, "Sachverhalt" should therefore not be rendered as "atomic fact", but as "state of affairs" and it is not the class of these entities that is a sub-class of facts, but it is the class of all facts that is a sub-class of the one of states of affairs (Cf., Stenius, 1960, Carruthers, 1989 and Bradley, 1992). Finally, Peter Simons holds that no fact and no situation is a state of affairs and that no state of affairs is a fact or a situation. According to him, the states of affairs of the *Tractatus*, are best seen as atomic Russellian complexes and facts and situations as existences or nonexistences of states of affairs (Cf., Simons, 1992, 1993).

2. Examination of the Issues Raised by the Existing Interpretations

2.1 States of Affairs and Facts

Given CI's, SI's and PI's understanding of states of affairs and facts, there are two issues raised concerning the relationship between these two categories of entities. The first one is whether or not these are two wholly distinct categories of entities. On this, Simons says they are, CI and SI think they aren't. The second issue presupposes a negative answer to the first one. The issue then is whether it is state of affairs that is a subcategory of states of affairs (CI) or whether it is the other way around (SI). Regarding the first issue, Simons provided, on the basis of Dietrich's interpretation, some arguments in favour of the distinction, the main one being what I shall call the "no negative states of affairs" argument¹. Both CI and SI naively rely on and presuppose the self-evidence that "the existence of ..." and "a ... that exists" are mere different ways of referring to one and the same entity.

¹ In a nutshell, the argument says that facts cannot be states of affairs because there are negative facts and no negative states of affairs. Cf. Simons, 1992 and Dietrich, 1973.

Which position seems to be closer to what Wittgenstein says in his book? Though I think the "no negative state of affairs argument" is a sufficient argument for distinguishing states of affairs and facts and recognizing that "the existence of ..." and "a ... that exists" do not refer to the same entity, I think that it, as well as the other arguments invoked by Peter Simons, are not the only ones in favour of the distinctiveness of the two categories. Since these arguments remained unnoticed, I shall here present what I take to be an important one. It is an argument which shows that reasons people invoked in favour of the identification are ill-founded. The interpretative thesis against which it is directed could be summed up as follows: That facts and states of affairs are identical entities at least when we are dealing with positive facts and existing states of affairs follows from Wittgenstein's characterizations of the world as the totality of facts (1-1.12) and as the totality of states of affairs (2.04-2.05).

The point I would like to make against this is that people regarded it as convincing because they have confused two distinct fundamental notions of Wittgenstein's ontology, namely: "to be the case" (*der Fall sein*) and "to exist" (*bestehen*). Taking these two expressions for synonyms, people think that Wittgenstein is making two equivalent claims when he says:

1. The world is everything that is the case, namely, the totality of facts
and

1' The totality of existing states of affairs is the world

And they also believe that the same holds true for this other pair of affirmations:

2. The totality of facts determines everything that is the case as well as everything that is not the case
and

2' The totality of existing state of affairs also determines which states of affairs do not exist.

That this is however not so, may be proven quite easily. As a matter of fact, if things that are the case are facts (1 and 1.1) and if, furthermore, facts are positive and negative (2.06), then the totality of all facts or the set of everything that is the case is the set of the actual existence or non-existence of states of affairs. In other words, it is the set of all those entities required to make true all elementary and all negative propositions which do describe reality correctly. Thus, in a world *w* where {aRb, bRc, ~aRc} is the set of all propositions true in *w* and in which 'R' is a symmetrical, non-reflexive and non-transitive two place relation, there are exactly three things that are the case, namely the fact that *a is in the relation R to b*, the fact that *b is in the relation R to c* and the fact that *a is not in the relation R to c*. All the other possibilities, namely, that *a is not in the relation R to b*, that *b is not in the relation S to c*, that *a is in the relation S to c* are not the case. They are things that may be represented by propositions, but they are not part of the totality of what is the case. In fact, they constitute the totality of those entities that are not the case and which Wittgenstein talks about in 1.12 as that which is determined by the totality of what is the case. Now if you take the same world and look at all those entities that exist

in it, i.e. look for the totality of states of affairs, then you shall not obtain a three element set, but, rather, one which only contains the state of affairs *a-in-the-relation-R-to-b*. Indeed, since the fact that *a is not in the relation R to c* consists, as a negative one, in the non-existence of the state of affairs *a-in-the-relation-R-to-b*, its being the case entails that this state of affairs does not exist. This shows quite clearly that, contrarily to what has been supposed, “being the case” and “exist” are not synonymous. Would they have seen this, commentators of the *Tractatus* would have understood that, though yielding apparently similar claims, 1-1.12 and 2.04-2.05 asserts two different things concerning the world and that Wittgenstein is not merely repeating himself in these remarks.

2.2 Situations and States of Affairs

Concerning the question of the relationship between “situation” and “state of affairs” and the nature of the entities belonging to these categories, again, the main issue here is whether these are to be conceived as two wholly distinct categories of entities or as one and the same category. Now, given the argument put forward in the previous section and the fact that situations are indeed characterized in the *Tractatus* as possibilities of existence and possibilities of non existence of states of affairs (2.11, 2.201+2.202), the answer to the problem is pretty straightforward: Simons is right to distinguish *Sachlagen* from *Sachverhalte* and so are SI supporters wrong on that question. The only thing I would like to add here to what Simons has showed in his 1993 paper is an explanation as to how and why they got the notion of situation so completely wrong.

In their interpretation of the notion of situation and its relationship to the one of states of affairs, SI supporters make two important philological mistakes. The first one has been outlined above and consists in taking “exist” and “the existence of ...” as equivalent expressions. The second one, very much widespread in the literature, is the belief that states of affairs are the entities that are, according to Wittgenstein, *represented by propositions* independently of their truth or falsity. In fact, it is so widespread in the literature that one may well say that it is a commonplace. But a careful reading and exposition of what Wittgenstein says on that subject-matter shows that it is simply false. This I showed at length in a forthcoming paper of mine (Plourde, forthcoming).

2.3 Situations and Facts

The last question we have to face in order to have all the elements necessary for a complete interpretation of complex entities is the one of the relationship between situations and facts. Once again, one may first wonder whether or not there is any link between the two. Peter Simons suggested that there is. His case rests on the fact that both categories are characterized in terms of existence or non-existence of states of affairs: situations are not complex states of affairs, they are “possible facts”. The problem with this argument is that it still allows for two very different conceptions of situations and is not sufficient to grant the one over the other. As a matter of fact, even though we buy that argument, situations can still be conceived according to both a possibilist and an actualist point of view. According to the possibilist conception, possibilities are on an equal footing with actual entities. They are other entities and other worlds just as real as the actual entities in the actual world. They could have been the actual world and the actual entities in the sense that they, *themselves*, could have been these entities and this

world which we live in and call the actual world. According to the actualist conception, possibilities are always merely possible. They never are actualized in the sense that they never stop being possible to start being entities that are part of this concrete world of ours. They are rather mere abstract ways the world might have been. So, when we say that they are “actualized”, we do not mean that they *themselves* are the real world, but, rather, that they “represent” a way that the real actual things and the real world *really is*. Which of these two options is Wittgenstein’s?

By arguing that “situations are possible facts” and that they make propositions true, Simons interpretation clearly commits one to the possibilist reading. As a matter of fact, the actualist reading of is not compatible with these two claims. According to the actualist reading, for any proposition ‘p’ which is true, the situation it represents independently of its truth or falsity is distinct from the fact which makes it true. In other words, the possibility of existence or the possibility of non-existence of a state of affairs represented by ‘p’ is not the same as the existence or the non-existence of a state of affairs that makes ‘p’ true. But is this right?

Two ontological points must be here mentioned. First, contrarily to facts, situations are never said to be the case in the *Tractatus*. Second, Wittgenstein never talks of situations as making propositions true, but he does speak in such a way of facts and of reality of which facts are constitutive. Though these do not constitute sufficient evidence for an actualist reading, they certainly point towards it.

But the most important and the decisive argument here is, I think, semantical. The argument lies on the distinction that is to be found in the *Tractatus* between “*darstellen*” and “*abbilden*” and which I gave an account of in a forthcoming paper of mine (Cf. Plourde, Forthcoming). The point of the argument is that *no situation can be a fact* and *no fact can be a situation* simply because, first, Wittgenstein thought of situations as the represented entities and of the facts as the depicted entities and, second, he thought of *representing* and *depicting* as two fully distinct semantical relations: to represent never is to depict and, conversely, to depict never is to represent.

3. A New Interpretation of the Notions of State of Affairs, Fact and Situation

Thus, we obtain a new interpretation of the notions of state of affairs, fact and situation, which can be presented as follows:

- T1** All complex entities in the *Tractatus* are either entities consisting in a possibility of the existence or a possibility of non-existence of states of affairs, or entities consisting in the existence or the non-existence of states of affairs that are the case or complexes.
- T2** A possibility of the existence or a possibility of non-existence of states of affairs is a situation.
- T3** A situation is what a proposition represents.
- T4** A fact is an existence or non-existence of states of affairs that is the case.
- T5** The existence of a state of affairs is a positive, the non-existence a negative fact.
- T6** Facts are truth-makers.
- T7** A fact is what a proposition depicts.
- T8** Whatever is represented by a proposition is completely distinct from whatever is depicted by a

proposition: nothing that is represented is also something that is depicted and, conversely, nothing that is depicted is also something that is represented.

- T9** No situation is a fact and no fact is a situation
- T10** "The existence of a state of affairs" and "a state of affairs which exists" on the one hand and "the non-existence of a state of affairs" and "a state of affairs which do not exists" on the other do not stand for one and the same entity.
- T12** A situation is not a state of affairs and a state of affairs is not a situation.
- T13** A fact is not a state of affairs and a state of affairs is not a fact.
- T14** A state of affairs is a Russellian complex.

Thus, the world of the *Tractatus* is one which is composed of simple objects which exist in combinations with one another. These combinations are concrete and complex entities consisting in objects related to one another like the links of a chain. These are Russellian complexes and are what Wittgenstein calls "*Sachverhalte*". The existence or the non-existence of such *Sachverhalte* is what a proposition asserts to be the case and so are there, in the world, also positive and negative facts which are nothing but the totality of the existences and non-existences of *Sachverhalte*. Finally, Wittgenstein admits of situations or possibilities of existence or non-existence of states of affairs which are not part of the world but which are constitutive of the logical space.

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Tanzen, Filme und die Mathematik (Die Rolle der Zeit in der Mathematik bei Wittgenstein)

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In vier Etappen wird die Rolle der Zeit in Wittgensteins Philosophie der Mathematik dargestellt:

- (1) Die Zeit bei Wittgenstein
- (2) Die Unzeitlichkeit mathematischer Sätze
- (3) Mathematik und Filme
- (4) Mathematik und Tanzen

Dabei wird gelegentlich auf Simone Weil und Henri Bergson Bezug genommen.

1. Die Zeit bei Wittgenstein

Die Frage nach der Herkunft der Zeit weist Wittgenstein als philosophisches Problem im Wesentlichen von sich:

Nun: könnten wir von Minuten und Stunden reden, wenn es keinen Zeitsinn gäbe? (BGM VII §18)

Der Verweis auf einen „Zeitsinn“ bringt Fragen nach einer phänomenologischen oder begründungstheoretischen Fundierung des Zeitbegriffs zum Verstummen. Allerdings lässt sich die Rolle von Zeit aufgrund einiger Bemerkungen positionieren:

Denken wir uns, ein Gott schaffe in einem Augenblick in der Mitte der Wüste ein Land, das zwei Minuten lang existiert und das genaue Abbild eines Teiles von England ist, mit alldem was in zwei Minuten da vorgeht. [...] Einer dieser Leute tut genau das, was ein Mathematiker in England tut, der gerade eine Berechnung macht. – Sollen wir sagen, dieser Zwei-Minuten-Mensch rechne? (BGM VI §34)

Die Zeit verhilft Tätigkeiten zu deren Namen (auch dem Betreiben von Mathematik): Gewisse Handlungen würden gar nicht oder nicht so bezeichnet werden, wären sie nicht in eine Praxis eingebunden, die schon lange existiert.

Menschen haben geglaubt, sie können Regeln machen; warum sollte ein König nicht in dem Glauben erzogen werden, mit ihm habe die Welt begonnen? Und wenn nun Moore und dieser König zusammenkämen und diskutierten, könnte Moore wirklich seinen Glauben als den richtigen erweisen? Ich sage nicht, daß Moore den König nicht zu seiner Anschauung bekehren könnte, aber es wäre eine Bekehrung besonderer Art: Der König würde dazu gebracht, die Welt anders zu betrachten. (ÜG §92)

Eine Zeitvorstellung, die den Beginn der Zeit mit der Geburt des Königs ansetzt, würde die ganze Sicht der Welt revidieren. Jede grundlegende Änderung unserer Zeitvorstellung, wie etwa die Annahme eines Stillstehens oder Entfernens von Zeit, wäre nicht möglich, ohne dass wir die Welt anders sehen würden.

2. Die Unzeitlichkeit mathematischer Sätze

Wittgenstein sagt: Es ist den mathematischen Zeichen und Begriffen wesentlich, dass man sie auch „in Zivil“ (BGM V §2) gebraucht. Dieser grundlegende Zug seiner Philosophie, alltagsweltlich wohlverankerte Begriffe zu fordern, ist nicht zu verwechseln mit der bloßen Monierung von Anwendungsbezug. Was gefordert wird, erfolgt

nämlich nicht im Nachhinein, nicht durch Anpassung der Theorie im Ganzen, sondern durch die Anbindung der Wissenschaft an ganz bestimmten, sehr ursprünglichen Stellen, eben den Begriffen.

Wenn die Begriffe der Mathematik „in Zivil“ gebraucht werden müssen, also in den Kontext einer alltäglichen Handlungspraxis zu stellen sind, so sind sie doch in einer wesentlichen Hinsicht einem Handlungscharakter entzogen: Sie werden in *unzeitlichen* Sätzen verwendet (siehe z.B. BGM I §27, BGM I §103, BGM VI §2). (Das bedeutet mehr als dass sie selbst unzeitlich gebraucht werden. Die Unzeitlichkeit mathematischer Begriffe wie „2“ etwa taugt nicht, diese von anderen Begriffen zu unterscheiden, denn Begriffe funktionieren immer auf der Basis einer gewissen Bedeutungsstabilität, und umgekehrt ändert sich die Bedeutung von „2“ nach Wittgenstein doch auch, wenn wir z.B. feststellen, dass wir Objekte zählen können, die wir bisher nicht kannten. Zur Modifikation von Begriffen siehe Abschnitt 4.

Eine Figur, in der fünf Striche den fünf Ecken eines Sterns zugeordnet werden (BGM I §27), kann man als Anweisung verstehen, wie man Stäbe an Leute, die sternförmig angeordnet dastehen, verteilen kann – dann betreibt man aber nicht Mathematik (obwohl man es mit einem normativen Satz zu tun hat). Mathematik ist es nur als Konstatierung von Gleichzähligkeit in einer gewissen geometrischen Konstellation. Man könnte als Ergebnis der Zuordnung auch die Gleichzähligkeit zweier nicht näher bestimmbarer Ansammlungen von Objekten feststellen. Dann kommt darin kein Bezug auf Zeit vor, aber auch dabei handelt es sich nicht um Mathematik, solange die Konstellationen der Objekte und deren Zusammenhang nicht *begrifflich* erfasst sind. Wenn wir über keine Begriffe verfügen, haben wir keine Möglichkeit, das Festgestellte von der konkreten, empirisch gebundenen Situation abzuheben und es unzeitlich zu meinen. (Die Übertragung von Mustern, Paradigmen, von der Wittgenstein häufig spricht, hängt davon ab, dass wir Gesamtheiten von bzw. in Mustern identifizieren, d.h. Begriffe verwenden.)

Das Spezifische an Wittgensteins Auffassung setzt aber erst hier an: Auch die *Sätze*, die wir mit Hilfe der Begriffe bilden, sind *in der Mathematik ihrerseits Begriffe*. (siehe z.B. BGM VII §42). Durch das Aufnehmen des Zusammenhangs, den der mathematische Satz ausdrückt, in das normativ-begriffliche Repertoire der Sprache wird die Mathematik der Empirie entzogen.

In der Mathematik wird die Zeit durch Begriffsbildung eliminiert. Damit man es mit Mathematik zu tun hat, darf also *das, was beschrieben wird*, keine Zeit enthalten? Nach der Zeit parametrisierte Kurven beschreiben zeitlich ablaufende Phänomene und sind dennoch Mathematik. Als Gegenstände mathematischer Sätze funktionieren sie allerdings unzeitlich, ihre Verwendung wird so gedacht, dass sie zu jedem Zeitpunkt immer die Gleichen sein mögen.

3. Mathematik und Filme

Nun aber denk' dir, daß dieser ganze Vorgang, dies Experiment mit den hundert Kugeln, gefilmt wurde. Ich sehe nun auf der Leinwand doch nicht ein Experiment, denn das Bild eines Experiments ist doch nicht selbst ein Experiment. – Aber das ‚mathematisch Wesentliche‘ am Vorgang sehe ich nun auch in der Projektion! Denn es erscheinen da zuerst 100 Flecke, dann werden sie in Zehnerstücke eingeteilt, usw., usw. (BGM I, §36/S.51)

Das ist zunächst ein Argument dagegen, dass mathematische Sätze und Beweise Experimente sind. Man kann es so reformulieren: Ein gefilmtes Experiment ist kein Experiment (weil der Ausgang schon klar ist); ein gefilmter mathematischer Sachverhalt bleibt ein mathematischer Sachverhalt; daher können mathematische Sachverhalte keine Experimente sein. Mathematik ist also kein Beobachtungsergebnis. Da Wittgenstein hier das Wort „Vorgang“ verwendet, könnte man meinen, dass die Zeit für ihn die Rolle spielt, die auch Simone Weil beschreibt:

Cependant, il y a toujours un certain temps auquel nous restons soumis : nous ne pouvons faire le polygone avant le triangle. Mais ce temps-ci n'est plus celui que nous considérons à l'heure : le temps est conservé comme règle de l'action, mais tout ce qu'il y a d'imprévu dans le temps est supprimé. (Weil 1989, S.73)

Wittgenstein spricht aber sowohl explizit als auch anhand mehrerer Beispiele von einem unzeitlichen Gebrauch. In dem Film kommt zwar ein zeitlicher Vorgang vor, aber die Zeit spielt in der gewonnenen Einsicht keine Rolle.

Henri Bergson stellte fest, dass die Mathematik die Dauer eliminiert (Bergson 2000, S.23). Wittgenstein meint mehr: die Zeit überhaupt wird in der Mathematik entfernt. Simone Weil vertritt in obigem Zitat eine Mittelposition (zu Weils Wittgenstein-Nähe in vielen Punkten siehe Winch 1989): Zeit ordnet, von der Wahrnehmung herkommend, auch die Mathematik. Es ist nicht so, dass ein Teil der Zeit verschwindet, wie Bergson sagt, sondern er wird transformiert. Methode macht aus Zeit eine Komponente regelgeleiteten Handelns. Wittgenstein stimmt mit Bergson darin überein, dass es in der Mathematik um den Ausschluss von Unsicherheit geht, aber die Unsicherheit ist nicht als Unvorhersehbarkeit zu spezifizieren. Es geht nicht um die Sicherung von Prognosen, sondern um das *Annehmen einer Norm bzw. eines Begriffs*. Wittgenstein würde sagen, Weils Feststellungen beschreiben eine richtige Sichtweise, aber keine mathematische. Übertragen auf Wittgensteins Beispiel lautet Weils Aussage: Man kann den fünften Stab nicht vor dem dritten verteilen. Für Wittgenstein handelt es sich bei der Identifizierung von etwas als Mathematik um eine Frage der Sichtweise und Verwendung: Möchte man eine empirische Aussage machen, in der die Zeit eine Rolle spielt, handelt es sich nicht um Mathematik. Der Umstand aber, dass 3 in der Ordnung der natürlichen Zahlen vor 5 kommt, ist Mathematik und unzeitlich. Aus „Ich kann den fünften Stab nicht vor dem dritten verteilen“, „Man kann kein Fünfeck zeichnen, ohne ein Dreieck zu zeichnen“ ist der mathematische Satz „3 ist kleiner als 5“ dadurch herausdestilliert, dass von allem, was in der Zeit abläuft, abgesehen wird, Begriffe geschaffen werden, etc. Weils Vorstellung von der Mathematik ist, dass die Zeit in die Regel der Handlung schlüpft und dort als etwas Statisches bewahrt wird (wie Tennisregeln den Charakter des Tennisspiels bewahren). Wittgenstein denkt die Zeit nicht in der Regel bewahrt, sondern durch die Schaffung anderer, unzeitlicher Regeln, Normen zurückgelassen.

Bergson stellt ebenfalls ein Gedankenexperiment mit einem Film an (Bergson 2000, S.31): Begreift man die Zeit (in der Wissenschaft) nur so, dass sie eine Aufeinanderfolge von Geschehnissen gewährleistet, dann könnte man einen Film, auf dem eine solche Aufeinanderfolge aufgenommen ist, in beliebiger Geschwindigkeit abspielen, und das würde keinen Unterschied machen. Ein Zeitbegriff, der von dem alltagsweltlichen Umgang mit Zeit wie z.B. Warten, abgeschnitten ist, ist defizitär – allerdings nur, wenn er beansprucht, der Weltbeschreibung zu dienen. Wenn dagegen mathematische Sätze wie in Wittgensteins Auffassung explizit nicht beanspruchen, etwas über die Welt, wie sie jeweils ist, auszusagen, kann man auch keinen Anstoß daran nehmen, dass sie von der Zeit unabhängig sind.

Wenn Wittgenstein meint, wir können unsere Vorstellung von Zeit nicht grundlegend ändern, ohne unsere Sicht der Welt zu ändern, so gerät das nicht in Konflikt mit der Unzeitlichkeit in seinem Sinn, da die nicht in einem (metaphysischen) Zwiespalt mit der Zeit steht, keine Aussage über eine zeitliche Bestimmung unseres Daseins macht, sondern eine Funktionsbezeichnung für eine Sorte von Sätzen, u.a. den mathematischen, ist.

4. Mathematik und Tanzen

Wenn die Mathematik ein Spiel ist, dann ist ein Spiel spielen Mathematik betreiben, und warum dann nicht auch: Tanzen? (BGM V §4)

Zunächst wird man feststellen, dass Tanzen und Mathematik tatsächlich gewisse nicht geringe Ähnlichkeiten haben: Abgesehen davon, dass eben beide Spiel-Charakter haben, zeichnet auch beide eine gewisse Normativität aus, beide basieren auf Regelmäßigkeiten, auf – sogar geometrischen – Mustern. In einem nächsten Denkschritt wird man sich leicht tun, einen entscheidenden Unterschied festzustellen, nämlich die Verwendung: Wir verwenden Tänze nicht, um Handel mit Äpfeln zu treiben. Diese Art Unterschied mag jedoch nicht ganz befriedigen, weil man das Bedürfnis nach einer Definition von Mathematik hat, die gerade *nicht* von ihrer Anwendung abhängig ist. (Wittgenstein legt allerdings sehr viel Nachdruck auf die Tatsache, dass Mathematik losgelöst von ihrer Anwendung eine unsinnige Vorstellung ist.)

„Die Anzahl der Personen, die einen Wiener Walzer miteinander tanzen, ist 2.“ – Wieso ist das ein Satz über Tanzen, aber nicht ein Satz über Mathematik?

Selbst wenn man zur Unzeitlichkeit noch die Begriffsartigkeit der mathematischen Sätze hinzufügt, reicht es offenbar nicht, um Mathematik zu charakterisieren, man kommt nicht umhin, gewisse Objekte als mathematische auszuzeichnen, wenn man sagen möchte, was unter Mathematik verstanden wird. Damit ein Satz ein mathematischer ist, dürfen nur mathematische Objekte darin vorkommen, keine empirischen etwa wie „Personen“. Umgekehrt reicht es jedoch auch nicht zu sagen, Mathematik ist, was von mathematischen Objekten handelt, es braucht auch Verwendungsbestimmungen für diese Objekte, wie Unzeitlichkeit, damit wir von Mathematik sprechen („5 ist jetzt größer als 3“ ist kein mathematischer Satz).

Simone Weil gibt eine Beschreibung ihrer Art von Dualismus, in der ebenfalls Tanz vorkommt:

C'est le rapport essentiel entre nous et l'extérieur, rapport qui consiste dans une réaction, un réflexe, qui constitue pour nous la perception du monde extérieur.

La simple perception de la nature est une sorte de danse qui nous fait percevoir. “ (Weil 1989, S.42)

Das Bild des Tanzes birgt in sich die Elemente von intendierter Ordnung von Handlungen, bestehender geometrischer Ordnung (der Körper) und Veränderung. Dieses Moment des Tanzes weist auf eine Dynamik hin, die auch für Wittgenstein wichtig ist: Wenn mathematische Sätze durch Fixierung von Begriffen unzeitlich sind, eröffnet sich die Frage nach der Möglichkeit von Entwicklung – Zeit ist notwendig für Begriffsveränderung.

Wittgensteins Sichtweise ist folgende: Wenn wir zu der Annahme gelangen, dass die Zuordnung der Ecken einer gewissen sternförmigen Figur zu fünf Strichen möglich ist und daher in Hinkunft beim Anblick einer solchen Figur sagen „Aha, es sind fünf Ecken“ (bzw. „Es sind gleich viele Ecken wie die fünf Striche“), ohne erneut nachzuzählen bzw. zuzuordnen – haben wir einen neuen Begriff von Gleichzahligkeit angenommen, anders gesagt: Wir haben unseren Begriff von Gleichzahligkeit modifiziert. Das nun ist ein zeitlicher Prozess, der verläuft wie der von Weil beschriebene Tanz. Wir verändern die mathematischen Begriffe in ständiger Angleichung an „die Realität“, an die Erfahrung.

Wenn uns in dem von Wittgenstein beschriebenen Film vorgeführt wird, wie die Kugeln in 10-er-Gruppen eingeteilt werden, sind wir eher geneigt das Ergebnis, „10 x 10 = 100“ etwa, als Begriff, als Norm anzunehmen. Zeit spielt in diesem Prozess, der zur Festlegung auf Normen und Begriffe führt, in der Entwicklung der Mathematik, also natürlich eine Rolle, aber die Funktionsweise mathematischer Sätze ist so, dass Zeit darin nicht vorkommen darf.

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Formal Concepts as Typographic Signs. A Mediaphilosophical Approach to *Tractatus* 4.126

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In 4.126, Wittgenstein introduces a new term into the system of the *Tractatus*: formal concepts. As one of the first, G.E.M. Anscombe recognised the central importance of this passage and related formal concepts to the problem of self-reference in propositions, as discussed by Frege in *Begriff und Gegenstand* (Anscombe 1959:122). Hidé Ishiguro completed Anscombe's analysis by accentuating the relations between formal concepts and Wittgenstein's laconic remarks on the Theory of Types in 3.33. Following Ishiguro, formal concepts are related to Russell's and Wittgenstein's reflections on propositions and their logical form. Wittgenstein's main interest aims at simplifying the logical symbolism by doing away explanations in a metalanguage (Ishiguro 1981: 55). Wilhelm Vossenkuhl extends the position developed by Ishiguro: Formal concepts stand for those entities needed in order to develop a formal description of the world. Because Wittgenstein rejects the possibility of an independent theory of types, the symbols have to make possible a direct logical analysis (Vossenkuhl 1995: 94).

Many commentaries on 4.126 only paraphrase Wittgenstein's formulations. In contrast, Anscombe, Ishiguro, and Vossenkuhl emphasise the central status allocated to the sign itself, which can be elaborated from Wittgenstein's reflections on formal concepts. They also stress the systematic relevance of formal concepts within the system of the *Tractatus*: The introduction of formal concepts serves to avoid the problem of self-reference, it serves to simplify the logical symbolism and rejects the possibility of giving formal logic an epistemological and empiricist foundation, as Russell tried to develop in his 1913 papers (Pears 1977).

There are two theses I want to present in this context. First, the concept of the formal concept is able to fulfil these theoretical aims because its formulation implies the reflection on the theoretical status of the written (or typographic) sign within the system of the *Tractatus*. Second: From this, it follows that not only the late Wittgenstein reflected on the necessary media of thinking – the medium of everyday language in *Philosophische Untersuchungen*. The medium discussed in the *Tractatus* is not formal symbolism as an ideal language, abstracted from the expressions of ordinary language, as it is often understood; Wittgenstein reflects on the typographic sign as the element of an autonomous medium called typographic script.

Especially the first thesis seems to be trivial. No one would doubt the importance which graphic symbols contributed to the constitution of modern logic. It was Frege who emphasised the indispensable function of graphic signs for logic in general, for the development of his concept script in particular.

In its non-trivial variant the thesis maintains, that Wittgenstein goes beyond Frege's and Russell's considerations concerning the logical symbol as graphic sign. He understands logical symbols not only as a store for visualising logical concepts and relations but as the basic medium of logic. This becomes clear especially in the passage on formal concepts.

I want to defend this thesis by referring to the concept of a typographic script, a type of script in an autonomous status in relation to natural languages which implies the possibility of using configurations of signs only syntactically (Krämer 1991). Wittgenstein's considerations on formal concepts are specifically based on this possibility. They are not external reflections on the means of philosophy, but, to the contrary, an internal systematic part of the system of the *Tractatus*. One result of this assumption will be the rejection of explanations in terms of a metalanguage, another result, a further differentiation within the *Tractatus*-theory of showing. Of truly central importance are the conclusions which can be drawn about our understanding of the picture theory. It will be shown that this theory is semiotically based and therefore provides a semiotic foundation as well for the ontology and logic of the *Tractatus*.

The central statement of 4.126 says that it is not possible to express within a proposition that something falls under a formal concept as one of its objects. It is shown in the very sign for this object. And 4.12721 formulates: „A formal concept is given immediately any object falling under it is given.“ In order to understand what is meant by these remarks a formulation of 4.122 is of central importance. There, Wittgenstein speaks of the formal properties of objects and states of affairs which are equated with the structural properties of facts. These formulations are astonishing because the passage does not belong to the ontology of the *Tractatus*, but to the theory of propositions. In which way does it make sense to speak here of states of affairs and facts?

One explanation can be found if one considers Wittgenstein's distinction between propositions and propositional signs. 3.1 introduces the propositions as „an expression of the thought that can be perceived by the senses.“ 3.11 states more precisely that the perceptible sign can be used „as a projection of a possible situation“. 3.12 defines the proposition as „a propositional sign in its projective relation to the world“. An interpretation along the lines of a simple media philosophy would emphasise that platonic entities like thoughts or propositions are only given as written, printed or spoken articulations. Additionally, I want to distinguish between the proposition and the propositional sign in the following way: >Propositional sign< means the perceptible sign in its syntactic structure, whereas >proposition< is understood as the propositional sign including the projective relation to the world. In other words, the term >proposition< includes the possible sense of a proposition as representation of a possible state of affairs. >Proposition< then is the more extensive term which goes beyond the dimension of the propositional sign. Inversely, the propositional sign has to be considered as a necessary but not sufficient condition of the proposition. In contrast to the proposition, the propositional sign can lack a correlated method of projection.

3.14 gives the central definition of the propositional sign as a state of affairs and as a fact. It is the first because „its elements (the words) stand in a determinate relation to one another“ (comp. 2.031). And the determinate way in which objects are connected is the

structure of the state of affairs (2.032). Additionally, 3.12 determines the propositional sign as a fact because it is articulated. In which way can this double characterisation of the propositional sign as a state of affairs and a fact be understood?

Peter M. Sullivan draws attention to the differences between Wittgenstein's formulation of the context principle and that of Frege:

... the central occurrence of the principle in Frege's *Grundgesetze der Sprache* is an answer to the question, How are numbers given to us? Not only does the *Tractatus* not resort to the context principle to answer to this question, it dismisses the question altogether. (Sullivan 2001: 67).

In contrary, the context principle has to be considered an integral part of Wittgenstein's critique of the Theory of Types, as Marc Ruffino pointed out. Specifically, Wittgenstein criticises the way in which Russell tries to appeal to a certain logical intuition and to our specific acquaintance with logical entities and logical forms. This kind of critique was formulated in Wittgenstein's early remarks, as Moore has noted:

Daß M ein *Ding* ist, kann man nicht *sagen*, das ist Unsinn: aber es wird *etwas* durch das Symbol >M< *gezeigt* ... Deshalb ist eine *Typentheorie* unmöglich. Sie versucht etwas über die Typen zu sagen, während man doch nur über die Symbole sprechen kann. Aber was man über die Symbole sagt, ist nicht, daß dieses Symbol zu jenem Typ gehört, das wäre aus dem gleichen Grunde Unsinn; sondern man sagt einfach: *Dies* ist das Symbol, um Mißverständnisse zu vermeiden. (Wittgenstein 1989: 211)

In this remark Wittgenstein refers explicitly to the syntactic configuration of the signs in order to avoid special explanations on the categorical structure of the calculus. Another of Moore's notes underlines this intention:

φ kann unmöglich links von (oder in irgendeiner anderen Beziehung zu) dem Symbol einer Eigenschaft stehen. Denn das Symbol einer Eigenschaft, z.B. ψx , ist, daß ψ links von einer Namensform steht, und ein anderes Symbol φ kann unmöglich links von einer solchen *Tatsache* stehen. (Wittgenstein 1989: 200)

It becomes clear that, following Wittgenstein, the syntactic configuration of the sign already does symbolise. It is also said that the simple sign must be part of a propositional sign in order to be able to symbolise. A syntactic interpretation of the context principle has been formulated by Ruffino in the following way:

... what symbolises for Wittgenstein are the signs φ or ξ in a certain position in relation to the neighbouring signs (that of a different logical type). In other words, what symbolises is the *perceptible sign plus its relative position in propositional signs*. Position here is understood as some kind of relation ... that the sign maintains with other signs which are members of the complete propositional sign ... this is not more than the context principle in a special formulation which I call syntactic, i.e. *only in the articulated context of perceptible signs forming a propositional sign does a simple sign acquire symbolic nature*. The whole theory of types is, hence, reduced to talking about the characteristic positions of certain symbols in the propositional context. In other words, talking about the position that a certain symbol can occupy in a

complete propositional symbol without forming nonsense. In this sense, terms such as 'thing', 'property', 'relation' etc., all refer to specific positions that these symbols may occupy. But these positions are already a constitutive part of the symbol. (Ruffino 1994: 409/410)

Ruffino's interpretation allows us to explain the way in which the propositional sign is understood as a state of affairs and a fact: It is the first because different signs (of different logical types) constitute a particular syntactic configuration, the determinate way in which the elements are connected. And this configuration is the fact. What results from this for the understanding of formal concepts?

First, it is possible to explain explicitly how the sign itself shows which 'object' falls under the corresponding formal concept. It is the syntactic structure of the propositional sign, the *Gestalt*, (Grelling/Oppenheim 1988), which allows one to recognise if the sign stands for a function or a relation. And this structure constitutes „the distinctive feature of all symbols whose meanings fall under the concept“ (4.126). This feature is the characteristic property which propositional variable and singular proposition have in common. From this it follows that particular signs, standing for the Type, are not necessary any more.

Secondly, I would remark what has been stated by Ramsey in his early review of the *Tractatus*: Wittgenstein enhances the status of the singular sign/proposition. Ramsey pointed out a significant ambivalence concerning Wittgenstein's treating of type and token. And in fact, the singular propositional sign allows the introduction of the formal concept, as 4.12721 says. Matthias Varga von Kibéd underlines this tendency, when he refers to Wittgenstein's three kinds of description of a variable in 5.501. He argues that it is sufficient to give a complete list of the propositions, >fa< , >fb< , in order to stipulate the values of the variable (Varga v. Kibéd 2001: 210). In consequence, we can refute to the variable, as the general form; the singular proposition will indicate the general characteristic of all corresponding propositions, their syntactical form.

From this follows, third, that we must accept, besides the dimensions of internal, external and mystic showing, an additional basic kind of showing which must be located on the level of the syntactic structure of the signs.

Wittgenstein's formulation of formal concepts must be then considered as radical because he tries to solve eminent theoretical problems by pointing to the *Gestalt* of the sign. There is no need of a special theory of types because we are able to recognise the 'type' in considering the tokens. We need no specific theory of logical forms because we can identify the form at the level of the typographic sign.

But in which sense can Wittgenstein's solution be considered a solution to Russell's fruitless attempt to give logic an epistemological foundation? Ulrich Majer points out that the picture theory of the *Tractatus* is not as new as it seemed to be to the first commentators of the work. In contrary, there were predecessors in the physical picture theories of Kirchhoff, v. Helmholtz and Hertz. These have in common a semiotic formulation. Wittgenstein, as an engineer, recognised the enormous importance in respect to the logic of scientific research, concerning the heuristic function of pictures as theoretic models. He adopted Hertz' version of the picture theory and reformulated it in

accordance with the theoretic demands of modern logic. Russell's 'old fashioned' epistemological basis for logic was thus replaced by a theory in accordance with the state of modern theories of natural science. But if the concept of a picture is based on semiotic considerations in the way I have tried to argue, then the same has to be accepted for the concept of a proposition and the theory of meaning as one of the most important applications of the picture theory. The passage on formal concepts is not only a manifestation of this fact; it marks the specific culminating point where all related theoretic considerations come together.

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„Was ist Zeit?“

Wittgensteins Kritik an Augustinus kritisch betrachtet

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1. Ein Blick zurück: Augustinus' Frage „Was ist Zeit?“

Hintergrund der Auseinandersetzung Wittgensteins mit der Frage, was Zeit ist und heißt, und Zielscheibe seiner Kritik ist Augustinus. „Was ist Zeit?“ Diese Frage steht im Mittelpunkt des elften Buches der *Confessiones*. Die Frage wurde ebenso wie die Antwort unzählige Male zitiert: „Wenn niemand mich danach fragt, weiß ich es; wenn ich es einem Fragenden erklären will, weiß ich es nicht.“¹ (Augustinus 2000, 25)

Trotz dieser Worte meint Augustinus, zumindest wissen *und* sagen zu können, „daß es keine vergangene Zeit gäbe, wenn nichts vorüberginge, keine zukünftige Zeit, wenn nichts herankäme, und keine gegenwärtige Zeit, wenn es nichts gäbe, das da ist. Wie kommt also jenen zwei Zeiten, der vergangenen und der zukünftigen, Sein zu, da einerseits das Vergangene nicht mehr ist und andererseits das Zukünftige noch nicht ist?“ (Augustinus 2000, 25)

Wenn weder Zukünftiges noch Vergangenes ist, wäre es falsch zu sagen: „es gibt drei Zeiten, die vergangene, die gegenwärtige und die zukünftige. Zutreffend könnte man vielleicht sagen: es gibt drei Zeiten, nämlich Gegenwart von Vergangenen, Gegenwart von Gegenwärtigem und Gegenwart von Zukünftigem.“ (Augustinus 2000, 35) Bleibt also nur die Gegenwart „übrig“, der ein Existenzstatus zuzusprechen ist? Doch auch daran hat Augustinus seine Zweifel, weil sich die Gegenwart zwischen einem Nicht-mehr und Noch-nicht verflüchtigt und sich daher nicht messen lasse.

Augustinus löst dieses „höchst verwickelte Rätsel“, indem er den Geist bzw. die Seele (*anima*) ins Spiel bringt: Die Vergangenheit existiert als Erinnerung (*memoria*), die Gegenwart als Anschauung bzw. Augenschein (*contuitus*) und die Zukunft als Erwartung (*expectatio*): „diese drei Zeiten sind gewissermaßen in der Seele da: anderswo aber sehe ich sie nicht.“² (Augustinus 2000, 35) – Die Frage nach Zeit ist damit allerdings nicht beantwortet, sondern auf die Frage nach dem „Geist“ bzw. der „Seele“ abgewälzt.

2. Augustinus als Zielscheibe der Kritik Wittgensteins

„Bei meiner Methode geht es stets darum, auf Fehler in der Sprache hinzuweisen. Das Wort 'Philosophie' werde ich für die Tätigkeit verwenden, bei der solche Fehler bloßgestellt werden.“ (Wittgenstein 1989, 180) Ein Beispiel

für eine solche Vorgehensweise liefert Wittgenstein mit seiner Behandlung der augustinusischen Frage: „Was ist Zeit?“ Wittgenstein hält sowohl die Frage als auch die Antwort, eine Antwort darauf nur zu wissen, wenn man nicht danach gefragt wird, für *irreführend*.³

Der augustinusischen Namenstheorie der Bedeutung liegt die These zugrunde, dass die Bedeutung eines Wortes der bezeichnete Gegenstand ist. So wird z.B. mit dem Wort „Stuhl“ der konkrete Gegenstand namens Stuhl bezeichnet. Im Falle des Wortes „Zeit“ versagt jedoch diese Theorie, wie Wittgenstein mit folgenden Worten klar macht:

Ist die Zeit erschaffen worden, oder wurde die Welt in der Zeit erschaffen? Hier fragt man so ähnlich, wie wenn man sich nach der Herstellung von Stühlen etwa erkundigt, und die Frage ist auch nicht unähnlich der, ob eine Ordnung (ein 'Vorher' und ein 'Nachher') erschaffen worden ist. 'Zeit' als Substantiv ist schrecklich irreführend. Wir müssen die Regeln des Spiels aufstellen, ehe wir es spielen. (Wittgenstein 1989, 162f.)

Das Wort „Zeit“ ist kein Name für einen Gegenstand. Dasselbe gilt für die Worte „Vergangenheit“, „Gegenwart“ und „Zukunft“. Augustinus' Sprachgebrauch legt dies jedoch nahe, wenn er z.B. fragt: „Wohin geht die Gegenwart, wenn sie Vergangenheit wird, und wo ist die Vergangenheit?“ (zit. n. Wittgenstein 1984c, 156) – Dinge (wie ein Stuhl oder Baum) existieren in Zeit und Raum, aber nicht die Zeit im Raum.

In engem Zusammenhang mit dem Problem der Vergegenständlichung der Zeit steht deren Verbildlichung. Wittgenstein diskutiert diesbezüglich das Bild vom Zeitfluss. Es wäre Unsinn, die Rede vom Zeitfluss so zu verstehen, als bezeichnete das Wort „Zeitfluss“ einen *Gegenstand* unserer Wahrnehmungs- und Sinnenwelt (z.B. einen wirklichen Fluss) oder eine *Eigenschaft* (nämlich „gerichtet“) eines vorhandenen Gegenstandes namens Zeit.

Ausgehend von diesem „falschen Bild“⁴ des Zeitflusses und unter dem Einfluss der aristotelischen Kontinuumslehre kam Augustinus zu dem Resultat, dass sich die Gegenwart auf Grund fortgesetzter Teilung der *Zeitsstrecke* zu einem ausdehnungslosen *Zeitpunkt* verflüchtigt, woraus er die Unmöglichkeit der Zeitmessung folgern zu können glaubte. Wittgenstein hält dieser Argumentation entgegen, dass sich Augustinus in „einen Konflikt zwischen zwei Wortgebräuchen“ verstrickt. „Augustinus, könnten wir sagen, denkt an das Messen einer Länge: etwa an das Messen der Entfernung von zwei Strichen auf einem sich bewegenden Band, von dem nur ein winziger Abschnitt (die Gegenwart) für uns sichtbar ist.“ (Wittgenstein 1984c, 50) Er behandelt also die Gegenwart als „eine Art euklidischen Punkt“, als Schnittpunkt auf einer Geraden, der die Zukunft von der Vergangenheit trennt, zugleich aber auch so, als handelte es sich dabei um gegenwärtiges Zeiterleben. „Doch wenn wir vom gegen-

¹ Weniger bekannt ist, dass das elfte Buch weder mit besagter Frage beginnt noch mit zitierter Antwort endet. An seinem Anfang steht der Zweifel Augustinus', auf dem rechten Weg der Suche nach Gott zu sein. Veranlasst wird Augustinus zu solchem durch die ersten Worte der Genesis, in der es heißt, dass Gott am Anfang Himmel und Erde erschaffen habe. Augustinus stellt die Annahmen einer *creatio ex nihilo* und eines Gottes als ersten unbewegten Bewegten in Frage und gelangt auf diese Weise zur Frage nach der Zeit.

² Augustinus' Verwendung der Begriffe „Seele“ und „Sehen“ (als „geistige Schau“) ist natürlich dem Kontext seiner Gotteslehre und seiner von der neuplatonischen Lichtmetaphysik beeinflussten Illuminationstheorie zuzuordnen.

³ Ausführlich zu Wittgensteins Kritik an Augustinus: Suter 1989, 157-170.

⁴ Wittgenstein wirft Augustinus, genau gesagt, „eine falsche Verwendung unserer Sprache“ und den „Mißbrauch“ des Bildes vom Zeitfluss vor. Vgl. Wittgenstein 1984b, 83.

wärtigen *Erleben* sprechen, ist es unmöglich, die Gegenwart mit einem solchen Punkt gleichzusetzen.“ (Wittgenstein 1989, 177)

Es ist eine Sache, die Gegenwart mit der Vorstellung eines (geometrischen) Zeitpunktes in Verbindung zu bringen, eine andere, mit „Gegenwart“ das „Jetzt“ des unmittelbaren Erlebens zu assoziieren. „Jetzt“ bezeichnet keinen Zeitpunkt. Es ist kein „Name eines Zeitmomentes“. (Wittgenstein 1984c, 157) Zwar kann man sagen, „es ist charakteristisch für einen Namen, daß wir ihn im Satz ‘Dies ist A’ gebrauchen können; es ist aber Unsinn zu sagen ‘Dies ist dies’, oder ‘Dies ist jetzt’.“ (Wittgenstein 1984c, 159) Wie „ich“, „dies“ oder „hier“ ist „jetzt“ ein *indexical term*. Es meint die Äußerungszeit, d.i. die Gegenwart des Sprechenden. Die Frage, wie lange sie dauert, ist irrelevant. Wenn wir von „gegenwärtig“ oder von „jetzt“ sprechen, wäre es unsinnig, das messen zu wollen.

Halten wir fest: Für Wittgenstein ist die Bedeutung eines Wortes nicht der bezeichnete Gegenstand, sondern, wie er in seiner Spätphilosophie darlegt, „sein Gebrauch in der Sprache“. (Wittgenstein 1984a, 262) Dieser kann exemplarisch an Hand von *Sprachspielen* beschrieben werden. „Das Wort ‘Sprachspiel’ soll hier hervorheben, daß das Sprechen der Sprache ein Teil ist einer Tätigkeit, oder einer Lebensform.“ (Wittgenstein 1984a, 250) Sprache ist Teil des kommunikativen zwischenmenschlichen Handelns. Deshalb richtet Wittgenstein sein Augenmerk immer wieder darauf, wie Kinder zeitliche Aussagen zu verstehen und zu verwenden lernen. Sie lernen *zunächst*, etwas *unverzüglich* auszuführen, *später*, was es heißt, etwas *später* zu tun. Sie lernen, sich den konventionellen Zeitrhythmen und Riten der Gemeinschaft anzupassen, zu bestimmten Zeiten zu essen, zu Bett zu gehen, Aufgaben zu erledigen. Man bringt ihnen das Erzählen vergangener Ereignisse bei, den Umgang mit Uhren in Bezug auf Tätigkeiten u.v.m. (Vgl. Wittgenstein 1984c, 151ff.)

Wer in philosophischer Manier einen „Solipsismus des gegenwärtigen Augenblicks“ vertritt und behauptet: „Wirklich ist nur das, was im gegenwärtigen Augenblick erlebt wird“ (Wittgenstein 1989, 176f.), verkennt nicht nur, dass man über das *Sein* der Zeit nicht ohne den Gebrauch der Sprache philosophieren kann und Sprechen über Zeit zweierlei, nämlich Zeit *und* Sprache, voraussetzt, sondern der verkennt vor allem, dass Sprache gemeinschaftlicher Natur ist.

Ebenso wie der Gebrauch des Wortes „ich“ nur Sinn macht auf Grund der Tatsache, dass es andere Mitmenschen gibt, mit denen man sich austauschen und von denen man sich abgrenzen kann, macht der Gebrauch des Wortes „gegenwärtig“ nur Sinn in Abgrenzung zu „vergangen“ und „zukünftig“. „Die alltägliche Verwendung des Wortes ‘gegenwärtig’ hat ihren funktionellen (d.h. im Alltagsgebrauch funktionierenden) Sinn gerade in und durch die Abgrenzung bzw. vor dem Hintergrund von Ausdrücken wie ‘vergangen’, ‘zukünftig’, ‘morgen’, ‘vergangene Woche’ etc., indem sie daraus einen Zeitpunkt hervorhebt, nämlich den augenblicklichen (in einer relativen, pragmatischen Bedeutung).“ (Kaspar/Schmidt 1992, 571) Unser im Leben erworbenes Zeitverständnis basiert weder auf exakten wissenschaftlichen Definitionen noch auf philosophischen Wesensdefinitionen der Zeit.

3. Wittgensteins Gleichnis von der „Laterna magica“

Eine typische Methode Wittgensteins, philosophische Probleme zu behandeln, ist die Konstruktion fiktiver, bisweilen „absurder“ Sprachspiele. Ein solches ist das Gleichnis von der „Laterna magica“. Als *Laterna magica* („Zauberlaterne“) wird der Vorläufer der Diaprojektion und der Filmkamera bezeichnet. Man stelle sich also eine Filmkamera vor, d.i. ein Apparat, der eine Sequenz fotografischer Bilder auf durchlaufende Filmstreifen belichtet. Mittels eines Filmprojektors werden diese auf eine Leinwand projiziert:

Wenn ich die Tatsachen der unmittelbaren Erfahrung mit den Bildern auf der Leinwand und die Tatsachen der Physik mit den Bildern auf dem Filmstreifen vergleiche, so gibt es auf dem Filmstreifen ein gegenwärtiges Bild, vergangene und zukünftige Bilder; auf der Leinwand aber ist nur die Gegenwart. (Wittgenstein 1984b, 83)

Wittgenstein *gebraucht* dieses Gleichnis, um zu zeigen, dass zwei verschiedene Zeitbegriffe zu unterscheiden sind:

- i) *die unmittelbare Erlebniszeit*, die in „Gestalt“ von Erinnerung, gegenwärtigem Erleben und Erwarten für unser Handeln konstitutiv ist;
- ii) *die Zeit der Physik*, der als Zeitordnung die Früher-Später-Relation zugrunde liegt.

Zu i): Unser Verständnis und Gebrauch der Zeitmodi der Vergangenheit, Gegenwart und Zukunft koordiniert unsere Absichten, Handlungspläne und Lebensziele, Vorschriften, Ge- und Verbote, Pflichten u.v.m., kurz: das, was Menschen (tun, sein und haben) wollen und sollen. Jedes *Handeln* hat also „eine zeitlich modale Struktur insofern, als es in der Gegenwart stattfindet und auf Zukünftiges gerichtet ist.“ (Janich 1996, 142)

Zu ii): Im Diskussionskontext dieses Zeitbegriffes gelten die (ontologischen) Thesen einer *Asymmetrie* der Zeit und eines *Zeitflusses* (mit einer „ausgezeichneten Gegenwart“) als besonders umstritten. Es sei hier nur bemerkt, dass es *erstens* umstritten ist, ob die Entropiezunahme als Auszeichnung einer physikalischen Zeitrichtung zu interpretieren ist, *zweitens*, ob in der Quantenmechanik mit dem Messproblem das „Jetzt“/die „Gegenwart“ ins Spiel kommt.⁵

Diese durchaus gängige Differenzierung zweier Zeitbegriffe ließe sich auch treffen, ohne ein Gleichnis dafür anzuführen.⁶ Handelt es sich dabei um eine bloße Extravaganz der Sprachspielanalyse Wittgensteins? Fragen wir zunächst, was damit beabsichtigt werden soll: Die Unterscheidung zwischen zwei verschiedenen Zeitbegriffen ist schnell getroffen. Die entscheidende Frage ist jedoch, in welcher Beziehung die beiden zueinander stehen.

Ist der eine Zeitbegriff auf den anderen reduzierbar bzw. der eine aus dem anderen ableitbar? Falls „Ja“, welcher

⁵ Für eine kurze Darlegung der Problematik mit weiterführenden Literaturangaben bzgl. Punkt 1 siehe u.a. Mittelstraß (1993) und Callender (2001); bzgl. Punkt 2: Dobbs (1969), kritisiert von Grünbaum (1969, 169), seinerseits kritisiert u.a. von Craig (2000, 167-177) und Palge (2002).

⁶ Zu verweisen wäre diesbezüglich auf McTaggart (1908). Ausgehend von der Unterscheidung zwischen der sog. A-Reihe (mit der modalen Zeitordnung „vergangen“, „gegenwärtig“, „zukünftig“) und der B-Reihe (mit den zueinander konversen Prädikatoren „früher als“, „später als“) glaubte McTaggart, die Irrealität der Zeit beweisen zu können – ein Versuch, der bis heute Gegenstand eines heftig geführten Diskurses ist.

Zeitbegriff auf welchen? Die Geschichte dieser Streitfragen weist unzählige Beispiele für Versuche auf, den einen gegenüber den anderen Zeitbegriff als den primären zu bestimmen. Nach Wittgenstein ist dies ein falscher Ansatz. Es geht gerade nicht darum, den einen Zeitbegriff gegen den anderen auszuspielen. „Beide Ausdrucksweisen sind in Ordnung und gleichberechtigt, aber nicht miteinander vermischbar.“ (Wittgenstein 1984b, 81f.) Die *Sprachkonflikte*, in die sich Augustinus verstrickt, interpretiert Wittgenstein als das Resultat „der Übertragung des Zeitbegriffs der physikalischen Zeit auf den Verlauf der unmittelbaren Erlebnisse. Es ist die Verwechslung der Zeit des Filmstreifens mit der Zeit des projizierten Bildes.“ (Wittgenstein 1984b, 81)

Das Filmgleichnis stellt so gesehen eine Möglichkeit dar, um zu zeigen, dass (und inwiefern) beide Zeitbegriffe zu unterscheiden, aber nicht zu trennen sind. Man könnte auch sagen, es soll ein anderes, neues „Licht in die Verhältnisse unsrer Sprache werfen“. (Wittgenstein 1984a, 304) Es wirft jedoch – genau betrachtet – eine Reihe von *eigenen* Fragen auf. Diese betreffen u.a.:

- i) Wittgensteins Redeweise von der „Präformiertheit der Zukunft“,
- ii) Wittgensteins Gebrauch der Begriffe „Bild“ und „Bildprojektion“ (im Kontext seiner Betrachtung philosophischer Zeitfragen).

Zu i): Wittgenstein bezeichnet es als „[d]as eine Charakteristische an diesem Gleichnis“, dass man „darin die Zukunft als präformiert“ ansehen kann. (Wittgenstein 1994, 23) „Wenn man sagt die Zukunft sei bereits präformiert so heißt das offenbar: die Bilder des Filmstreifens welche den zukünftigen Vorgängen auf der Leinwand entsprechen sind bereits vorhanden. Aber für das was ich in einer Stunde tun werde gibt es ja keine solchen Bilder.“ (Wittgenstein 1995, 231)

Wittgenstein bemerkt zwar an einer (anderen) Stelle: „In der Sprache dieses Gleichnisses kann ich mich nicht außerhalb des Gleichnisses bewegen.“ (Wittgenstein 1984b, 82) Vergleicht man aber sein fiktives Sprachspiel, d.h. das Filmgleichnis, mit unseren gewöhnlichen Sprachspielen, die Zeit betreffen, lässt sich Folgendes feststellen: In der Sprache des Gleichnisses macht es Sinn, von *zukünftigen Bildern* auf dem Filmstreifen *relativ* zu den *bereits* auf die Leinwand projizierten zu sprechen und diese als „bereits vorhanden“ zu interpretieren.

Aber vergessen wir nicht [...] in der Grammatik der Zukunft tritt der Begriff des 'Gedächtnisses' nicht auf, auch nicht mit 'umgekehrtem Vorzeichen'. – Vielleicht wird man sagen: 'Was hat das mit der Grammatik zu tun? Wir *erinnern* uns eben nicht an die Zukunft! Nun das kommt darauf an, wie man das Wort erinnern gebraucht. In unserer *gewöhnlichen* Sprache hat es keinen *Sinn* zu sagen: 'Ich erinnere mich deutlich an das, was morgen geschehen wird', – auch dann nicht, wenn ich ein Prophet bin. (Wittgenstein 1984c, 159)

Die Zukunft selbst kann man nicht filmen oder in Bildern festhalten. Der Film zeigt nur das (nochmals), was schon geschehen und damit *vergangen* ist. Ein Film hat Anfang und Ende. Er stellt nur einen begrenzten Ausschnitt aus unserer raumzeitlichen Wirklichkeit dar. Man kann im Film den Zeitablauf durch Zeitlupe und Zeitraffer relativieren. Man kann einen Film sogar rückwärts laufen lassen (was das Auge verwirrt und gewöhnungsbedürftig ist). Der Betrachter des Films ist kein Teil des Films, selbst wenn er es sein sollte, der sich selbst filmt, sondern er steht zum Zeitpunkt der Betrachtung des Films *vor* der Leinwand. Im Leben hingegen befindet sich der Mensch in seiner phänomenologischen Welt- und Leibverbundenheit immer schon inmitten von Raum und Zeit.

Zu ii): Wittgenstein vergleicht die vergangenen, gegenwärtigen und zukünftigen Tatsachen bzw. Vorgänge mit den Bildern auf dem Filmstreifen und die Gegenwart mit dem jeweiligen Bild auf der Leinwand. Aber entsprechen Bilder Tatsachen und ist das jeweilige Bild auf der Leinwand *Abbild* der Gegenwart des Betrachters, d.h. seines Zeitempfindens und Zeitbewusstseins im gegenwärtigen Augenblick? – Es drängt sich hier ein Verdacht gegen Wittgenstein auf: Zumindest im Kontext des Gleichnisses von der *Laterna magica* und zu diesem Zeitpunkt seiner Philosophie wurde Wittgenstein selbst „von einem Bild gefangen“ genommen. Gemeint ist damit nicht das Bild vom Fluss der Zeit, das Augustinus vorschwebte, sondern das Bild und die Technik der Filmprojektion.

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A New Reading of Russell's 'Introduction' to Wittgenstein's *Tractatus*

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Contrary to the "standard reading" on the subject (Eames 1989, Hylton 1990, Hacker 1996), the presupposition that Russell's philosophy entered into "bankruptcy" with the impact of the *Tractatus Logico-Philosophicus* has no historical and philosophical basis, be it at the time of Russell's reading of the manuscript of that book, in 1919, or at its publishing date (1921), or later. That presupposition wrongly identifies Russell's views at the time of the "Introduction" to that book with a naïve atomism, based on the confusion between logic, psychology and epistemology, to which he would have renounced in the face of a purified and more advantageous approach of logic than that of the *Tractatus*. From this perspective, this book would itself expose, in a sense, an atomist view of logic, but, contrary to what happens with Russell's, a perfectly consistent one. In this paper, I will try to show that the essential point of the "Introduction" is that Russell, whose philosophy in the meantime had evolved to a view on the vagueness of ordinary language that I will designate as "partial semantic holism", could not share Wittgenstein's concept of logic, and, especially, a more or less radical holism that seems to characterize it, leading not only to mysticism but, generally, to the idea of the impossibility of philosophy itself.

Let's start with the interpretation of Russell's concept of vagueness according to the "standard reading". One of its first subscribers (Iglesias 1977 and 1981) rightly points out that, strictly speaking, not one but two "Introductions" to the *Tractatus* exist, and that the essential aspect of the difference between the second (published in the English version of that book) and the first one is the introduction of a decisive passage in which Russell attributes to Wittgenstein the idea of a logically perfect language under the pretext that "In practice, language is always more or less vague, so that what we assert is never quite precise." (Russell 1988, 101) Nevertheless, the vagueness which Russell refers to in this passage, as either the paper "On Propositions" (1919), either *The Analysis of Mind* (1921) or the essay "Vagueness" (1923) show, can in no way be confounded with a simple property of the representations of ordinary language (see Russell 1988a, 147-148). This "naïve" concept of vagueness, from Russell's side, existed in fact in the philosophy of logical atomism up to 1919 (see Russell 1986, 174) and, particularly, up to the wake of the doctrine of neutral monism, but from the twenties on, that is, at the time of the *Introduction* to the *Tractatus*, he began to interpret his concept of vagueness in semantic terms.

More or less at the same time that Wittgenstein seems to defend in the *Tractatus* a classic and atomist theory regarding the meanings of the words of ordinary language (Wittgenstein ²1933, 4-025), Russell holds a holistic view according to which meaning, in general, is given to us only through the use of language. It is just such a use that explains the vagueness in ordinary language. In "On Propositions" (1919), he observes in this respect: "A word has a meaning, more or less vague; but the meaning is only to be discovered by observing its use: the use comes first, and the meaning is distilled out of it." (Russell 1986a, 290) And in the "Lecture X" of *The Analysis of Mind*, two years later, he develops such theory: "It is not necessary,

in order that a man should 'understand' a word, that he should 'know what it means', in the sense of being able to say 'this word means so-and-so'. (...) Understanding language is more like understanding cricket: it is a matter of habits, acquired in oneself and rightly presumed in others. To say that a word has a meaning is not to say that those who use the word correctly have ever thought out what the meaning is: the use of the word comes first, and the meaning is to be distilled out of it by observation and analysis. Moreover, the meaning of a word is not absolutely definite: there is always a greater or less degree of vagueness." (Russell ¹¹1978, 197-198)

As *The Analysis of Mind* shows, the epistemological problems connected with the (so-called) "theory-laden observation" are at the hub of Russell's theory of meaning: if the datum is always already impregnated with theory, that is, only is "datum" in the light of a certain theory, "It follows that no datum is theoretically indubitable, since no belief is indubitable." (Russell ¹¹1978, 297-298) In how far can we say that no datum really exists as such and thus is essentially different from the theory itself? Russell, having in mind the *Tractatus*, would say that philosophical analysis implies the inexistence of a pure datum, free of interpretation, and that, thus, such a datum is a fiction; but he would add that theory demands the postulate of the existence of a pure datum as a condition of its own possibility, even if that datum is always already impregnated by an interpretation. The analysis in question in the *Tractatus*, from this point of view, is imposed by the semantic relativity between the complex and the simple, not by the fact that the complex is ultimately composed by the simple, however remote this may be (Russell 1988, 148). In other words: the "complex" is complex on account of that relativity, and not because in the last analysis it is composed or constituted by the simple; the indeterminacy of the complex is the semantic indeterminacy of our representations and of meaning in general, and is such indeterminacy that makes it exactly what it is ("complex").

Now, in the "Introduction" Russell attributes implicitly to the *Tractatus* this notion of semantic relativity we have been analysing (Russell 1988, 101-102), although such type of semantic holism, which Quine made very well-known under the name of "indeterminacy of translation", seems generally to be absent from that book and, generally, from Wittgenstein's so-called "first philosophy". Anyhow, the essential point is that Russell's logically perfect language and that of Russell's "Wittgenstein", that is, the same logically perfect language that Russell to a certain amount attributes to Wittgenstein, has as fundamental purpose (contrary to the "standard reading" on the subject), not to re-establish a "precision" and "exactness" definitely estranged by the very generality and ambiguity of the vagueness of ordinary language, but just to enable a logical and ontological analysis of the world through it, which apparently is compromised by the semantic indeterminacy of our representations and of meaning in general (see Russell ⁴1973, 117-118).

In how far can we say that Wittgenstein holds a holistic view on meaning in the *Tractatus*, as has been suggested by some interpretations (McCarthy 1991)? I will

distinguish here, briefly, two sorts of radical holistic views in that book, even if they are somehow connected: one semantic, rejected by Russell, and another characteristically logical, or logico-structural, which he would partially accept.

The argumentation in favor of a semantic holism from Wittgenstein's side is particularly important regarding the problems of the justification of the logical form of atomic propositions and the legitimacy of solipsism, on which the well-known theory of the *Tractatus* that in any case we can't transgress the limits of language to treat its existence as a fact is based: if that form, which represents (*Darstellung*) the form of the corresponding facts, could in its turn be "represented", that is, if we could "represent" in its turn the *whole* in which that representation consists, our explication would be empty and self-contradictory, because that "representation" would position itself outside the limits of factual language that is supposed to *represent* in the first place (Wittgenstein ²1933, 4-12, 4-121). Similarly, in the case of solipsism, if the limits of logic are the limits of the world and of language itself as a *whole*, as shown in the *Tractatus*, no language, without denying itself, can identify and mention the point of view based on which world and language can be understood (Wittgenstein ²1933, 5-62, 5-63, 5-632, 5-633, 5-641). (This is just, as we know, the case of the logical language of the *Tractatus* itself.) In both cases, Wittgenstein's argumentation uses the idea of an essential semantic relativity in which the supposed justification incurs to turn it against itself, and he does so not simply from the viewpoint of the resulting unavoidable circularity, but above all from the viewpoint of the contradictions between the *logical scope* to which normally belongs that justification and which is given through the set of conditions of the possibility of the "form of representation" treated in a first part of the *Tractatus*, and the *original semantic scope* in question (the scope of the representation as a whole, that is, in its essential relation with the world).

Certainly, as D. McCarthy has shown, the doctrine of logic itself, in the *Tractatus*, is holistic, in the sense that its categories and fundamental properties, globally considered, express the categories and fundamental properties of the world considered as a whole (McCarthy 1991). As Wittgenstein says: "Logic fills the world: the limits of the world are also its limits." (Wittgenstein ²1933, 5-61) Nevertheless, one of the fundamental differences between semantic holism and logical holism is that the latter is essentially a logico-structural holism which is indifferent to the problem of the semantic relativity between logic and the world (or between "theory" and the "datum"), in the sense that the conditions of the possibility of representation in general, which we referred to above, are essentially syntactical or logico-structural conditions, not semantic ones. In contrast, semantic holism, coming to the conclusion of a essential impossibility to renounce language as a universal *medium* of thinking and establishing what the Hintikka call the "ineffability of semantics" (Hintikka 1986), that is, the illegitimacy of any discourse about language which would not be itself subordinated to its own possibility conditions (which are already essentially given through it), exposes a real semantic relativity, which seems to be completely absent in logical holism.

The problem of holism is subjacent to the whole of Russell's "Introduction" and, especially, to the "conditions which would have to be fulfilled by a logically perfect language" (Russell 1988, 101). Russell thought, as I have already suggested, that his notion of a partial semantic holism was somehow accepted by Wittgenstein's theory of showing, and, therefore, that the *Tractatus* would accept and develop such a language in order to avoid the pernicious holistic consequences of that theory. This explains why he interpretes that book as if it was possible for Wittgenstein, in order to escape from mysticism, to abandon his radical version of semantic holism and to adopt Russell's hierarchy of types-languages (Russell 1988, 111-112), or why he was prepared to accept, with some restrictions, several important points of Wittgenstein's doctrine of "pure logic" (Russell 1988, 105-107). But, in the end, it is obvious in the "Introduction" that Russell could not accept Wittgenstein's holistic starting-points. The crux of his argumentation is, of course, the theory of showing, and, especially, the thesis that it is not legitimate to represent the logical form common to propositions and facts, or, if one prefers, to *represent the whole in which such a relation consists*. That thesis, when applied to logic in general, leads, according to him, to mysticism and to the final impossibility of philosophy (Russell 1988, 108). The "representation" is only really one as long as it is a representation of facts, and any claim to represent it in its turn independently from that essential relation, as happens in the philosophical discourse, is necessarily empty and self-contradictory, or, as Russell would say resorting to his own concept, "bad grammar" (Russell 1988, 103), that is, it violates the logical syntax that is at the basis of the possibility of meaning in general while trying to construct a metasyntax that would justify it. The point, for Russell, regarding our impossibility to represent the "form of representation" in general, is, it is worth underlining, that Wittgenstein's solution for the problem of the semantic relativity inherent to that representation implies the acceptance of a radical holism as far as the doctrine of logic itself presupposes *an exit to outside the world and language as a whole*. As he says: "The totalities concerning which Mr. Wittgenstein holds that is impossible to speak logically are nevertheless thought by him to exist." (Russell 1988, 111-112) What constitutes a problem is not the apparent internal contradiction of Wittgenstein's theory, making statements prohibited by the theory itself, but rather this other fundamental circumstance that a radical holism in philosophy does not possess any internal criterion (as is the case of the "logically perfect language" for Russell's partial semantic holism) that would permit to really justify itself.

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Der Radikale Konstruktivismus als historistische Netzwerktheorie

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Einleitung

Der Radikale Konstruktivismus (RK) ist eine im deutschsprachigen Raum hinlänglich bekannte Epistemologie. Beginnend bei McCullochs (2000) Konzept einer „experimentellen Epistemologie“, die im Geiste der NachkriegsKybernetik versuchte, philosophische Fragen auf naturwissenschaftlich-experimentellem Weg zu klären, hat sich der RK auf mehreren Wegen entwickelt und wurde in den 1980ern von deutschen Sprach- und Medienwissenschaftlern als einheitliches Rahmengebäude präsentiert (Schmidt 1987; Rusch 1987). Sein Hauptanliegen besteht darin, die – beispielsweise durch Searle (1999) angeprangerte – Obsession mit der Epistemologie aufzulösen und anstelle der Frage nach dem Wesen von Wissen und Erkenntnis sich interdisziplinär der *Generierung* derselben und ihrem Verhältnis zu kognitiver Aktivität zu nähern. Gemäß Glasersfeld (1987), der den Ausdruck „*radical constructivism*“ 1974 prägte, konstituiert sich Wissen als dynamisches Produkt von Konstruktionsprozessen im Erfahrungsstrom. Diese Prozesse werden gewöhnlich als „Kognition“ bezeichnet, wobei Wissen in keiner Weise als Reflexion einer vom Erkennenden unabhängigen Realität definiert wird. Konsequenterweise betont der RK die Einsicht, dass Erfahrungen die alleinige Grundlage für kognitive Aktivität darstellen, aus denen wir das konstruieren, was uns als umgebende Welt erscheint, so dass wir letztendlich den Horizont unserer Erfahrungen nicht überschreiten können (Riegler 2001c).

Allerdings findet sich der RK aufgrund seiner naturalistischen Geschichte, seiner weit verbreiteten Vulgarisierung und der vermeintlichen Repetition überholter philosophischer Konzepte in einer weder durch Wissenschaft noch durch akademischer Philosophie ernstgenommenen Position (z.B. Nüse et al. 1991). Ziel dieses Aufsatzes ist es Argumente vorzulegen, den RK entgegen geläufiger Darstellungen als ein progressives formalistisch-philosophisches Rahmenprogramm zu präsentieren. Radikal-konstruktivistische Postulate werden nicht als Kondensat naturwissenschaftlicher Erkenntnisse charakterisiert. Vielmehr werden diese als Bestätigungen für das abstrakt-formalistische Grundgerüst des RK betrachtet. Das formalistische Fundament erhält der RK von zentralen mathematischen Netzwerkmodellen, deren Anwendung auf Wissenserwerb- und Erkenntnisfragen zum Hauptthema radikal-konstruktivistischer Forschung deklariert wird.

Naturalismus, Selbstaufhebung und Solipsismus

In seinem Bestreben Klarheit in epistemologische Fragestellungen zu bringen, wird der RK mit dem Vorwurf konfrontiert, ein realitätsfremder Naturalismus zu sein, der entweder zur logischen Selbstaufhebung oder in den Solipsismus führt. Wie Mitterer (2001, p.120) darlegt, besteht der Hauptvorwurf darin, „... dass der Konstruktivismus ohne realistische Voraussetzungen nicht auskommen könne. [...] Der Konstruktivist ist in Wirklichkeit ein Realist – und spätestens dann, wenn er mit dem Kopf durch die Wand will, müsste er dies auch eingestehen.“ Diesem (naiv-)dualistischen Argument, das sich auf die als selbstverständlich gehaltene ontologische

Existenz von Wänden, Nashörnern und Tischen beruft, wird von konstruktivistischer Seite entgegen gehalten: „[W]enn ich wissen will, ob dieser Tisch existiert, dann muss es in meiner Erfahrungswirklichkeit schon einen Tisch geben, mit dem ich mich befasse. Die Frage, ob dieser Tisch existiert oder nicht ist eine Behauptung, die der Existenz weder etwas hinzufügt noch abspricht.“ (Schmidt in Pörksen 2001, p.168). Das Zitat verdeutlicht die Betonung des RK auf die wechselseitige Bezugnahme von Erfahrungsinhalten: „Unsere Vorstellungen von der Realität können nur mit anderen Vorstellungen verglichen werden und nicht mit der Realität selbst.“ (Mitterer 2001, p.120).

Aus der Bezugnahme auf biologische Erkenntnisse entsteht weiters der Eindruck, der RK sei ein Biologismus. Maturana und Varela (1980) entwickelten völlig im Sinne von McCullochs Programm der experimentellen Epistemologie eine biologische *non-mainstream* Theorie der „Autopoiese“, in deren Mittelpunkt die materielle Selbstproduktion von biologischen Entitäten steht. Epistemologie wird als biologisches Phänomen verstanden, was in verschiedenen Publikationstiteln zum Ausdruck kommt (z.B. Maturana 1982a,b).

Wie allerdings Glasersfeld (1993, p.290) betont, ist dieser Vorwurf des Biologismus unbegründet, da „Autoren aus Disziplinen, die sich kaum überschneiden, unabhängig von einander konstruktivistische Ideen entwickelt haben, nicht etwa weil diese Ideen sich aus empirischen Befunden ableiten ließen, sondern weil gewisse neue Ansätze in keiner Weise mit der herkömmlichen Erkenntnistheorie vereinbart werden konnten.“ Beim Sprachwissenschaftler Glasersfeld selbst begründet sich der RK in seiner „mehrsprachigen Jugend und dem wachsenden Unbehagen mit dem Begriff der Erkenntnis“, die durch Ceccatos operationale Semantik und Piagets psychologische Theorie der genetischen Epistemologie ihre Ausrichtung gefunden hatten. Auch Foerster war nicht so sehr über die Biologie, sondern durch die technische Disziplin der Kybernetik auf konstruktivistische Prinzipien gestoßen. Beim Linguisten Glasersfeld und beim Techniker Foerster, wie auch beim Logiker Spencer Brown, der sich mit den Grundlagen formalen Denkens beschäftigte, tritt die formalistische Grundlage des RK zu Tage.

Historisch entwickelte, interne Erfahrungszusammenhänge

Die wechselseitige Bezugnahme von Erfahrungsinhalten wird durch eine historische Komponente komplimentiert, die in herkömmlichen kognitionswissenschaftlichen und analytisch-philosophischen Modellen meist fehlt, da diese von der intellektuellen (logischen, linguistischen, etc.) Kompetenz eines erwachsenen und der westlichen Kultur zugehörigen Menschen ausgehen.

Der RK hingegen beruft sich auf die Tatsache, dass Erfahrungen sequentiell gemacht werden. Ein Erlebnis reiht sich an ein anderes, bereits zuvor gemachtes. Wissensgewinnung ist damit ein historischer Prozeß, und Konstruktionen sind geschichtliche Ansammlungen. Dadurch referieren Erlebnisse aufeinander. Eine neue Erfahrung steht in Relation zu einer älteren, sei es im

positiven Sinn, dass sie einen ähnlichen und damit unterstützenden Fall darstellt, sei es im negativen Sinn, dass sie einer früheren Erfahrung widerspricht.

In gewisser Weise reflektiert dies Wittgensteins Philosophieauffassung, welche die Arbeit des Philosophen als „ein Zusammentragen von Erinnerungen zu einem bestimmten Zweck“ (*Philosophische Untersuchungen* §127) bestimmt. Und der Zweck, den Wittgenstein der Philosophie schlechthin unterstellte, ist das Sehen von Zusammenhängen und das Finden von (kohärenten) Zwischengliedern.

Glaserfeld hat darauf hingewiesen, dass das Einarbeiten von Erfahrungen in das relationale Netzwerk mittels Prozessen geschieht, wie sie z.B. von Piaget (1974) Assimilation und Akkommodation genannt wurden: Das Aufnehmen neuer Erfahrungen in das bestehende Netzwerk bzw. das Verändern des Netzwerkes, um Neues aufnehmen zu können.

In Folge entsteht ein hierarchisches Netzwerk von wechselseitigen Abhängigkeiten, in dem Komponenten den Kontext für eine weitere Komponente festlegen. Diese wechselseitige Abhängigkeit bedeutet, dass einzelne Teile dieses Erfahrungsnetzwerkes nicht isoliert betrachtet werden können.

Konstruktionsbeschränkung

Das Einfügen neuer Erfahrungen in das bestehende Netzwerk, das Konstruieren von Sinn, ist aufgrund der wechselseitigen und hierarchischen Abhängigkeiten nicht beliebig. Vielmehr unterliegt es *Konstruktionsbeschränkungen*. Zwar eröffnet jede neu hinzugefügte Erfahrung die Möglichkeit, dass sich noch mehr Erfahrungsinhalte später an diese anschließen. Aber dieses Hinzufügen unterliegt, vergleichbar mit der Situation bei einem fortwährend expandierenden Puzzle, kanalisierenden Einschränkungen. Ältere, zuvor gemachte Erfahrungen dienen als Bausteine für neue Erfahrungen und bestimmen somit, welche neuen Erfahrungen überhaupt assimiliert, d.h. eingefügt, werden können. Die Folge von Kanalisierung ist eine asymmetrische Entwicklung, die Systeme in eine zunehmende Komplexifikation ihrer Struktur und Dynamik treibt. Dies wird nicht durch externe, sondern durch interne Mechanismen verursacht (Riegler 2001a). Wie im nächsten Abschnitt angeführt, findet dieser qualitative Sachverhalt eine Präzisierung durch formale Netzwerkmodelle.

Wittgensteins (2000, p.285) „Denkgewohnheiten“, der Umstand, dass die Menschen „tief in den philosophischen, d. i. grammatischen Konfusionen eingebettet“ sind, aus denen man sie nur schwer „herausreißen“ kann, sind eine Konsequenz der Konstruktionsbeschränkung. Je älter die Einbettung desto schwieriger ist das Herausreißen, wie in Riegler (2001a) in bezug auf die „*reversibility of constructions*“ und „*habitual reframing*“ (Watzlawick, Weakland und Fisch 1974) ausgeführt wurde.

Die grundlegenden Eigenschaften von sich historisch entwickelnden Relationalnetzwerken, wie etwa die kanalisierende Konstruktionsbeschränkung, stellen in erster Linie Aspekte in formalen Systemen dar, die unabhängig von deren Anwendung auf materielle Entitäten sind. So entwickelte Kauffman formale Beschreibungen binärer Netzwerke, die isoliert von äußeren Einflüssen eine starke Selbstkanalisation ausbilden. Arbeiten auf dem Gebiet von *scale-free networks* und *small-world-networks*

bestätigen, dass die Annahme organisationaler Geschlossenheit und den daraus fortfließenden Eigenschaften auf einer generellen abstrakt-formalen Ebene auftreten. Für den RK sind daher eine Reihe von theoretischen Ergebnissen auf dem Gebiet der Komplexitäts- und Netzwerkforschung von Relevanz. Im Folgenden diskutiere ich fünf der bedeutendsten Resultate.

Netzwerktheorien

Die Propensität von Erfahrungsnetzwerken zur Ausbildung hierarchischer Strukturen wird durch die Arbeiten von Simon und Holland fundiert. Holland et al. (1986) führten den Begriff der *default hierarchies* ein, die hierarchische Systeme auf menschliche Kognition beziehen. Gemäß den Autoren arbeitet menschliche Kognition mit einem konzeptuellen Netzwerk, das hierarchisch ineinander verschachtelt ist. Dabei bilden Elemente auf höheren Ebenen Ausnahmen zu generellen Elementen auf niedrigeren Ebenen. So könnte man in semantischer Hinsicht ausgehend von dem Begriff des Vogels (d.h. alle flugfähigen Tiere mit Federn) auf zweiter Ebene verschiedene Vogelarten anführen, wie etwa Adler, Lerche, und Strauß. Letzterer benötigt aber eine dritte Ebene, die besagt, dass Strauße zwar Federn haben, aber nicht flugfähig sind. Bereits in den 1960ern wies Simon (1994) darauf hin, dass hierarchische Systeme sich vor allem durch Stabilität und Geschwindigkeitsvorteil auszeichnen.

Die Arbeiten von Kauffman (1993) über binäre NK-Netzwerke stellen aus RK Perspektive die wichtige Erkenntnis zur Verfügung, dass es in beliebig großen Netzwerken ohne Fremdeinfluß zu selbstkanalisierenden Entwicklungen kommt. Unter der Annahme, dass jeder der n Knoten in einem Netzwerk k Ein- und Ausgänge besitzt, ergibt sich bei $k = 2$ Netzwerken folgende Eigenschaften. Die Zahl der Zustände, die ein bestimmtes Netzwerk einnehmen kann, beträgt 2^n , während die Zahl der Zyklen, die es durchlaufen kann, nur $\sqrt{n}$ groß ist (Neuere Arbeiten, z.B. Bilke und Sjunnesson 2002, sprechen von einem einfachen linearen Verhältnis). In anderen Worten, trotz großer Knotenzahl ist seine Dynamik beschränkt auf relativ wenige unterschiedliche Muster. Auf Kognition bezogen bedeutet dies, dass auch bei einer großen Anzahl von Erfahrungselementen die Zahl von „Gedankengängen“ sehr gering ausfällt. Nehmen wir an, das Wissen eines Individuums umfasse etwa 50000 Elemente, so bedeutet dies unter der Voraussetzung, dass jedes Element mit zwei anderen in Verbindung steht, dass das Denken in $\sqrt{50000} \approx 223$ verschiedenen Bahnen verläuft. Ungeachtet der Tatsache, bei welchem Element ein Denkvorgang beginnt, kommen die Gedanken immer wieder in einen dieser knapp mehr als 200 Denkkanalisationen zurecht.

Wie oben angeführt, betont der RK vor allem das Wachstum von Erfahrungsnetzwerken, in denen laufend neue Knotenelemente hinzukommen, die mit bestehenden Elementen verbunden werden. Diesen historischen Aspekt beleuchten u.a. die Arbeiten von Barabási & Albert (1999). Im Gegensatz zu Zufallsnetzwerken und klassischen NK-Netzwerken, wo jeder Knoten im Durchschnitt dieselbe Anzahl von Verbindungen zu anderen Knoten hat, unterliegen scale-free Netzwerke einer exponentiellen Verteilung von Verbindungen, so dass die meisten Knoten relativ wenige Verbindungen haben und nur einige wenige stark verknüpft sind. Die Wahrscheinlichkeit $p(k)$, dass ein Netzwerknoten mit k anderen verbunden ist, folgt der exponentiellen Gleichung

$p(k) \approx k^{-g}$. Beispielsweise liegt auf dem WWW für eintreffenden Verbindungen der Wert von g bei etwa 2.1, während für wegführende Links $g = 2.45$. In solchen Netzwerken kommt es zu bevorzugten Anknüpfungen (*preferential attachments*). Die Wahrscheinlichkeit, dass ein neuer Knoten an einem bestehenden Knoten i mit k Verbindungen anknüpft, beträgt $p_i(k) = k / \sum k_j$, d.h. bereits gut verbundene Knoten legen schneller neue Verbindungen an als schlecht verbundene. Dadurch entsteht in diesen Netzwerken eine hierarchische Ordnung, die sehr stabil gegenüber Beeinflussung und Zerstörungen ist.

Wie können in Netzwerken derartiger Größenordnung jemals die von Wittgenstein geforderten Zusammenhänge gefunden werden („übersichtliche Darstellung“, *PU* §122)? Dass auch in ausgedehnten Netzwerken kurze Verbindungen möglich sind zeigen die Arbeiten von Watts & Strogatz (1998; Strogatz 2002). Small-world Netzwerke entstehen aus hochgeordneten regelmäßigen Netzwerken, die sich durch ein hohes Nachbarschaftskonzept auszeichnen: Sind zwei Knoten A und B miteinander verknüpft, so ist es auch wahrscheinlich, dass sie beide auch mit einem dritten Knoten C verbunden sind. Formal beschreibt der Anhäufungskoeffizient (*clustering coefficient*) diesen Sachverhalt: $c = p(A-B)$. In hochgeordneten Netzwerken ist $c = 1$, während in Zufallsnetzwerken aufgrund von $c = k/n$ diese Eigenschaft fehlt, c also bei einer großen Anzahl Knoten gegen 0 tendiert. Werden in regelmäßigen Netzwerken einige der Verbindungen vertauscht, so entstehen small-world Netzwerke. Interessanterweise behalten diese die Eigenschaft eines hohen Anhäufungskoeffizienten, verringern aber die durchschnittlichen Entfernungen zwischen zwei beliebigen Knoten, die in geordneten Netzwerken sehr hoch ist. So stellten die Autoren fest, dass in sozialen Netzwerken der Abstand zwischen zwei beliebigen Erdbewohnern etwa 6 ist. Selbst am WWW sind zwei beliebige Dokumente durchschnittlich 19 Mausklicks voneinander entfernt.

Zusammenfassung

Der RK ist keineswegs ein als Epistemologie getarnter naturalistischer Biologismus, dessen zentrale Aspekt der organisationellen Geschlossenheit zur Selbstaufhebung oder in den Solipsismus führt. Vielmehr unterstützen die rein formalen Überlegungen verschiedener Netzwerktheorien die Definition des RK als ein Modell von historistischen selbstkanalisierenden Erfahrungsnetzwerken, in denen Wissen als relationale Dynamik auftritt. Aufgrund ihres formalen Charakters besitzen Netzwerke nicht den Status ontologischer Entitäten, wie es etwa bei Nervenimpulsen der Fall ist, deren Unspezifität die organisationelle Geschlossenheit des Nervensystems begründen soll, aber damit gleichzeitig die Verifizierung dieser Behauptung ausschließt.

Die Anwendung der Netzwerktheorien lassen sich wie folgt zusammenfassen. Dass Erfahrungsnetzwerke nicht der Beliebigkeit anheim fallen, wird durch Erkenntnisse aus Kauffmans binären Netzwerken deutlich, in denen trotz einer nichttrivialen Anzahl von Knotenelementen nur eine geringe Anzahl möglicher Aktivitätsmuster auftreten. Für die generellere Klasse der scale-free Netzwerke gilt, dass es zu einer asymmetrischen Verbindungspräferenz kommt, die aus dem Wachstum resultiert, und wodurch die Netzwerke Stabilität erlangen. Trotz ihrer Größe behalten aber Netzwerke ihre Fähigkeit, kurze Verbindungen zwischen einzelnen Elementen zu finden und garantieren dadurch das Assoziationsvermögen, das charakteristisch für menschliche Kognition ist.

Aus diesen Argumenten ergibt sich die Forderung, den RK als eine formale Epistemologie zu betrachten und nicht als das Kondensat naturwissenschaftlicher Beobachtungen, auch wenn der Weg über biologische autopoietische Systeme und über die Entwicklungspsychologie eine historische Notwendigkeit darstellte.

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Did Einstein Advance the Philosophy of Space and Time?

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Introduction

According to Wittgenstein, philosophy is wholly distinct from science, and its methods and products are not those of the sciences. (NL) Nevertheless there are certain areas of common interest to both science and philosophy and there is an overlap of discussion. As an example we can mention the study of space and time, especially in the last one hundred years since the publication of Einstein's theories of relativity.

Einstein is regarded as one of the greatest scientists of all time. His revolutionary discoveries of 1905(STR) and 1915(GTR) were founded on philosophical insights. For this reason he is also regarded as an important philosopher of our age. All modern dictionaries and encyclopaedias of philosophy contain an article on Einstein. The Library of Living Philosophers published a volume on his work entitled Albert Einstein: Philosopher-Scientist (Editor Schilpp, 1949)

Einstein's main contribution, however, is in the realm of physics. Replacing age old ideas he founded completely new theories of space and time which have been adequately verified by observation. Various aspects of these theories of physics stimulated extensive philosophical analysis during the last hundred years. Beside this there exists a large field of a general philosophy of space and time which has not been affected by Einstein's work.

When we closely examine the meaning of the term **philosophy** and recall what Wittgenstein said on several occasions on the nature of philosophy and its relation to science, and also when we read the masterly article by Hans Reichenbach *The Philosophical Significance of the Theory of Relativity* (Schilpp 1949), do we begin to doubt the importance of relativity theories (1905, 1915) to the general field of philosophy, or for that matter, to our daily lives. From Wittgenstein's standpoint one can conclude that Einstein's work did not advance the **philosophy** of space and time. Moreover, from the nature of philosophy as described by Wittgenstein, there is no progress in philosophy as a result of advances in science.

In what sense then was the contribution of Einstein in his discovery of the theories of relativity of such immeasurable value? To answer very briefly, Einstein's work in 1905 and 1915 revolutionised our conceptions of space and time, matter, motion and gravitation. Einstein overturned old (classical, Newtonian) conceptions of space and time and laid the cornerstone of modern physics. Einstein was forced to give up Newton's ideas of absolute space and absolute time. The revision of the concept of time was hailed as the most salient feature of Einstein's work.

With regard to time, there is on the one hand a personal, subjective time felt by everybody. On the other hand there is the exact mathematical description of time in physics. This physical time was radically changed by relativity theory. The time of everyday experience, has not undergone any such change.

Furthermore, we can state that it is not justified to transfer results of physics to common beliefs of everyday

life by statements such as the universe is four dimensional (space and time are completely mixed up to give a spacetime), the space is curved, only the present is real, past and present have no real existence.(Ewing 1951).

The Nature of Philosophy

Philosophy can be taken either as a guide to life or as a clarification of our concepts. Despite rumours about the death of analytical philosophy, we prefer the Anglo-American style of philosophising and appreciate the views of Wittgenstein on the nature of philosophy. (Martinich 2005). Of course, this is a lengthy subject by itself. For a summary one may refer to the masterly essay by Baker and Hacker (pp.259-295) (Baker 1980) W.V. Quine and Bertrand Russell thought philosophy to be an extension of science; Wittgenstein differed. According to Wittgenstein philosophy is wholly distinct from science and its methods and its products are not those of the sciences. Philosophy is not a cognitive pursuit. Philosophy does not explain anything but only describes. Unlike the case of physics, there are no discoveries or breakthroughs in philosophy

The following quotations will give an idea of Wittgenstein's views. (Sanatani 2001).

Philosophy is wholly distinct from science, and its methods and products are not those of the sciences. (NL)

The object of philosophy is the logical clarification of thought.

Philosophy is not a theory but an activity.

A philosophical work consists essentially of elucidations. (T 4.112)

Philosophy is not a cognitive pursuit; there are no new facts to be discovered by philosophy; only new insights. ((PR; PG 256)

Philosophy seeks to establish an order in our knowledge of the use of language (PI #132)

What is your aim in philosophy? - To shew the fly the way out of the fly bottle. (PI 309)

The philosopher's treatment of a question is like the treatment of an illness. (PI 255)

Philosophy is a battle against the bewitchment of our intelligence by means of language. (PI 109)

A philosophical problem has the form: "I don't know my way about." (PI 123)

We want to replace wild conjectures and explanations by quiet weighing of linguistic facts. (Z 447)

A main source of our failure to understand is that we do not survey (übersehen) the use of our words. Our grammar is lacking in perspicuity (Übersichtlichkeit). A perspicuous representation produces this understanding, which consists in seeing connections. (PI 122)

With such Wittgensteinian views it is not easy to judge the relevance of the progress in theoretical physics

to philosophy, however great that progress might have been in recent years.

Every philosopher has expressed his opinion on what he considers the nature and task of philosophy to be. There are those who find analytical philosophy to be dry and empty. For them philosophy should have relevance to the human situation, to the life lived by an individual. It should provide a guidance on how we should live.

Progress in Philosophy

The very idea of philosophical progress is problematic. On the one hand we see philosophers still discussing age old questions about knowledge, truth, soul, God, duty etc. On the other hand there is a continuous progress in science. John Haldane writes: It is a common complaint that philosophy is characterised by a general and marked failure to make progress. What was being discussed in antiquity about substance, time, identity, value and virtue is still being debated today with no incontestable sign of advance, let alone of resolution. In the same article Haldane admits that philosophy can claim to have progressed with regard to its methodology (Haldane 2001).

Space and Time

Space and time have been central philosophical issues from the beginning of philosophy, even before Einstein and relativity. They are also central to all theories of physics which deal with the world. In particular philosophy of space and time holds a special place in twentieth-century philosophy of science. The literature on space and time theories that has grown since the advent of relativity is truly vast and difficult to digest without a mathematical background. We may just refer to two modern summaries: article by John D. Norton : *Philosophy of Space and Time* in (Salmon et al. 1992) and the article by C. Callender and C. Hoefer: *Philosophy of Space-Time Physics* in the Blackwell Guide to the Philosophy of Science (Machamer 2002).

Some of the outstanding questions in this field are:

Are space and time something over and above the things in them? Can we form an idea of an empty space outside the whole physical universe and surrounding it? (Space has commonly been looked on as a vast receptacle.) Can space and time can act as causes ?

According to A.C. Ewing: *It is best to regard space and time as simply ways of looking at the spatial and temporal properties and relations of things and events, not as some weird kind of entities over and above the things and events.* (Ewing 1951)

Newton held that space and time were absolute entities, while Leibniz maintained that they were relational quantities. (cf. Leibniz-Clarke correspondence).. In recent times there has been a lot of discussion on A and B Theories of Time and on reality of time. Mario Bunge points out that just because Newton favoured absolute space and time, we cannot say that classical mechanics presupposes absolutist theory of space and time.(Bunge 1985) Classical mechanics is consistent with both absolute and relational theories of space and time.

The most influential philosophical doctrine on space and time, of course, is one propounded by Immanuel Kant (1781). Kant accepted Newton's views as correct and final but wondered why all external objects appeared to us in

space and time. We never experienced an event or saw an object without the involvement of space and time. Kant concluded that time and space have no absolute reality; they are just forms of perception embedded in the subject. They are given to us apriori. Space and time are irremovable spectacles, as it were, through which we perceive objects. Space and time are contributed by the perceiving subject. Objects, therefore, can never be seen as they are in themselves.(Körner 1955)

Theories of Relativity

Einstein's Special Theory of Relativity (STR 1905) assumes that (i) all inertial frameworks are equivalent for the description of all physical phenomenon, and (ii) the speed of light in empty space is constant for every observer regardless of the motion of the observer or the light source. No matter how fast an observer travels he can never overtake a ray of light.

Space, time and mass, according to STR, are relative to the observer. Space and time are treated as a four-dimensional manifold. Points in space-time are called events.

Einstein's General Theory of Relativity (GTR 1915) states that the laws of motion in an accelerated frame are equivalent to those in a gravitational field. The theory treats gravity not as a Newtonian force acting in an unknown way across distance but as a metrical property of space-time that is curved in the vicinity of matter. Einstein thus gave a masterly geometrical description of gravity.

Philosophical Relevance of Relativity Theories

The most commonly quoted impact of relativity theories on our ideas of space and time is the introduction of time as the fourth dimension, as if space and time were mixed up to form the four-dimensional Minkowski continuum. Future events already exist now just as distant places. But this way of describing the state of affairs is totally misleading. Ewing, and many others have pointed out that we must draw a clear distinction between the time of physics and the time of living experience. Even Einstein expressed surprise that the common man showed so much interest in his theory without understanding it, because relativity theories were theories of physics dealing with theoretical entities which do not always have a counterpart in our experience.

In the same vein we can refer to the talk about the direction of time or flow of time in the light of modern physics.. These have relevance within the boundaries of theories, laws and models adopted for describing the world. For our subjective experience, time is real, there is clearly a flow of time from the future, through the present into the past.

So Where do We Stand? Conclusion

Albert Einstein was a great scientist, perhaps the greatest, of our age. Especially after the verification of the general theory of relativity in 1919 his fame rose to new heights. He became a symbol for wisdom, imagination, creativity and concentrated mental power. He was famous for his pacifism and humanism, he stood for the conscience of the world. Everyone knew that Einstein had done something important in 1905 and again in 1915 but almost nobody could tell you exactly what it was.

In this essay we have not tried to describe or assess the theories of relativity and their role in modern physics, from atoms to galaxies. We only wanted to point out that for a particular approach to the idea of philosophy, Einstein may not make the grade for a great philosopher. This approach is based on extensive writings of Ludwig Wittgenstein, an outstanding philosopher of our age. We must of course not forget that individuals may differ on what philosophy is. We take philosophy to be an a priori conceptual investigation wholly unlike the sciences. Ideally philosophy does not produce theories or doctrines or even descriptions of the world. But there is always a border zone between science and philosophy. Physics and metaphysics need not be separated by watertight barriers. Especially after the work of Einstein a hundred years ago, we have become conscious of the fact that space and time are two large topics straddling the disciplines of science and philosophy.

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Intrinsischer Eigenschaftswechsel und die Unterscheidung einer A- und B-Reihe der Zeit

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Wie das folgende Zitat deutlich macht, gibt es einige Stellen, an denen uns McTaggart ermutigt hat, die Veränderung von Ereignissen so zu denken, als hätten wir es dabei mit einem Eigenschaftswechsel von persistierenden Entitäten zu tun:

Veränderungen müssen sich an Ereignissen von solcher Natur ereignen, daß das Eintreten dieser Veränderungen die Ereignisse nicht darin hindert, Ereignisse, und zwar *dieselben* Ereignisse sowohl vor als auch nach der Veränderung, zu sein. (McTaggart, J. M. E. 1908 S. 709 – Hervorhebung P. Sch.)

Bemerkungen dieser Art haben dazu geführt, McTaggarts Argument für die Ablehnung der A-Reihe als einen Spezialfall dessen zu diskutieren, was David Lewis 'the Problem of Temporary Intrinsics' nannte (Craig 1998, Oaklander 2001, Parsons 2001, Rea 2003). Was verbirgt sich hinter diesem Problem? Grob gesagt, geht es um das sog. 'Paradox der Persistenz', womit die Annahme gemeint ist, dass kontinuierlich existierende Objekte, die Veränderungen hinsichtlich ihrer Eigenschaften unterliegen, im Widerspruch zu Leibniz's Prinzip der Ununterscheidbarkeit des Identischen¹ stehen. Wie kann ein Objekt, das über die Zeit hinweg mit sich selbst identisch ist, zu verschiedenen Zeitpunkten unvereinbare intrinsische Eigenschaften besitzen?

Üblicherweise werden zur Erklärung der Persistenz von Einzeldingen zwei rivalisierende Ansätze herangezogen:¹

(i) *Perdurantistischer Ansatz*: Ein existierendes Objekt O persistiert, gdw. O zeitliche Teile hat und keines dieser Teile zu mehr als einem Zeitpunkt völlig gegenwärtig ist.

(ii) *Endurantistischer Ansatz*: Ein existierendes Objekt O persistiert, gdw. O völlig gegenwärtig zu mehr als nur einem Zeitpunkt ist.

Um den von ihm favorisierten perdurantistischen Ansatz zu untermauern hat Lewis ein weiteres Argument entwickelt (Lewis 1996), welches zeigen soll, dass die Fortdauer von Dingen die ihre intrinsischen Eigenschaften wechseln, nur mittels der Annahme von temporalen Teilen zu erklären ist. Hier ist eine etwas abgewandelte Version seines Problems: Nehmen wir einmal an, dass eine Person, nennen wir sie 'Hans', am Sonntag betrunken ist und am nächsten Morgen wieder nüchtern. Wenn es sich dabei um einen genuinen Wechsel von Eigenschaften handeln soll, muss es irgendwie möglich sein, zu sagen, dass ein und dieselbe Person am Sonntag betrunken und am Montag nüchtern war. Angenommen Hans ist diejenige Person, die von Sonntag zu Montag als ein und dieselbe Entität

persistiert, dann trifft auf sie sicherlich die folgende Ableitung zu:

(1) Hans [am Sonntag] ist betrunken.

(2) Hans [am Montag] ist nüchtern.

& Hans = Hans [am Sonntag] = Hans [am Montag].

∴ (3) Hans ist betrunken und nüchtern.

Aber natürlich kann Hans, sofern es sich um intrinsische Eigenschaften handelt, nicht beides sein. Denn die Eigenschaften 'Betrunken-Sein' und 'Nüchtern-Sein' schließen sich wechselseitig aus.

Darüber hinaus hat Lewis drei Lösungsvarianten unterbreitet, wobei nur die unter (c) angeführte Antwort – also diejenige Möglichkeit, die den Ansatz der temporalen Teile vertritt – eine echte Alternative darstellen soll:

(a) 'Betrunken-Sein' und 'Nüchtern-Sein' sind keine genuin intrinsischen Eigenschaften, denn ihnen liegen aufgrund der verschiedenen Zeitpunkte ganz unterschiedliche externe Relationen zugrunde.

(b) Intrinsische Eigenschaften liegen immer nur zum gegenwärtigen Zeitpunkt vor. Es gibt keine Eigenschaften, die bezogen auf vergangene oder zukünftige Zeitpunkte inkompatibel sind, weil nur das zählt, was in der Gegenwart existiert.

(c) Die verschiedenen intrinsischen Eigenschaften sind nicht inkompatibel, weil sie zu unterschiedlichen Dingen gehören. Diese unterschiedlichen Dinge sind die zeitlichen Teile ein und derselben sich nicht verändernden perdurantistischen Entität.

Setzt man einmal voraus, dass die Festlegungen der A-Reihe intrinsische Eigenschaften sind, die durch zeitliche Gegenstände exemplifiziert werden, dann scheint McTaggarts Ablehnung der A-Reihe tatsächlich ein analoger Problemfall zu sein. Denn einerseits hat er behauptet, dass der 'Fluss der Zeit' Veränderungen notwendig macht, weshalb jedes Ereignis von der Zukunft über die Gegenwart in die Vergangenheit wechselt. Andererseits kann jedes Ereignis nicht mehr als nur eine dieser drei Bestimmungen zu einem bestimmten Zeitpunkt besitzen. Ereignisse sind entweder 'vergangen' oder 'gegenwärtig' oder 'zukünftig'. Entsprechend ließe sich die behauptete Widersprüchlichkeit der A-Reihe in Anlehnung an (1) – (3) folgendermaßen wiedergeben:

(4) Ereignis E ist [am Sonntag] gegenwärtig.

(5) Ereignis E ist [am Montag] vergangen.

& Ereignis E = Ereignis E [am Sonntag] = Ereignis E [am Montag].

∴ (6) Ereignis E ist gegenwärtig und vergangen.

Analog zu (3) ergibt (6) einen Widerspruch und so gesehen wäre McTaggarts Paradox tatsächlich nur ein Spezialfall von Lewis' Problem.

Dennoch erweist sich diese Darstellung als problematisch. Wobei es aufschlussreich ist, zu sehen,

¹ Darüber hinaus hat sich in letzter Zeit eine weitere Alternative herausgebildet, die entweder als 'Stage'-Theorie (Sider 2000, Hawley 2001) oder als 'Exduring'-Ansatz (Haslanger 2003) bezeichnet wird. Die Dauer eines Gegenstandes wird hier aufgrund von Objekt-Relationen erklärt, die zu Entitäten außerhalb des persistierenden Gegenstandes bestehen. Gewöhnliche Objekte stellen demnach keine zeitlich ausgestreckten Zusammensetzungen von unselbständigen Teilen dar (sog. 'Wurm-Theorie'), sondern Phasen die strikt gesehen nur zu einem bestimmten Zeitpunkt existieren, aber als verschiedene 'Counterparts' über die Zeit hinweg andauern.

warum das A-Reihen-Paradox *kein* genuines Problem der inner-zeitlichen Persistenz von Gegenständen ist. Zwei Überlegungen sind in diesem Zusammenhang zentral: Als Erstes ist festzuhalten, dass der von Lewis favorisierte Lösungsansatz (c) für den Fall, dass die Festlegungen der A-Reihe intrinsische Eigenschaften sind, nicht funktioniert.² Die Theorie der temporalen Teile stellt eine Erklärung dar, die sich – sofern sie überhaupt zutreffend ist – nur auf Dinge bezieht, die in der Zeit andauern, d. h. über einen gewissen Zeitraum in der Zeit existieren. Was hingegen McTaggarts Problem so schwierig gestaltet, ist die Tatsache, dass die zeitlichen Charakteristika der A-Reihe auf Entitäten anwendbar sind, die nicht wie persistierende Einzeldinge in der Zeit existieren. McTaggart würde nicht behaupten, dass das in (4) angeführte *gegenwärtige* Ereignis E einige zeitliche Teile besitzt, welche gemäß Satz (5) am Montag existieren und die Eigenschaft haben, ‚vergangen‘ zu sein. Vielmehr ist entscheidend, dass Ereignisse, die mit Hilfe der A-Reihe charakterisiert werden, entweder gegenwärtig existieren, oder aber *völlig* vergangen bzw. *völlig* zukünftig sind. Damit ist gemeint, dass sich ein zukünftiges Ereignis, bevor es entsteht und in der Gegenwart zu existieren beginnt, mit all seinen zeitlichen Teilen in der Zukunft befindet. Genauso wie ein vergangenes Ereignis, nachdem es aufgehört hat, in der Gegenwart zu existieren, mit sämtlichen temporalen Teilen in der Vergangenheit liegt. Obwohl also gar nicht zu bestreiten ist, dass das in (4) angeführte Ereignis E – solange es existiert – über zeitliche Teile verfügt, kann es keine zeitlichen Teile geben, die über die gegenwärtige Existenz von E hinaus in der Vergangenheit weiterbestehen und dort die Eigenschaft besitzen, ‚vergangen‘ zu sein. Das in (4) als ‚gegenwärtig‘ beschriebene Ereignis E ist zum Zeitpunkt von (5) *völlig* vergangen.

Legt man diese Auffassung der A-Reihe zugrunde, lässt sich McTaggarts Paradox so rekonstruieren, dass deutlich wird, warum Lewis' Vorschlag nicht greift:

(7) Ereignis E ist [am Sonntag] *völlig* gegenwärtig.

(8) Ereignis E ist [am Montag] *völlig* vergangen.

& Ereignis E = Ereignis E [am Sonntag] = Ereignis E [am Montag].

∴ (9) Ereignis E ist *völlig* gegenwärtig und *völlig* vergangen.

Satz (9) ist offenkundig widersprüchlich, denn die Eigenschaften ‚*völlig* gegenwärtig‘ und ‚*völlig* vergangen‘ sind inkompatibel. Doch jetzt ist ausgeschlossen, dass die Unvereinbarkeit der Eigenschaften auf einen Unterschied in den temporalen Teilen von E zurückzuführen ist.

Die zweite Überlegung hängt eng zusammen mit dem eben Gesagten. Auffällig ist, dass McTaggart an keiner Stelle behauptet hat, dass die Festlegungen der A-Reihe *intrinsische* Eigenschaften sind. Auf den Gedanken, dass es sich bei den Veränderungen der A-Reihe um einen intrinsischen Eigenschaftswechsel handelt, kann man offenbar nur dann kommen, wenn man glaubt, dass Ereignisse wie konkrete Einzeldinge persistieren. Ontologisch gesehen ist aber bereits diese Annahme irreführend. Ereignisse können schon deshalb nicht wie konkrete Einzeldinge durch einen bloßen Wechsel von Eigenschaften persistieren, weil sie – wenn McTaggart recht hat – nicht aus der für sie konstitutiven Zeitreihe herausfallen können. Wäre McTaggarts Ablehnung der A-Reihe tatsächlich als ein Spezialfall von Lewis' Problem zu

betrachten, müsste man seinen Ansatz eher der Lösungsvariante (a) zuordnen.

Warum hat McTaggart nicht an einen intrinsischen Eigenschaftswechsel geglaubt? Ich denke der Grund liegt auf der Hand: Der oben beschriebene Fall des Wechsels einer gewöhnlichen Eigenschaft von einem Zeitpunkt zum anderen, stellt seiner Meinung nach noch keine echte zeitliche Veränderung dar. Sofern Ereignisse keine konkreten Einzeldinge sind, sondern nur durch Relationen zu anderen zeitlichen Positionen innerhalb einer Zeitreihe konstituiert werden, ist ein Wechsel innerhalb der Reihe zwar ein Konstituent für das jeweilige Ereignis, drückt aber selbst noch keine Veränderung aus. Denkt man nicht-zeitliche Eigenschaften so, dass Ereignisse Träger ihrer Eigenschaften sind, aber die Träger selbst nur *innerhalb* einer Zeitreihe als derartige Entitäten konstituiert werden, dann ist die Tatsache, dass etwas innerhalb der konstitutiven Zeitreihe zu einem Zeitpunkt F und zu einem anderen Zeitpunkt $\neg F$ ist, kein Beleg dafür, dass es sich dabei um eine genuine Veränderung der zeitlichen Charakteristika dieser Ereignisse handelt. McTaggarts Unterscheidung der A- und B-Reihe wird dadurch bestimmt, dass die Abfolge der verschiedenen Positionen im Rahmen einer B-Reihe zwar für jedes Ereignis konstitutiv ist, eine echte Veränderung der so konstituierten Ereignisse aber nur extern, d. h. relativ zu den Festlegungen der A-Reihe gegeben ist. Ereignisse verändern sich hinsichtlich ihrer Charakteristika nicht intern – innerhalb der konstitutiven Zeitreihe durch wechselnde B-Festlegungen – sondern nur extern, indem sie jeweils eine der drei Bestimmungen der A-Reihe zu einem Zeitpunkt besitzen oder nicht. Dieser Unterschied lässt sich folgendermaßen verdeutlichen:

(V1) E hat die Eigenschaft F [am Sonntag] und die Eigenschaft F fehlt am folgenden Tag.

(V2) E hat die Eigenschaft F [am Sonntag], F ist gegenwärtig, und die Eigenschaft F fehlt am folgenden Tag.

Im Gegensatz zu (V2) ist die Wahrheit von (V1) und der darin enthaltene Wechsel von F zu $\neg F$ nicht hinreichend, um in McTaggarts Augen sagen zu können, dass in bezug auf Ereignis E eine echte Veränderung stattfand. Es macht ganz einfach einen Unterschied, ob man unter Veränderung eine ‚bloße‘ Abfolge von gewöhnlichen Eigenschaften versteht, womit keine echte Veränderung verbunden ist, weil diese Abfolge – immer vorausgesetzt es handelt sich um Ereignisse – eine Konstituente der betreffenden B-Reihe ist. Oder ob es sich wirklich um genuine Veränderungen der zeitlichen Charakteristika von Ereignissen handelt; nur diese können nämlich ‚vergangen‘, ‚gegenwärtig‘ oder ‚zukünftig‘ sein.³

Damit sollte klar sein, dass McTaggarts Unterscheidung der A- und B-Reihe nicht der Frage geschuldet ist, wie es möglich ist, dass persistierende Einzeldinge zu verschiedenen Zeitpunkten unterschiedliche intrinsische Eigenschaften besitzen können. Heisst das jetzt, wir sollten McTaggart darin folgen und zeitliche Veränderungen als externe Relationen betrachten? Um welche externen Relationen geht es überhaupt? Als Bestimmungen innerhalb der A-Reihe sind Relationen wie in jeder Zeitreihe unveränderlich und permanent. Doch im Vergleich zur B-Reihe sollen die Festlegungen der A-Reihe echte Veränderungen darstellen. Das lässt augenscheinlich nur einen Schluss zu: Die A-Reihe enthält zeitliche Positionen, die zusätzlich zu den internen

² Vgl. für ein ähnliches Argument: Parsons, J. (2002).

³ Vgl. zur Kritik an dieser Unterscheidung: Thomson, J. J. (2001).

Relationen zu etwas stehen, das außerhalb dieser Zeitreihe liegt. McTaggart muss allerdings einräumen, dass es schwierig sein wird, genau zu sagen, worin diese externe Bezugnahme besteht. Doch weil es ihm um die Irrealität der Zeit ging und nicht um eine Verteidigung der A-Theorie, hat er diese Frage offen gelassen.

Ein derartiges Vorgehen wird freilich niemanden überzeugen, der glaubt, entgegen McTaggarts Argument an einer A-Reihe festhalten zu können. Aus diesem Grund haben moderne Vertreter einer A-Theorie entweder die bei McTaggart zugrundeliegende Ereignisontologie abgelehnt (Prior 1968, Christensen 1974, Lowe 1998), oder aber die Festlegungen der A-Reihe als monadische Eigenschaften behandelt (Smith 1993, Nunn 2000, Parsons 2002)⁴ Beide Alternativen besitzen jedoch ihre eigenen Schwierigkeiten.

Angesichts dieser Situation stellt sich die Frage, ob es überhaupt ein geeignetes Kriterium gibt, aufgrund dessen die Unterscheidung einer A- und B-Reihe gerechtfertigt ist. Oder sollten wir bezüglich der Trennung beider Zeitreihen – wie von Clifford Williams gefordert (Williams 1996, 1998) – eher skeptisch sein? Stellt die Frage, was eine solche Differenzierung begründet, womöglich nur ein Scheinproblem dar? All diejenigen, die McTaggarts Ablehnung der A-Reihe widersprochen haben, bezweifeln *nicht*, dass beide Zeitreihen grundverschieden sind. Während die A-Reihe den transitorischen Aspekt der Zeit betont, sind die Relationen der B-Reihe als statisch zu betrachten. Und tatsächlich glaube ich, dass die Betonung des transitorischen Aspekts der Zeit wesentlich besser geeignet ist, den Unterschied zwischen A- und B-Reihe deutlich zu machen.

Im weiteren Verlauf des Vortrags wird daher gezeigt, wie sich mit Hilfe eines anderen Arguments – gemeint ist McTaggarts These der Ableitbarkeit der B-Reihe – verständlich machen lässt, warum zwischen A- und B-Reihe ein substantieller Unterschied besteht. In diesem Zusammenhang wird sich allerdings herausstellen, dass McTaggarts positiver Ansatz weder einer präsentistischen Deutung der Zeit zuzuordnen ist, noch liegt ihm eine rein äternalistische Sichtweise zugrunde. Hinter seinem positiven Vorschlag verbirgt sich vielmehr eine hybride A/B-Theorie (Craig 1997), die eine an der B-Reihe orientierte Ereignisontologie mit der Annahme verbindet, dass die Bestimmungen der A-Reihe veränderliche Merkmale der betreffenden Ereignisse sind. Entsprechend muss die Gegenwart als ein vorübergehendes Charakteristikum betrachtet werden, das in einer Art ‚Spotlight‘-Bewegung die Serie der in der B-Reihe konstituierten Ereignisse kreuzt (Broad 1938).

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⁴ Die Konzeption von G. N. Schlesinger (1991) bildet hier eine der wenigen Ausnahmen. Ausführlich kritisiert wird diese Auffassung jedoch von Buller/Foster (1992).

Transparentes Weiß und das Verhältnis von Sprache und Welt – Wittgensteins Lösung des Rätsels

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1. Warum gibt es kein transparentes Weiß?

Diese Frage ist eine der sog. Farbrätsel, mit denen sich Wittgenstein in den *Bemerkungen über die Farben* (BüF) beschäftigt. Dass es keine Fläche gibt, die sowohl weiß als auch durchsichtig ist, ist schnell einsehbar: Man versuche nur, sich eine Sonnenbrille mit weißen Gläsern vorzustellen – eine solche Brille wäre trüb, und damit nicht in gleicher Weise durchsichtig wie z.B. eine gelbe.

Wittgenstein schreibt: "Runge sagt, es gebe durchsichtige und undurchsichtige Farben. Weiß sei eine undurchsichtige Farbe" (BüF I, 17), und später: "Die Undurchsichtigkeit ist nicht eine Eigenschaft der weißen Farbe. Sowenig wie Durchsichtigkeit eine Eigenschaft der Grünen." (BüF I, 45)

Aus diesem Zitat ist Wittgensteins wenig überraschende Überzeugung abzulesen, dass das Problem der Unmöglichkeit von durchsichtigem Weiß nicht in der Natur von Farben in der Welt, also in empirischen Gegebenheiten, zu suchen ist, sondern dass es sich vielmehr um ein logisches, also in Wittgensteins Sinn grammatisches Problem handelt. Und die Klärung der Logik der Farbwörter ist sein Weg zur Lösung der Farbrätsel: "Wir wollen keine Theorie der Farben finden (weder eine physiologische noch eine psychologische), sondern die Logik der Farbbegriffe. Und diese leistet, was man sich oft mit Unrecht von einer Theorie erwartet hat." (BüF I, 22) Die Frage lautet nämlich: "Warum kann man sich durchsichtig-weißes Glas nicht vorstellen – auch wenn es in Wirklichkeit keins gibt?" (BüF I, 31) Schon an dieser Stelle wird ein ganzer Strang von Antwortmöglichkeiten abgeschnitten, nämlich die, die sich über empirische Untersuchungen eine Lösung des Rätsels erhoffen. Was auch immer über die tatsächlichen Naturgesetze, die für Farben gelten, herausgefunden werden könnte, es würde unsere Sicherheit, dass durchsichtiges Weiß unmöglich ist, nicht erklären können, denn: "Ich sehe nicht, daß die Farben der Körper Licht in mein Auge reflektieren." (BüF II, 20) Die tatsächlichen, physikalischen Ursachen für die Farbigkeit von Dingen sind weder Teil unserer Wahrnehmung noch unserer Farbbegriffe. Und die Farbrätsel entstammen letzteren Bereichen, denn wir wissen von der Unmöglichkeit von durchsichtigem Weiß auch ohne jegliche Kenntnisse in Physik.

Die Untersuchung richtet sich nun also auf die Begriffe, nicht auf die physikalischen Eigenschaften, von Farben. Wittgensteins zentrale Einsicht ist in diesem Zusammenhang die, "daß nicht alle Farbbegriffe logisch gleichartig sind." (BüF I, 54) Er exemplifiziert dies anhand des Vergleichs von "gelb" und "golden": Gelb kann auch ein einfacher Farbfleck sein, dagegen ist "Goldfarben" die "Eigenschaft einer Oberfläche, welche glänzt oder schimmert." (BüF I, 33) Eine Frage wie: "Warum gibt es kein Gold, das nicht schimmert?" wäre sinnlos, oder einfach zu beantworten mit einem Satz wie: "Weil wir Gold eben nur das nennen, was schimmert." Und tatsächlich haben wir bei der Frage diesen Eindruck von Sinnlosigkeit oder Überflüssigkeit. Wir können sie höchstens durch den Verweis auf die geltenden Regeln 'beantworten'.

Wittgensteins Lösung unseres Rätsels besteht nun darin, die Frage nach einem transparenten Weiß als von gleicher Art wie die nach einem nicht-schimmernden Gold zu betrachten. "Daß nicht alle Farbbegriffe logisch gleichartig sind, sieht man leicht. Man sieht leicht den Unterschied der Begriffe: 'Farbe des Goldes' oder 'Farbe des Silbers' und 'gelb' oder 'grau'. Daß aber ein einigermaßen verwandter Unterschied zwischen 'Weiß' und 'Rot' besteht, ist schwer zu sehen." (BüF III, 241)

Dieser Unterschied muss erst aufgewiesen werden, und dafür dient die grammatische Untersuchung, denn diese richtet sich nicht nur auf analytische Beziehungen, die also direkte Kontradiktionen aufspüren könnte, nicht nur auf die 'Oberflächengrammatik', sondern insbesondere auf die Tiefenstruktur der Gebrauchsregeln für Ausdrücke, die erst durch genaue Betrachtung verschiedener Verwendungssituationen deutlich wird. Auch "durchsichtig" kann sich wie "golden" nur auf eine komplexe Zusammenstellung von einfachen Oberflächenfarben beziehen, und "vollkommene Einfärbigkeit des Gesichtsbilds kann nicht durchsichtig sein." (BüF I, 19) Das reicht aber noch nicht, denn es erklärt noch nicht, warum es keinen komplexen Eindruck geben kann, der weiß und durchsichtig genannt werden könnte, so wie es einen gibt, der grün und durchsichtig ist.

"Von etwas, was durchsichtig aussieht, sagen wir nicht, es schaue weiß aus." (BüF III, 153) Warum nicht? Wittgensteins Antwort ist die folgende: Es gibt Regeln dafür, was wir durchsichtig nennen, und Regeln dafür, was wir Weiß nennen, und durch diese Regeln wird ausgeschlossen, dass etwas Weißes durchsichtig genannt werden kann. Genauer: "Wo geht die Analogie mit dem durchsichtig gefärbten schief?" (BüF I, 31) Wo die Analogie schief geht, sehen wir, wenn wir überlegen, was für ein durchsichtiges weißes Glas gelten müsste, und Wittgenstein beschreibt das ausführlich, z.B. so:

Etwas Weißes hinter einem gefärbten Medium erscheint in der Farbe des Mediums, etwas Schwarzes schwarz. [Regel für Durchsichtigkeit] Nach dieser Regel muß Schwarz auf weißem Grund durch ein 'weißes durchsichtiges' Medium wie durch ein farbloses gesehen werden [es würde also nicht weiß aussehen]. (BüF I, 20)

Die Unfähigkeit, sich etwas durchsichtig Weißes vorzustellen, liegt darin begründet, dass wir nicht wissen, was wir uns da vorstellen sollen, d.h. was für Regeln für ein solches Medium gelten sollten – denn wir können die Regeln für "weiß" und "durchsichtig" nicht gleichzeitig zur Anwendung bringen, ohne eine Absurdität zu erhalten. Und das hat u.a. damit zu tun, wie wir den Begriff "durchsichtig" lernen, bzw. was für einen Eindruck wir als "durchsichtig", was für einen wir als "weiß" erkennen – da besteht offenbar ein Zusammenhang, der es unmöglich macht, dass wir etwas als beides erkennen: "Schwarz und Weiß haben bei der Durchsichtigkeit einer Farbe schon ihre Hand im Spiel." (BüF II, 24) Das heißt: Weil wir etwas nur dann als durchsichtig erfassen, wenn der komplexe Farbeindruck in einer bestimmten Weise organisiert ist, der schon eine bestimmte Verteilung von Weiß oder eher von Helligkeit beinhaltet, können wir einen Eindruck von Durchsichtigkeit eines selber weißen Mediums nicht

erzeugen – was für uns auch immer für mögliche Umstände vorstellen.

2. Grammatik und Wahrnehmung

Dass ein transparentes Weiß logisch unmöglich ist, heißt natürlich nichts anderes, als dass der Satz "Es gibt kein transparentes Weiß" ein grammatischer Satz in Wittgensteins Sinne ist. Das wiederum hat Implikationen dafür, was Wittgenstein unter Grammatik versteht: Es kann damit nicht allein das System von Wörtern und sprachlichen Regeln gemeint sein, denn es handelt sich hier eher um eine Art Wahrnehmungsparadox denn um einen begrifflichen Widerspruch, und die Überlegungen, die Wittgenstein in den *Bemerkungen über die Farben* anstellt, sind zu Recht phänomenologisch genannt worden. Um die These, die Unmöglichkeit des transparenten Weiß gehöre zur Grammatik, zu plausibilisieren, brauchen wir einen sehr weiten Grammatikbegriff, der nicht nur rein sprachliche Beziehungen zwischen Wörtern, sondern auch so etwas wie Wahrnehmungskonzepte mit einbezieht. Und das ist genau Wittgensteins Denkrichtung, der ja immer wieder betont, in welchem Zusammenhang Wortbedeutungen mit außersprachlichen Fähigkeiten wie Fähigkeiten der Differenzierung, Musterbenutzung, Ordnung von Dingen etc. stehen. Die von Wittgenstein herausgearbeiteten Regeln der Tiefengrammatik von "weiß" und "durchsichtig" werden dementsprechend von ihm selbst als "Regeln für den Augenschein" (BüF I, 29), als "Regeln der räumlichen Deutung unserer Gesichtserfahrung" oder "Regeln für den Maler" (BüF III, 173) bezeichnet. Gleichzeitig gibt es aber auch keine scharfe Trennung zwischen solchen und rein sprachlichen Regeln, im Gegenteil: Beide sind miteinander verbunden, da es ebenfalls keine strikte Trennung zwischen sprachlichem und nichtsprachlichem Verhalten gibt. Was als Eindruck von Durchsichtigkeit gelten kann, hängt davon ab, wie wir den Begriff (ab jetzt immer in einem weiten Sinn) gelernt haben – und das heißt z.B., was für Dinge wir als Muster für Durchsichtigkeit präsentiert bekommen haben und wie wir solche Dinge zu ordnen gelernt haben.

3. Grammatik und Welt

Mit Wittgensteins so umrissenem Grammatik-Begriff ist nun die These von der Autonomie der Grammatik verbunden. Diese erläutert P.M.S. Hacker in seinem Buch *Insight and Illusion* (Hacker 1986, 197ff.): Unsere Grammatik, unsere "Form der Darstellung" ist nach Wittgenstein autonom in zweifachem Sinn: Erstens gegenüber alternativen Formen (Sprachen, Begriffssystemen). Sie ist nicht in Hinblick auf ihre Wahrheit oder Angemessenheit mit anderen zu vergleichen. Zweitens gegenüber der Welt: Sie kann weder anhand der Wirklichkeit gerechtfertigt werden, noch mit dieser jemals in Konflikt geraten, denn jede Rechtfertigung der Grammatik müsste sich selbst schon einer Grammatik bedienen.

Diese gewisse Willkürlichkeit der Grammatik wird von Wittgenstein durch seine "Erfindungen von fiktiven Naturgeschichten" verdeutlicht, die sich auch in den Farbbemerkungen finden, wo Wittgenstein sich Völker ausdenkt, die aufgrund anderer Wahrnehmungsbedingungen, Lebensformen oder sonstiger Ursachen ein ganz anderes Farbvokabular entwickelt haben als wir.

Aber halt: Haben wir nicht gerade in unserem Fall des transparenten Weiß das Gefühl, an eine Grenze zu

stoßen, an eine Unmöglichkeit, die nicht nur den tatsächlichen Sprachgebrauch begrenzt, sondern auch die Vorstellbarkeit alternativer Systeme betrifft? Man kann sich eben gerade keine Leute vorstellen, die ein transparentes Weiß kennen, und diese Tatsache könnte einen zu der Annahme verleiten, dass dieser Aspekt unserer Grammatik doch etwas Nicht-Willkürliches sei, dass die Unmöglichkeit nicht nur innerbegrifflicher Art, sondern irgendwie natürlich notwendig sei. In der Tat aber ist diese Annahme falsch. Die Tatsache, dass wir uns ein transparentes Weiß nicht vorstellen können, sagt etwas über *unsere* Begriffe aus, und nichts über mögliche Alternativen. Und zwar aus folgendem Grund: Gegeben die Begriffe, die wir von Weißheit und Durchsichtigkeit haben, ist es *sinnlos*, von einem transparenten Weiß zu sprechen. Was immer wir uns für mögliche andere Begriffssysteme ausdenken mögen, sie könnten kein transparentes Weiß enthalten, wenn wir damit das nach *unseren* Begriffen als transparentes Weiß beschriebene Phänomen meinen. Und wenn es ein nach anderen Begriffen transparentes Weiß geben könnte, dann hätte das mit unserem Problem nichts mehr zu tun – es ginge um ein anderes Phänomen. Die Vorstellungsunmöglichkeit markiert eine logische Grenze, und zwar *innerhalb* des Begriffssystems. Darauf zielt Wittgensteins folgende Bemerkung: "Man kann sich das nicht vorstellen", wenn es sich um die Logik handelt, heißt: man weiß nicht, was man sich hier vorstellen soll." (BüF I, 27)

Die Tatsache, dass wir bei dem Versuch, uns ein durchsichtiges Weiß vorzustellen, an eine Vorstellungsgrenze stoßen, widerlegt also nicht die These von der Autonomie der Grammatik gegenüber alternativen Grammatiken, sondern veranschaulicht sie.

Wie steht es mit der Autonomie der Grammatik gegenüber der Welt? Haben wir hier nicht trotz allem immer noch die Tendenz zu glauben, dass unsere Farbbegriffe durch die Welt gerechtfertigt sind? Liegt der Grund für die logische Ungleichartigkeit von Weiß und den anderen Farben nicht doch irgendwie darin, dass eben die Oberflächeneigenschaften von weißen und farbigen Dingen verschieden sind?

Wittgenstein würde diese Überlegung als irreführend ablehnen, und zwar weil hier wieder vorausgesetzt wird, dass es möglich sei, einen Standpunkt außerhalb einer Form der Darstellung einzunehmen, um von ihm aus ihr Verhältnis zur Welt zu beschreiben – und genau das hält Wittgenstein für unmöglich, weshalb er auch keinerlei 'metaphysische Theorie' in dieser Frage vertritt. Die geschilderte Versuchung, gegen die er sich wendet, hat er selbst formuliert:

Ja aber hat denn die Natur hier gar nichts mitzureden?! Doch – nur macht sie sich auf andere Weise hörbar. – 'Irgendwo wirst du doch an Existenz und nicht-Existenz anrennen!' Das heißt aber doch an Tatsachen, nicht an Begriffen. (Zettel 364)

Die Natur macht sich in der Weise hörbar, dass sie die Bedingungen für unsere Sprachspiele schafft – so betont Wittgenstein des öfteren, dass wir in einer Welt, in der die Farbeigenschaften der Dinge nicht konstant wären, nicht unsere Farbbegriffe hätten. Das ändert aber nichts daran, dass wir keinen direkten, grammatik-freien Zugang zur Welt haben. Die Welt stellt gewissermaßen Material bereit, mit dem wir Sprachspiele spielen können. Aber die Art des Bezugs ist nicht eine der Abbildung des einen auf das andere, sondern eine der Einbindung: Deshalb können Farbtafeln nicht die Funktion haben, unsere Farbwörter mit der Realität zu verknüpfen, sondern nur als

Muster in unsere Sprachspiele eingehen: "Dieses Muster ist ein Instrument der Sprache, mit der wir Farbaussagen machen. Es ist in diesem Spiel nicht Dargestelltes, sondern Mittel der Darstellung. [...] Was es, scheinbar, geben muß, gehört zur Sprache. Es ist in unserem Spiel ein Paradigma; etwas, womit verglichen wird." (PU 50) Wir lernen Begriffe im Umgang mit Dingen in der Welt, und natürlich beziehen sie sich auf Dinge in der Welt, aber das tun sie trivialerweise. Anschaulich wird das an dem Satz "Weiß ist die hellste Farbe", der ja wie die "Es gibt kein Gold, das nicht schimmert" und "Es gibt kein transparentes Weiß" von Wittgenstein als ein grammatischer Satz betrachtet würde. Und doch ist er irgendwie ‚welthaltiger‘ als zum Beispiel "Alle Junggesellen sind unverheiratet", der eine reine Sprachregel ausdrückt. "Weiß ist die hellste Farbe" drückt eine Wahrnehmungsregel, oder eine Regel der Interpretation von Wahrnehmung aus. Hat er nun etwas mit der Welt zu tun? Ja, natürlich: Wenn wir Muster nach Helligkeit ordnen, wird das weiße Muster ganz außen liegen, und das weiße Muster wird dann tatsächlich heller sein als alle anderen, es ist also sozusagen auch in der Welt wahr, dass Weiß die hellste Farbe ist, und wir können das auch sinnvoll sagen (Sätze können zwischen empirischem und logischem Gebrauch wechseln) – der Punkt ist aber, dass die Muster so liegen, wie sie liegen, weil das eben unsere Begriffe von "hell", von "nach Helligkeit ordnen" und von "weiß" sind. Den Beziehungen zwischen den Begriffen entsprechen natürlich Beziehungen in der Welt – gerade weil wir sie so zu verwenden gelernt haben. Wahrheit ist Korrespondenz – aber das ist keine Theorie, sondern eine Trivialität, eine Regel unseres Sprachspiels. Und viel mehr können wir darüber nicht sagen.

Über einen äußeren Standpunkt verfügen wir nicht – die Katze beißt sich selbst in den Schwanz. Der Witz von Wittgensteins Behandlung ist aber nun, dass wir anhand so eines Satzes wie "Weiß ist die hellste Farbe" die Überflüssigkeit der Bemühung, einen äußeren Fixpunkt für die Korrespondenz-Beziehung zu finden, einsehen können: Die Frage "Warum ist Weiß die hellste Farbe?" bzw. "Warum gibt es kein Gold, das nicht schimmert?" hat keine sinnvolle Antwort, aber trotzdem erscheint uns das nicht als ein Mangel, nicht als Erklärungslücke. Wir könnten darauf sagen: So ist es eben. Oder auch: So spricht man richtig Deutsch. Und das läuft nun auf dasselbe hinaus. Und genau das wollte Wittgenstein meiner Ansicht nach auch für die Frage "Warum gibt es kein transparentes Weiß?" zeigen: Nach Untersuchung der Tiefengrammatik stellt sie sich als eine Frage gleicher Art heraus – sie läuft leer, hat keine substanzielle, tiefere Antwort, aber das ist auch kein Mangel. Die Beschreibung der Tiefengrammatik ersetzt die ohnehin nicht verfügbare Erklärung, bzw. macht sie überflüssig.

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Bolzano zur Zeit

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0. Einleitung

Bernard Bolzano hat sich nicht bloß mit dem Begriff der Zeit beschäftigt, sondern sich an einer regelrechten Analyse des Zeitbegriffs versucht. Seine Erwartungen an diese Analyse waren hoch: alle intrinsischen Eigenschaften der Zeit, so sein Anspruch, ließen sich aus seiner Analyse ableiten. Obgleich Bolzanos Analyse in Zusammenhang mit diesem Anspruch bereits ausführlich diskutiert wurde,¹ so ist mir doch kein Versuch bekannt, eine kleinschrittige Rekonstruktion derselben vorzunehmen, die ein vollständiges Verständnis der strukturell wie auch begrifflich anspruchsvollen Analyse erst ermöglichen würde. Das Anliegen dieses Aufsatzes ist ein verhältnismäßig bescheidenes und besteht im Wesentlichen darin, die eben genannte Lücke zu schließen: ich versuche zu klären, wie Bolzanos Analyse des Zeitbegriffs im Detail zu verstehen ist. Als ernüchterndes Ergebnis meiner exegetischen Bemühungen wird sich herausstellen, dass Bolzanos Analyse nicht bloß hermeneutisch vertrackt, sondern auch inhärent problematisch ist.

1. Eine Rekonstruktion von Bolzanos Analyse des Zeitbegriffs

a. Drei einschlägige Passagen

Bolzano hat seine Ansichten zur korrekten Erklärung des Zeitbegriffs wiederholt geäußert. Drei prominente Stellen finden sich in der 1837 veröffentlichten *Wissenschaftslehre* (WL I, §79: S. 365), im „Versuch über eine objective Begründung der drei Dimensionen des Raumes“ (Erstveröffentlichung 1843) und schließlich in den 1851 und damit posthum veröffentlichten *Paradoxien des Unendlichen* (§39: S. 77; verfasst ab 1847). Da zwischen dem Entstehen dieser Passagen einige Zeit liegt, muss man darauf gefasst sein, dass sie aufgrund einer Meinungsänderung Bolzanos nicht dieselbe Analyse enthalten. Zudem mögen sich die Stellen selbst dort, wo Bolzano seiner Auffassung treu geblieben ist, in relevanter Weise unterscheiden und jeweils besser oder schlechter geeignet sein, Bolzanos Ansichten klar und eindeutig kundzutun.

Tatsächlich variieren die Stellen dem Wortlaut nach so stark, dass ein erstes Lesen sicherlich suggeriert, dass sie auch wesentliche inhaltliche Unterschiede aufweisen. In diesem Aufsatz fehlt mir für einen detaillierten Vergleich dieser Stellen der Platz, weswegen ich mich auf eine Formulierung, nämlich die aus dem *Versuch*, konzentrieren werde (es sei aber nebenbei bemerkt, dass ein gewissenhafter Vergleich der drei Stellen meines Erachtens zeigt, dass Bolzano – dem ersten Anschein zum Trotz – bei ihnen tatsächlich *dieselbe* Analyse im Sinn hatte).

b. Die Analyse aus dem *Versuch*

Die Grundidee von Bolzanos Analyse lässt sich wie folgt zusammenfassen:

Was ein Zeitpunkt ist, erklärt sich aus der Beobachtung, dass in eine Proposition, in der einer veränderlichen Entität eine Beschaffenheit nachgesagt wird, eine Zeitbestimmung mit eingehen muss.

Um aber Genaueres zu erfahren, soll Bolzano selbst zu Wort kommen. Ich werde sogleich die einschlägige Passage aus dem *Versuch* zitieren und sie anschließend *in extenso* kommentieren. Um einfacher auf bestimmte Teile des Zitats Bezug nehmen zu können, füge ich in eckigen Klammern eine römische Nummerierung bei. Nun also zu Bolzanos Analyse:

[Ich] behaupte, dass wir, so oft wir uns den Begriff der Zeit, oder genauer zu reden, [i] den eines einfachen Zeittheiles, d. h. eines *Zeitpunctes* oder *Augenblicks* denken, in der That gar nichts Anderes denken, als den Begriff [ii] eines *Etwas*, [iii] *das zu der Vorstellung jedes [iv] bedingten Wirklichen*, [v] *als eine nähere Bestimmung desselben hinzugefügt werden muss*, [vi] *wenn von je zwei einander widersprechenden Beschaffenheiten eine mit Wahrheit ihm beigelegt, die andere abgesprochen werden soll.* (*Versuch*: 229)

Ad [i]: Welcher Begriff wird analysiert?

Über das *Analysandum* von Bolzanos Analyse bestehen keine Zweifel: sein Augenmerk ist auf den Begriff eines *Zeitpunkts* (bzw. eines Augenblicks) gerichtet. Dass Bolzano einen Zeitpunkt zuvor als *einfachen Zeitteil* bezeichnet, ist mit einer wenig kontroversen und einer kontroverseren These verbunden: (a) Ein Zeitpunkt ist wie jeder Punkt ausdehnungslos und daher *einfach* im mereologischen Sinne des Wortes. (b) Nun haben Zeitpunkte zwar keine Teile, aber sie *sind* nach Bolzano die atomaren *Teile* jeder Zeitspanne. Dass Zeitspannen Teile haben, ist offensichtlich: eine Stunde besteht aus Minuten, ein Monat aus Tagen (und natürlich *auch* aus Minuten, da die Teilbeziehung transitiv ist) etc. Ob *unausgedehnte* Zeitpunkte Teile von *ausgedehnten* Zeitspannen sein können, wird allerdings von einigen Philosophen bezweifelt;² – doch hier ist nicht der Ort, dieses Thema weiter zu verfolgen.

Ad [ii]: Das Analysans

Während der Begriff eines Zeitpunkts das *Analysandum* von Bolzanos Analyse darstellt, liefert die mit [ii] einsetzende lange, von Bolzano kursiv gesetzte Phrase seinen Analyse-vorschlag: sie soll das *Analysans* ausdrücken, und also denselben Begriff wie das Wort „Zeitpunkt“.

Ad [iv]: Wirklichkeit und Bedingtheit

In Bolzanos Analyse ist davon die Rede, dass einem Gegenstand eine Beschaffenheit zugesprochen wird – aber nicht *irgendeinem* Gegenstand, sondern einem „bedingten Wirklichen“.

Ein *wirklicher* Gegenstand (kürzer: ein Wirkliches) ist einer, der in die kausale Ordnung eingebunden ist und somit

¹ Rolf George (1987) argumentiert dafür, dass der Anspruch tatsächlich überzogen ist; insbesondere die Ordnungseigenschaften der Zeit ergeben sich, so George, nicht aus Bolzanos Analyse.

² Vgl. beispielweise Hoffman & Rosenkrantz 1994: 188–193.

Wirkungen erzeugen oder erleiden kann; wirkliche Gegenstände existieren für gewöhnlich in Raum und Zeit.³ Das Wirkliche zerfällt nach Bolzano in zwei Unterkategorien, von denen die eine *Substanzen* (wie Personen, Pistolen und Posauen) umfasst, die andere hingegen *Adhärenzen*, d.h. konkrete Instanzen von Beschaffenheiten (wie Belmondos Charme).

„Bedingt“ nennt Bolzano einen wirklichen Gegenstand x , wenn es einen anderen wirklichen Gegenstand y gibt, dessen Existenz eine Bedingung für das Existenz von x darstellt.⁴ Dass es einen solchen gibt, gilt nach Bolzano für nahezu jeden wirklichen Gegenstand, mit einer einzigen Ausnahme: unter „Gott“ versteht Bolzano gerade ein Wirkliches, das keine Bedingung seiner Existenz hat.⁵ Alle anderen wirklichen Entitäten aber sah der tief religiöse Bolzano als bedingt an, und zwar unter anderem (und vor allem) bedingt durch Gott selbst.

Ad [iii]: Zeitbestimmungen in Propositionen

Laut Bolzanos Analyse ist nun ein Zeitpunkt etwas, das der Vorstellung eines bedingten Wirklichen hinzugefügt werden, wenn man eine Aussage über es macht und ihm eine Beschaffenheit zuschreibt. Das ist freilich, streng genommen, höchst überraschend: *Vorstellungen* in Bolzanos Sinn sind Bestandteile von *Propositionen* (in Bolzanos Jargon: von *Sätzen an sich*), und generell gehen nur Vorstellungen als Teile in Propositionen ein. Ein Zeitpunkt hat in einer solchen ebenso wenig verloren, wie der Mount Everest.⁶ Daher scheint es, dass Bolzano nicht wirklich meint, was er schreibt, sondern vielmehr, dass ein Zeitpunkt etwas ist, *dessen Vorstellung* in einer Aussage zu der eines Wirklichen hinzugefügt werden muss.⁷

Doch warum soll die Zeitvorstellung eigentlich zu der Vorstellung des Wirklichen, über das eine Aussage gemacht wird, hinzugefügt werden (und nicht, beispielsweise, zur Prädikatvorstellung oder der Kopula)? Bolzanos Formulierung erklärt sich aus einer seiner Thesen zur *logischen Struktur* der relevanten Propositionen: ihm zufolge spiegelt das Schema „ a zur Zeit t – hat – (Beschaffenheit) b “ die begriffliche Struktur einer solchen Proposition am besten wider.⁸ Nun ist diese These erstens kontrovers und steht zweitens in keinem notwendigen Zusammenhang zur Grundidee von Bolzanos Analyse; beide können unabhängig voneinander diskutiert werden, weswegen es sich anbietet, die Analyse auch unabhängig von der These zu formulieren.

Unter Beachtung der obigen Punkte schlage ich die folgende Annäherung an Bolzanos Analyse vor:

(ZA) x ist ein Zeitpunkt $\leftrightarrow_{\text{Def.}}$

$\forall y$ (y ist ein bedingtes Wirkliches $\rightarrow$
 $\forall b \forall p$ (p ist eine wahre Proposition & in p
 wird y die Beschaffenheit b
 zugeschrieben) $\rightarrow$ in p geht eine
 Vorstellung von x ein)).

Neben der Reminiszenz an Bolzanos These zur logischen Struktur einer Proposition gehen in (ZA) zwei weitere Aspekte verloren, die in Bolzanos Zitat (nämlich in [v] und

[vi]) zur Sprache kommen. Ich will kurz erläutern, warum ich das nicht für einen Nachteil von (ZA) erachte.

Ad [v]: Bestimmungen

Bolzano spricht nicht bloß davon, dass für die Wahrheit einer fraglichen Aussage eine Vorstellung einer Zeit hinzugefügt werden muss, sondern davon, dass sie als *Bestimmung* hinzugefügt werden muss. Leider ist der in Bolzanos Schriften wiederholt auftauchende Begriff der Bestimmung eher undurchsichtig, und ihn zu besprechen würde den Rahmen dieses Aufsatzes klar sprengen. Deshalb ignoriere ich bei meiner Rekonstruktion diese Klausel.

Ad [vi]: Zeit als Mittel zur Auflösung von Widersprüchen

Worin sich (ZA) vor allem noch von Bolzanos eigenen Worten unterscheidet, ist der Umstand, dass Bolzano nicht schlicht von *einer* Beschaffenheit spricht, die von einem Wirklichen zugeschrieben werden soll, sondern von *zwei* Beschaffenheiten, und genauer: von *zwei widersprechenden* Beschaffenheiten. Was hat es damit auf sich?

Die Rede von widersprechenden Eigenschaften mag schnell die Assoziation zu einer häufig angesprochenen Besonderheit von Zeitbestimmungen wecken: sie besitzen ein *Widerspruchsauflösungspotential*. Manchmal sind zwei Aussagen, in denen ein und derselbe Gegenstand ein und dieselbe Eigenschaft einmal nachgesagt und einmal abgesprochen wird, beide wahr. Wie das sein kann, ist schnell erklärt: Gegenstände verändern sich bisweilen, und eine Unart, die Hänchen noch sein eigen nannte, muss Hans durchaus nicht mehr zukommen. Hat man also vor Jahren noch etwas Wahres gesagt, indem man den Satz äußerte „Hans ist ein schlimmer Finger“, sagt man heute womöglich etwas Wahres, indem man die Negation dieses Satzes äußert: „Hans ist kein schlimmer Finger.“ Wo ein sophistisch gestimmter Logiker einen expliziten Widerspruch wittern mag, erkennt der gesunde Menschenverstand, wieso ein solcher nicht vorliegt: Zwar sind die Sätze, die man äußert, Negationen von einander, aber das, was man mit ihnen sagt, steht in keinem Widerspruchsverhältnis. Denn was man mit ihnen sagt, ist nicht alleine durch die Sätze bestimmt, sondern auch durch den Zeitpunkt, zu dem man sie äußert und auf den man sich mit dem Tempus Präsens bezieht.⁹ Deshalb liegt es nahe, dass die in der Äußerung ausgedrückte Proposition einen begrifflichen Bestandteil enthält, der eine Zeit spezifiziert, und dem auf der sprachlichen Ebene keine Entsprechung durch eine vollständige Phrase vergönnt ist. Insofern haben Zeitbestimmungen in Propositionen das Potential, vermeintliche Widersprüche auf der sprachlichen Ebene aufzulösen.

Nun betont tatsächlich auch Bolzano diese Besonderheit von Zeitvorstellungen. Doch zumindest in der *Wissenschaftslehre* will er diese Besonderheit nicht in die Analyse des Zeitbegriffs miteinbeziehen, sondern sieht sie als eine *Folge* aus seiner Analyse an.¹⁰ Die im *Versuch* anzutreffende Rede von *widersprechenden* Eigenschaften in der Begriffsanalyse könnte einen meinen lassen, hier hätte er sich von seiner früheren Auffassung verabschiedet. Doch damit läge man falsch. Denn während Bolzano zwar von zwei widersprechenden Beschaffenheiten redet, so doch nicht von einer Situation, in der diese

³ Zu Bolzanos Begriff des Wirklichen vgl. auch Schnieder 2002: 21–26.

⁴ Manchmal spricht Bolzano statt von „bedingten“ auch von „abhängigen“ Gegenständen (z.B. *Paradoxien* §39).

⁵ Vgl. *RW* § 66.

⁶ In der Auseinandersetzung, die Frege und Russell um die möglichen Komponenten einer Proposition geführt haben, hätte Bolzano klarerweise für Frege Partei ergriffen.

⁷ So drückt sich Bolzano denn auch in den späteren *Paradoxien* aus (a.a.O.).

⁸ Siehe hierzu Textor (2003).

⁹ Etwas angemessener wäre es vielleicht zu sagen, dass man sich auf eine *vage Zeitspanne* bezieht, in die der Äußerungszeitpunkt fällt.

¹⁰ Vgl. *WL* I, § 79: S. 365.

beide einem Gegenstand *zugeschrieben* werde, woraus alleine ein vermeintlicher Widerspruch erst erwachsen könnte. Vielmehr redet Bolzano davon, dass eine der beiden Beschaffenheiten dem Gegenstand *zu-*, die andere ihm *abgesprochen* werden solle. Daraus aber entstünde auch kein noch so vermeintlicher Widerspruch.

Aber warum dann die Rede von widersprechenden Beschaffenheiten? Warum nicht schlicht von *einer* zuzuschreibenden Beschaffenheit reden? Tatsächlich sehe ich nichts, das Bolzanos Formulierung wirklich *erforderlich* machen würde. Sie könnte aber immerhin eine didaktische Pointe haben: Für jeden Gegenstand gibt es unzählige Beschaffenheiten, die man ihm *unter keinen Umständen* mit Wahrheit zuschreiben kann, einfach deshalb, weil er sie niemals hat (und womöglich nicht einmal haben könnte). Betrachtet man nun ein solches Paar von Gegenstand x und Beschaffenheit b , so wäre es irreführend zu sagen, dass der Vorstellung von x eine Zeitvorstellung beigelegt werden muss, um ihm b mit Wahrheit zuzuschreiben – weil es fälschlicherweise suggeriert, man könne die wahrheitsgemäße Zuschreibung machen (wobei dies tatsächlich *nur* suggeriert wird, und nicht streng impliziert). Bolzanos Formulierung umgeht die Gefahr einer solchen Irreführung: denn von je zwei *widersprechenden* Eigenschaften (womit eine Eigenschaft und ihr kontradiktorisches Gegenteil gemeint ist) kann man einem Gegenstand immer die eine mit Wahrheit zuschreiben. Da ich keinen weiteren Vorzug der Formulierung sehe, betrachte ich sie als nicht streng notwendig und bleibe bei der obigen Rekonstruktion.

2. Eine Diskussion von Bolzanos Analyse

a. Ein gravierendes Problem

Abgesehen von einigen kleineren Problemen, die sich durch geringfügige Modifikationen leicht umgehen ließen und die ich hier daher übergehen will, hat Bolzanos Analyse unglücklicherweise ein tatsächlich letales Problem. Betrachten wir noch einmal (ZA) und dazu einen beliebigen Zeitpunkt, wie z.B. den Beginn der christlichen Zeitrechnung (den ich fortan *NULL* nenne). Schafft es (ZA), den Zeitpunkt *NULL* als einen solchen auszuweisen? Leider nein, was ein Beispiel zeigen sollte: Nehmen wir einmal an, Belmondo hatte am 2.2.1967 (und einigen umliegenden Tagen) Charme. Dann kann man Bolzano in Hinsicht auf besagten Tag mit Wahrheit die Beschaffenheit Charme zuschreiben, indem man sagt, dass Belmondo an diesem Tag Charme hatte. In die dabei ausgedrückte Proposition muss offenbar keine Vorstellung von Zeitpunkt *NULL* eingehen – was wohl auch niemand annehmen würde. Doch laut (ZA) ist *NULL* (und jeder andere Gegenstand) *nur dann* ein Zeitpunkt, wenn in *jeder* Proposition, in der einem bedingten Wirklichen wahrheitsgemäß eine Beschaffenheit nachgesagt wird, eine Vorstellung von *NULL* eingeht. Also ist *NULL* (ZA) zufolge *kein* Zeitpunkt, und Analoges gilt offenbar für *jeden* Zeitpunkt, denn keiner ist derart, dass eine Vorstellung von ihm in jede wahre Eigenschaftszuschreibung (an ein bedingt Wirkliches) eingehen müsste. Bolzanos Analyse läuft daher leer: unter ihr *Analysans* fällt kein einziger Gegenstand, und mithin kein einziger Zeitpunkt.

b. Eine Fehleranalyse

Es drängen sich nun zwei zusammenhängende Fragen auf:

- (i) Wie kommt Bolzanos Analyse zu diesem unvorteilhaften Zug?
- (ii) Kann eine verbesserte Variante der Analyse ihn vermeiden?

Ein Blick darauf, wie Bolzano im *Versuch* auf seine Analyse hinleitet, ist aufschlussreich für Frage (i) – und legt leider eine negative Antwort auf Frage (ii) nahe.

Bolzano hat die folgende Beobachtung über den Zusammenhang von Zeitvorstellungen und wahren Propositionen gemacht (*Versuch* 228f.):

- (PZ) Jede wahre Proposition über ein bedingt Wirkliches enthält eine Zeitbestimmung.

Oder, formaler:

- (PZ*) $\forall p$ (p ist eine wahre Proposition über ein bedingt Wirkliches $\rightarrow \exists t \exists x$ (x ist eine Vorstellung von t & p enthält x)).

Diese wichtige Beobachtung wollte Bolzano nun zur Grundlage seiner Analyse machen. Doch hat er übersehen, dass sie für diesen Zweck von einer gänzlich ungeeigneten *Form* ist. Einer Analyse vom Begriff eines Zeitpunktes muss eine wahre Allaussage *über Zeitpunkte* zugrunde liegen. (P&Z) ist aber keine Allaussage über Zeitpunkte, sondern über Propositionen.

Nun scheint Bolzano bei dem Versuch, aus (PZ) eine Allaussage über Zeitpunkte zu gewinnen, ein logischer Schnitzer unterlaufen zu sein. Denn seiner Analyse entspricht die folgende Allaussage:

- (PZ**) $\forall t$ (t ist ein Zeitpunkt $\rightarrow \forall p$ (p ist eine wahre Proposition über ein bedingt Wirkliches $\rightarrow \exists x$ (x ist eine Vorstellung von t & p enthält x))).

Und (PZ**) ist offensichtlich falsch, wenngleich sich (PZ**) von Bolzanos korrekter Beobachtung (PZ) nur durch die enthaltenen Quantoren unterscheidet.

Der Fehler, der zu Bolzanos Analyse führte, ist verzeihlich; doch zugleich ist er Ausdruck dessen, dass (PZ) eben wirklich die falsche Form hat, um eine explizite Analyse des Zeitbegriffs abzugeben. Da diese Beobachtung Bolzanos Analyse aber als Herzstück zugrunde liegt, sind die Aussichten, sie zu retten, mehr als düster. Immerhin würde aber von Bolzanos gescheitertem Analyseversuch ein wertvolles Nebenprodukt, nämlich eine wichtige Einsicht über die logische Rolle von Zeitvorstellungen in Propositionen verbleiben – was man als mindestens teilweise Entschädigung für die Mühen der Beschäftigung mit Bolzanos Analyseversuch betrachten mag.

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Accelerating Turing Machines

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Accelerating Turing machines have exactly the same computational structure as Turing machines, but they perform their tasks in an accelerated fashion, e.g., they complete the first operation in one moment, the second in $1/2$ of a moment, the third in $1/4$ of a moment, and so on. It is argued that accelerating Turing machines can compute functions that no "non-accelerating" Turing machine can compute, e.g., the halting function. I argue, to the contrary, that acceleration alone does not increase computational power, and that the accelerating Turing machines compute exactly the recursive functions.

1. Turing Machines

In his 1936 seminal paper, Alan Turing described a machine that has become a model of computing. The machine, known as a Turing machine, is an abstract device that consists of a finite and fixed program, a potentially infinite memory tape, divided into cells, and a read/write head, which is located above a memory cell. The machine receives, as an input, strings of symbols; we can assume, with no loss of generalization, that a string consists of 0's and 1's. Its operations are limited to: (a) changing the symbol in the memory cell; either to 0, 1 or blank; (b) moving the read/write head to the neighboring cell, either right or left; and (c) changing the current condition of the program. These operations are determined by the symbol scanned from the tape and the program condition, or, as Turing put it, the "possible behaviour of the machine at each moment is determined by the m -configurations q_n and the scanned symbol $\xi(r)$ " (p. 117). This means that the computation process is a sequence of stages, such that the configuration of each stage, $\alpha + 1$, namely, the program's condition (m -configurations) q_n , the symbols on the tape, and the location of the read/write head, is completely determined by the configuration of the previous stage, α .

Turing also introduced the idea of what we now call a universal Turing machine, namely, a Turing machine that can compute everything that can be computed by any other Turing machine. The program of the universal machine is too complex to be specified here, but the idea is wonderfully simple. Since the program of a Turing machine is finite, we can encode it into a string of 0's and 1's, and feed the finite code as an input to the universal machine. The universal machine scans the code and simulates the operations of the encoded machine. This simple, elegant, concept inspires the development of current, all-purpose, electronic computers.

2. Solving the Halting Problem

The Church-Turing thesis states that any function whose values can be computed by means of an algorithm is also computable by a universal Turing machine. The thesis, however, does not imply that every function is computable by a universal Turing machine. Since the set of Turing machines is enumerable, and the set of functions defined over strings of 0's and 1's is not, most functions are not Turing machine computable. In his 1936 article, Turing introduced a task, known as the halting problem, which cannot be solved by a universal Turing machine. Anyone

who has taken an introductory course in programming is familiar with the frustrating experience of programs that run forever and thus never halt. Can we tell whether an arbitrary Turing machine operating on a given input will ever halt? The task, more specifically, is defined by the following function: the input is a code of a Turing machine, namely, a string of 0's and 1's, and perhaps other strings that are inputs to this encoded machine. The output should be '1' if the encoded program halts on the given input, and '0' if not. This halting function is well-defined. But is it computable? Turing proved that no Turing machine computes it, and, hence, if the Church-Turing thesis is correct, that it is not computable by means of any algorithm whatsoever.

Jack Copeland (1998a, 1998b, 2002) has argued that an *accelerating* Turing machine can solve the halting problem. He introduces an accelerating universal Turing machine, AUTM, that works as follows. It gets as an input the code of a Turing machine plus inputs to that machine, and what it does, as a universal machine, is simulate the operations of the encoded machine step-by-step. But AUTM does it in an accelerating fashion. It takes one moment to perform the first atomic operation, half a moment to perform the second operation, a quarter of a moment for the third operation, and so on. If the simulated machine never halts, it takes AUTM $1 + 1/2 + 1/4 + 1/8 + \dots$ moments to simulate the entire operations of the encoded machine. Thus it will take AUTM no more than two moments to complete the entire simulation.

To solve the halting problem, AUTM includes two more ingredients as part of its program. One is an instruction that initializes a designated output cell on the tape with '0', which means "never halted". We can think of this initialization as the first atomic operation that AUTM performs. Another is a controller, which is a finite set of instructions, whose task is to tell, after each simulated operation, whether the simulated machine has halted. If the simulated machine did halt, the controller changes the symbol in the output cell from '0' to '1', which means "halted", and terminates the simulation. It is easy to see that after at most two moments of time, the output cell will show the halting state of the simulated machine: it will show '1' if the simulated machine has halted and '0' otherwise.

3. What Solved the Halting Problem?

There is a suggestion of a paradox surrounding AUTM. On the one hand, AUTM *is* a Turing machine. On the other, it computes the halting function, which, as Turing *proved*, is not Turing machine computable. So what's going on here? Copeland distinguishes between the internal and external computation of a function, and argues that AUTM computes the halting function in the external, but not in the internal, sense. I want to suggest that the answer is much simpler: AUTM does not compute the halting function at all and, hence, does not solve the halting problem. Why not? Because the state of the tape after two moments is not a state of AUTM. To qualify as a state of a Turing machine, the state of the tape, after two moments of time, must be determined by the configuration of *the* previous stage. But there is no previous stage, α , that precedes the second

moment stage, $\alpha + 1$. There are, in fact, infinitely many stages between any given stage that precedes the second moment and the state of the tape after two moments. Thus the state of the tape after two moments is not something that AUTM computed.

Let me make clear what I do *not* claim. First, I do not dispute the idea that a Turing machine can perform a supertask, namely, complete infinitely many steps in a finite span of time. Indeed, I agree that AUTM can and does perform super-tasks: if the simulated machine never halts, AUTM completes the simulation, which consists of infinitely many operations in just two moments. Second, I do not challenge the concept of hyper-computation, namely, of machines that compute functions that cannot be computed by a universal Turing machine, such as the halting function. I think, moreover, that hyper-computation is consistent with the Church-Turing thesis. Third, my claim is not about physical feasibility. It is indeed doubtful that AUTM itself is physically feasible, but I do not mind assuming that Newtonian equations of motion allow the tape to survive the acceleration, while the rest of AUTM is gone. I also think that there might well be idealized physical systems (see, e.g., Pitowsky 1990, Hogarth 1992, 1994, Davies 2001) that, by performing supertasks, compute the halting function.

Lastly, I agree that we can *extend* the Turing machine concept such that it will encompass the second moment stage (see, e.g., Hamkins and Lewis 2000, and Hamkins 2002). For example, we can specify the value of the designated output at that moment to be the limit of the previous values that this cell has displayed. Thus the machine works as follows. At the semi-open time segment $[0,2)$ it is just the AUTM specified above, namely, it operates in a classical manner in the sense that "the classical procedure determines the configuration of the machine... at any stage $\alpha + 1$, given the configuration at any stage α " (Hamkins 2002:526). At the second moment, however, "the machine is placed in the special *limit* state, just another of the finitely many states; and the values in the cells of the tapes are updated by computing a kind of limit of the previous values that cell has displayed" (ibid.). This extended machine indeed computes the halting function: when it halts after two moments, it exhibits, at its output cell, the halting state of the simulated Turing machine.

So what *do* I claim? My claim is that in describing AUTM we specified what would be the configuration of the Turing machine at every moment in the semi-open time segment $[0,2)$, but that this specification implies nothing about the state of the output cell after two moments. Whatever appears on the tape after two moments, be it '0',

'1' or gibberish, is just consistent with the Turing machine specification. Thus AUTM is not a hyper-computer. It computes exactly what its non-accelerating cousin does: it returns '1' if the simulated machine halts, and returns no value otherwise. We could extend the specification by defining the two-moment stage to be a ω_1 limit stage, in which the value at the designated output cell is the limit of the previous values in that cell. This newly-specified machine indeed computes the halting function, but it does no longer have the *computational structure* of a Turing machine; for one of the machine's stages, $\alpha + 1$, is not completely determined by the configuration of previous stage, α . And even here the increase in computational power is not due to the acceleration. The newly defined machine could operate in transfinite time, with the limit stage never occurring in any finite time. Acceleration ensures that the computation terminates in finite time, but it makes no difference to the functions being computed.

Why are we tempted to think that it is a Turing machine that solves the halting problem, and that what makes the difference is acceleration? My diagnosis is that we conflate two different descriptions or models of the same device. One model is that of a rule-following device, which was specified in terms of a Turing machine. On this model, the device operates according to a fixed logical rule, i.e., the Turing machine program. On a second model, which is underspecified, we think of the device as operating according to very different laws, e.g., the laws of physics, on which the state of the tape after two moments is the limit of the preceding states. At each point before the second moment, the two models, the logical-mathematical and the physical, apply to the device. That is, the operations of the machine are consistent both with the Turing machine program and with the laws of physics. There is nothing wrong with this coincidence. When something like this happens, we often say that the device, as a physical system, *implements* the logical-mathematical structure. However, we have to notice that the two models part at the second moment. While the physical model might still apply, the Turing-machine model does not. We fall prey to paradoxes when we project from the physical model to the existence of the device as a Turing machine. Whether the physical tape exists after two moments, and whether the state of the tape at this moment is the limit of the states at preceding moments, are interesting questions that I do not wish to discuss here. My point, rather, is that even if the tape exists after two moments, it no longer exists as a state of the Turing machine. I thus conclude that if anything computes the halting function, it is no Turing machine. It might be a physical device that operates according to the laws of physics. It might be a Hamkins-and-Lewis style machine. But it is certainly not an accelerating Turing machine.

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Reichenbach on Space and Time

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Introduction

In the German book market, the year 1920 brought a rich harvest of works dedicated to the problems of space and time in the context of relativity theory. Albert Einstein's *Über die spezielle und allgemeine Relativitätstheorie* was published in the 6th edition and Moritz Schlick's *Raum und Zeit in der gegenwärtigen Physik* in the 3rd edition; Hans Reichenbach's *Relativitätstheorie und Erkenntnis a priori* appeared. Moreover, a year later, Ernst Cassirer's *Zur Einsteinschen Relativitätstheorie* appeared. The theory of relativity had been on the agenda since 1905, and philosophical discussion on its presuppositions and implications was now expanding.

Reichenbach had been Cassirer's pupil in Berlin during the academic years 1911 - 12 and 1913 - 14. As the name of his book indicates, he tried to reconcile the Kantian heritage with the method and results of relativity theory. To the latter, he had a first-rate access as a pupil of Einstein. Einstein gave the first course on his theories at the university of Berlin during the winter term 1918 - 1919. The lecture room was not exactly crowded: there were at most five participating students, one of whom was Reichenbach. He had published his doctoral dissertation in 1915 and was working in radio industry as a laboratory physicist. (Cf. Gerner 1997)

Reichenbach says that Schlick's aforementioned book gives a "good presentation of the physical content of the theory" (English translation of Reichenbach 1920, 1965, 110). He adopted the ideas of implicit definition and of knowledge as coordination (*Zuordnung*) from Schlick's 1918 book, *Allgemeine Erkenntnislehre*. (Cf. Schlick 1979, section 7, p. 49 - 57); Reichenbach 1920, 33 f, and Schlick 1979, 40, 78 ff; Reichenbach 1920, 34 ff). Concerning Cassirer's 1921 book, Reichenbach says: "The work is intended to furnish the basis for a discussion between physicists and philosophers. Indeed, nobody seems to be better qualified in the Neo-Kantian camp to start such a discussion than Cassirer, whose critical analysis of physical concepts has always tended in a direction familiar to the theory of relativity. This is especially true for the concept of substance." (1965, note 20, 114). At this point Reichenbach mentions Cassirer's work on the concepts of substance and function, which had appeared in 1910. In his own work, Reichenbach's analysis of the concept of substance was so thorough as to be dissolving.

Reichenbach adds to the above-cited remark: "Unfortunately I could not consider Cassirer's contributions, for I was able to read them only after this book had gone to press." (1965, note 20, 115). Cassirer in 1921 gives a corresponding message concerning Reichenbach's text: he had received its manuscript only when his own book was already in press. He praises Reichenbach's work for its sharpness and thoroughness but does not fully agree with its results, especially those concerning the relationship of relativity theory to Kant's epistemology. (Cf. Cassirer 1994, 125).

Reichenbach's book is a compromise between the claims of Kantianism and Einstein's relativization of space and time. In his dissertation, Reichenbach had defended the thesis that mathematical presentation of reality requires probability as a complementary category to

causality, the term 'category' understood in the sense of Kant. This (even more than) full-blown Kantianism was challenged by Einstein's theories. Reichenbach managed to preserve the general principle of coordination as the *a priori* valid condition of experience. However, partly under the pressure of problems and partly under the influence of Schlick, he headed towards empiricism, which became visible in his book on the axiomatic foundations of the theory of relativity (1924). In his third work on the problems of space and time, *Philosophie der Raum-Zeit-Lehre* (1928), Reichenbach has a thoroughly empiricistic standpoint.

Reichenbach's trilogy signifies a modification of the traditional ideas; he rejects the Kantian critique of pure reason for a science-based critique of space, time, substantiality and causality. Kant's twin questions concerning phenomenal space and phenomenal time give way to the questions of defining the proper geometry for physical space and of defining the adequate chronometry for physical time. In his study of the order of time, Reichenbach was led to the question concerning the direction of time. In his last book, he supplemented what he had learned from Einstein with his studies of Ludwig Boltzmann's thermodynamics. He also profited from his own early research on the problem of probability.

Below, Reichenbach's views on the problems of space and time will be analysed. After that, questions concerning the relation between time and history will be raised.

1. Relativization of Space and Time

Isaac Newton presented an absolute theory of space and time, which was challenged by Leibniz's relational theory. According to Newton, space and time are reservoirs that contain all occurrences and things; according to Leibniz, space and time are sets of relations between things and between occurrences. The relational theory was developed by Ernst Mach and mathematized by Einstein in the form of his special theory of relativity in 1905 and his general theory of relativity in 1916. According to Einstein's theories, spatial distance, time intervals and mass depend upon the particular frame of reference in which they occur and can be measured. (Cf. Einstein 1918).

In the same year as that in which his basic article on the general theory appeared, Einstein also published his above-mentioned book on the special and general theory of relativity (first edition 1916, third 1918, sixth 1920). Two years later he was lecturing about his theories in Berlin, where the then 27 years old physicist and philosopher Hans Reichenbach became his pupil. Reichenbach described the problem with which he was confronted due to Einstein's course as follows: "...either the theory of relativity is false, or Kant's philosophy needs to be modified in those parts which contradict Einstein" (1965, 4). Since to seize the first horn of the dilemma seemed unpromising, he chose the second one of developing a constructive philosophy alongside a continuing critique of Kant's system, thus paving the way for a life-long task.

Reichenbach explicates the ideas of new physics and studies their clash with traditional conceptions. The

general theory of relativity claims that physical space is not Euclidean, whereas according to Kant, the Euclidean character of space is an *a priori* principle. Kant's method was the analysis of reason, but Reichenbach replaces it with the analysis of science. Kant considered space and time to be forms of intuition, whereas according to Reichenbach, on the one hand, they are part of the conceptual machinery of science and on the other hand, they are objective properties of the world. In a certain sense, Kant's theory of knowledge has been refuted by experience. However, the concept of *a priori*, in a modified sense, is confirmed by relativity theory: the principles that determine the coordination of facts to equations have a basic role in the logical structure of knowledge. They define what knowledge is and what is knowable. They are the answer to the Kantian question, 'How is knowledge possible?'

This was Reichenbach's position in 1920. Later he would study the historical roots of relativistic standpoints in Leibniz' and Mach's theories, and would analyse the conceptual structure of relativity theory without any commitment to Kantianism. According to him, the questions concerning the nature of space and time can be fruitfully treated through investigation of the measurement of distances and processes. The proper equipment for spatial and temporal measurement are rods and clocks, which are to be understood in a broad sense. They include any meters, light signals and motions of heavenly bodies.

The relativistic critique of space and time reveals that comparison of spatial distances and periods of duration is a more complicated task than naive understanding would like to have it. What guarantees that given line segments are equal at different places, or that two given occurrences last equally long? We compare a line segment with a measuring rod, bring the rod to the other segment, make a corresponding measurement and compare the results with each other. Correspondingly, a timekeeper in an athletics competition receives, as the result of a certain runner, four minutes, adjusts his/her clock and measures another runner's performance with the same result. However, what guarantees that there were no physical changes in the rod or in the clock to the effect that the later measurements would no longer be accurate? If the equipment is tested by means of other equipment, the same question can be raised concerning the latter. We therefore lack a physical method to decide the issue, though we still rely on our measurements. Whence comes our confidence? Its source is convention, namely certain agreed systems of reference. In the case of space, such a system is either metric defined by the standard metre in Paris, or the slightly more cumbersome Anglo-Saxon system of feet, yards and miles. In the case of time, the agreed system is sidereal, which defines hours, minutes and seconds.

Reichenbach calls this conventional agreement a "co-ordinative definition", because it makes explicit a co-ordination between real rods and what is considered spatial equality, and between real clocks and equated stretches of duration. He introduces the concept in his 1924 book; cf. 1969, 8: "The physical definition takes the meaning of the concept for granted and coordinates to it a physical thing; it is a *coordinative definition*." Cf. also his (1958), section 4: "Coordinative definitions", p. 14 - 19.

Reichenbach's explication of science clarifies the difference between definitions and empirical statements. The former are based on convention, while the latter are based on facts. Reichenbach's philosophy of space and time is both relativistic and objectivistic; the objectivism is

safeguarded by the posited definitions' strict admissibility conditions. Furthermore, time is logically prior to space, because spatial measurement depends on an assumption of simultaneity.

2. Cosmic Chronometry

Time is the fourth dimension of the physical world. Space has a three-dimensional structure that can be described by *x*-, *y*- and *z*- coordinates. The world-line of an occurrence is given when, e.g., a point *P* is indicated in this picture; then the flow of time at *P* is timelike world-line and other three values fix its spacelike world-line. The basic concepts for time measurement are those of unit, uniformity and simultaneity. These give the framework for the quantitative properties of time. Its qualitative properties are order and direction.

The physical order of time is characterized by the concepts 'earlier', 'later' and 'indeterminate as to time order' (Reichenbach 1958, 272). Time order is isomorphic to the points of a line. It allows for reversible processes, because "a series of points has two directions, neither of which has any distinguishing characteristic." (p. 138).

When time direction is added to time order, the process of time appears in its irreversible nature. Here the key concepts are 'past', 'present' and 'future'. The question is: "In what sense does the future differ from the past?" (Reichenbach 1991, 9). Time appears to us in an asymmetrical form that singles out the future, leaving room for anticipation, will and planned action. However, this may be only due to ignorance: it is possible that time itself is "the same in the direction of the past and in the direction of the future", which would imply that "the future is as determined as the past" (*ibid.*) Causal laws would then have a strictly nomological character. Another possibility is indeterminism, in the context of which the direction of time is interpreted as a statistical trend. Reichenbach, following the example of Boltzmann, chooses the latter interpretation of universe and considers "the evolution of the universe as a genuine probability chain" (p. 95 f).

The objections that result from deterministic physics are difficult to refute, but Reichenbach thinks that thermodynamics, microstatistics, macrostatistics, quantum mechanics yield evidence that supports indeterminism. The second law of thermodynamics, that of entropy, indicates the direction of time; it is a statistical law. Unidirectional time is doubly confirmed by quantum mechanics: in the light of it, macroprocesses are probabilistic and microprocesses have their characteristic indeterminacy.

3. Time and History

One may distinguish between physical time and time as experience. The latter has its typical inwardness, immediacy and phenomenal quality that connects it to the experience of an ego, to "my world" as it were. According to Reichenbach, "I am" is always equivalent to 'I am now', but I am in an 'eternal now' and feel myself remaining the same in the elusive current of time." (1958, 110). Anticipation and memory blend into one overarching stream of experience. This experience is imbedded in the objective chain of physical events but, according to Reichenbach, does not give us sufficient information of those events. Rather, one may expect that a study of physical time "presents the experience of time in a new light" (p. 113). How the relation between the subjective and

the objective side of time is ever understood, it is a fact that time has a special meaning for human beings; cf. the first chapter of Reichenbach's (1991): "The Emotive Significance of Time".

The question whether the asymmetry between past and future is real, has implications to human action and history. If the future is genuinely undecided, the cosmological structure of the causal net is open, and in this case "we are allowed to regard the causal net of human history, and perhaps of planetary history, as open." (Reichenbach 1991, 39). Reichenbach asks: "Do we have conclusive evidence for the openness of the net?" (p. 38) He is in fact collecting such evidence throughout his book 1991.

Indeed, one may speak of "things and persons that remain identical and unique in the flow of time" (Reichenbach 1991, 38) only if the causal structure of the universe - at least of that universe that we inhabit - is open. One may make here a stronger claim than Reichenbach's above one: there is no history in the genuine sense if closed causal chains occur, because then the unique individuality of things and persons would be lost. (Cf. also the problems of individuals and individuation treated by P. F. Strawson 1971).

In science fiction-literature, there are stories in which, as Reichenbach says, "you meet a man who claims that you are his earlier self" (1958, 141). This "would be very strange, but not logically impossible" (p. 142). The possibility of history hangs on the practical impossibility of this alternative.

As was seen above, Reichenbach distinguishes human history from planetary history. Let us give some complementary remarks. The history of our planet has behind it a huge period of cosmic history, which can be traced by calculations based on galaxies' observed red shifts. When the whole galactic system is traced back to its origin, speculation complements observation and calculation. There are various competing models of cosmic evolution, which underlines the claim that our perception of processes of duration must be distinguished from time itself - "time as an objective process", as Reichenbach says (1991, 8). Correspondingly, the concept of history has an objective and a subjective aspect. However, time in the objective sense remains bound to processes and is nothing in itself - in so far as relativity theory is correct.

Reichenbach intended to give a dynamic picture of the physical world, as the title of his book (1991) indicates. Its first chapter contains a baffling passage that can easily be interpreted to mean that the general theory of relativity would be committed to an ahistorical conception of the universe. The context is an analysis of Pierre Laplace's deterministic interpretation of Newton's mechanics, which, if tenable, says Reichenbach, "would spell the breakdown of a realistic interpretation of time flow" (1991, 10 f). Determinism appears to be reinforced by Einstein's and Minkowski's space-time continuum. Reichenbach describes it as follows: "This timeless universe is a four-dimensional Parmenidean Being, in which nothing happens...Time flow is an illusion, Becoming is an illusion; it is the way we human beings experience time, but there is nothing in nature which corresponds to this experience." (p. 11).

This is a caricature of relativity theory, not the interpretation that Reichenbach accepts. The world that is waiting for its realization on the right side of "Time's Arrow" (cf. Arthur Eddington), is undecided. It differs from the left-side world of the past and present; and the difference is not only concerned with our knowledge. This is Reichenbach's view, and if tenable, gives a cosmological foundation for history, understood both in the subjective and in the objective sense.

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Zeit und Gegenwart bei Wittgenstein

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„Nur wer nicht in der Zeit, sondern in der Gegenwart lebt, ist glücklich“ – so vermerkte Wittgenstein am 8.7.1916 und verwies damit auf die Problematik von Zeit, die ihn wie viele andere Philosophen beschäftigte.

Die Art seiner Auseinandersetzung mit der Zeit und damit auch mit der Gegenwart änderte sich im Laufe seiner philosophischen Tätigkeit, d.h. es ist in dieser Hinsicht wie in manch anderer zwischen dem Verfasser des *Tractatus* und dessen Vorstufen und dem Autor der späteren Schriften zu unterscheiden. Anders ausgedrückt: Wittgensteins Aufzeichnungen über das Problem der Zeit sind auf zwei Ebenen zu untersuchen – im Hinblick auf die "Welt der Tatsachen" bzw. aus analytischer Sicht und im Hinblick auf die "Welt außerhalb der Tatsachen" bzw. im metaphysischen Sinn gesehen. Beide Ebenen sind hinsichtlich des Phänomens der Zeit im Grunde nicht zu trennen, sondern fließen ineinander über. Der Unterschied liegt nur in der Betrachtungsweise und den damit verbundenen Annahmen und Erklärungsversuchen.

Der "Welt der Tatsachen", unter der Wittgenstein bekanntlich den Bereich des klar Sagbaren und wissenschaftlich Erklärbaren verstand, begegnete er als rationaler Denker und versuchte, sich mit den Problemen auf analytische Weise auseinanderzusetzen. Dem Bereich außerhalb der Welt der Tatsachen – dem Bereich des Nicht-Faßbaren, nicht rational Erklärbaren – näherte er sich in einer teils mystischen, teils ethisch-religiösen Haltung, wobei er sich von detaillierten Erklärungsversuchen distanzierte.

Während er in früheren Jahren sich mit Zeit auf metaphysischer Ebene auseinandersetzt, kommt er in späteren Jahren zu einer kritischen Untersuchung des Zeitbegriffs, wie er im alltäglichen Leben verwendet wird. Dabei stellt er irreführende Metaphern fest, wie z.B. „die Gegenwart schwindet in die Vergangenheit“ oder das Gleichnis vom „Fließen der Zeit“ – Redewendungen, die uns im gewöhnlichen Sprachgebrauch geläufig und vom sogenannten „common sense“ als etwas Selbstverständliches angenommen, verstanden und im alltäglichen Leben verwendet werden, insofern korrekt sind, aus philosophischer Sicht jedoch angezweifelt und hinterfragt werden müssen. Denn Zeit „fließt“ nicht durch den Raum wie ein Fluß durch die Landschaft noch kann man von einem „Entschwinden“ oder „Vergehen“ der Zeit sprechen. Zeit erweist sich vielmehr als etwas letztlich nicht Fassbares, nicht Erklär- und Definierbares – als etwas, das Philosophen vor unlösbare Probleme stellt.

Was Wittgensteins innere Haltung gegenüber der Zeit, im genaueren gegenüber dem Leben in der Gegenwart – aus metaphysischer Sicht – betrifft, so geht aus seinen frühen und späteren Aufzeichnungen im wesentlichen eine Art Übereinstimmung hervor. Dies betrifft meines Erachtens das sogenannte „glückliche Leben“ in der Gegenwart, wie es Wittgenstein in den Tagebüchern 1914-1916 definiert und das „Aspektsehen“, womit er sich später in den *Philosophischen Untersuchungen* auseinandersetzt.

Meine Absicht ist es, das „Verbindende“ in Wittgensteins früheren und späteren Schriften hinsichtlich der Problematik von Zeit und Gegenwart zu untersuchen. D.h. der Frage nachzugehen, wie der Gedanke des

„Lebens in der Gegenwart“ auf das Aspektsehen in den *Philosophischen Untersuchungen* anwendbar ist, wie er sich dort *zeigt*, ohne dass über den Zeitbegriff selbst diskutiert wird.

Anders ausgedrückt: wie ist der zu Beginn dieses Beitrags zitierte Satz aus Wittgensteins frühen Tagebüchern mit seinen späteren philosophischen Untersuchungen zu vergleichen? Hat dieser Satz später noch seine Gültigkeit in Wittgensteins Einstellung gegenüber der Zeit und der Gegenwart? Gibt es in dieser Hinsicht grundlegende Gemeinsamkeiten?

1. Wittgensteins Tagebücher 1914-1916 und der *Tractatus*

Das von Wittgenstein angesprochene „glückliche Leben in der Gegenwart“, das in Harmonie mit der Welt besteht, zeigt unverkennbare Parallelen zu Schopenhauer: in dessen Darstellung des „reinen Subjekts des Erkennens“, das sich durch Enthhebung über Irdisches und damit durch die Transzendierung von Raum und Zeit dem Augenblick hingibt – sei es in der ästhetischen Kontemplation oder in der Askese.

Entscheidend für das Glückliche ist dabei nicht nur die Enthhebung über Zeit und Raum, sondern die Hinwendung zum Geistigen: bei Schopenhauer das Vorherrschen des Intellekts über den triebbetonten, nach Erfüllung seiner Wünsche strebenden, blinden Willen, bei Wittgenstein das Leben im Geist, befreit vom „Fleisch“, wie er sich nach seiner Lektüre von Tolstois Schrift *Kurze Darlegung des Evangelium* immer wieder vorsagte und in seinem persönlichen, codierten Tagebuch notierte, gleichsam als Stärkung, um in den Grauen des Krieges auszuhalten, sowie als anzustrebendes Ziel in moralischer Hinsicht im persönlichen Leben.

Es ist das Leben der Erkenntnis, das auf die Annehmlichkeiten der Welt verzichten kann, die nur als „so viele Gnaden des Schicksals“ empfunden werden (vgl. TB, 13.8.16).

Derjenige, der nicht in der Zeit, sondern in der Gegenwart lebt, lebt in der Ewigkeit, so Wittgenstein – vorausgesetzt, dass man unter Ewigkeit nicht unendliche Zeitdauer, sondern Unzeitlichkeit versteht (TLP, 6.4311).

Der Glückliche hat demnach auch keine Angst vor dem Tode, da er anstatt in der Zeit im Ewigen lebt. Er kennt weder Furcht noch Hoffnung, da diese sich auf die Zukunft beziehen, der Glückliche aber nur im Gegenwärtigen lebt, konzentriert auf den Augenblick, offen für die vielfältigen Aspekte der ihn unmittelbar umgebenden Dinge – die „durch ihre Einfachheit und Alltäglichkeit“ verborgen sind, wie es später in den *Philosophischen Untersuchungen* heißt (PU, § 129). Er lebt in Übereinstimmung mit der Welt und jenem „fremden Willen“, von dem er abhängig scheint (TB, 8.7.16).

Das Merkmal des glücklichen Lebens könne kein physisches, sondern nur ein metaphysisches, ein transzendentes sein, schreibt Wittgenstein und unmittelbar danach, dass die Ethik transcendent sei (TB, 30.7.16). Das Gemeinsame zwischen Ethik und Ästhetik (TLP,

6.421: „Ethik und Ästhetik sind Eins“) findet zudem in dem Satz „Die Welt und das Leben sind Eins“ (TLP, 5.621) eine Entsprechung und verweist damit auf seine Notizen über das glückliche Leben, das in Harmonie bzw. Übereinstimmung mit der Welt besteht. Wittgensteins Reflexionen über das glückliche Leben werden in den Tagebüchern immer wieder in Zusammenhang mit seiner Auseinandersetzung mit ethischen Fragen thematisiert. Das glückliche Leben ist das gute Leben, ein ethisches Leben, ein Leben der Erkenntnis. Nicht nur an Schopenhauer, sondern auch an Spinoza sind Parallelen unübersehbar: im Hang zur Enthaltung über Leid und Triebhaftigkeit durch Hinwendung zum Geistigen, in der Erkenntnis des wahren Seins durch Transzendierung von Raum und Zeit, in der Ausrichtung auf den Bereich „außerhalb der Welt der Tatsachen“, auf das Ewige.

In seiner Anlehnung an Spinozas Betrachtung „sub species aeternitatis“ ist Wittgenstein vermutlich von Schopenhauer inspiriert worden, der sich in seiner Darstellung der ästhetischen Kontemplation ausdrücklich auf Spinoza beruft. Das dabei resultierende glückliche Leben birgt insofern noch den Aspekt der Freiheit: Freiheit zum einen durch Loslösung von Triebhaftigkeit bzw. von den Affekten (Spinoza), Freiheit aber auch dadurch, dass man das Schicksal wie alle Geschehnisse in der Natur als notwendig akzeptiert und dabei zu einer gelassenen Haltung dem persönlichen Leben wie dem Weltgeschehen an sich gegenüber gelangt. Dies schließt auch die Furchtlosigkeit vor dem Tode mit ein.

Die Aufforderung, dem Tode ohne Furcht ins Auge zu sehen, bedeutet jedoch nicht, Trost in der Unsterblichkeit der Seele zu finden. Im Gegenteil, Wittgenstein betont, dass die zeitliche Unsterblichkeit der Seele des Menschen nicht das Entscheidende ist. Entscheidend wäre, das „Rätsel zu lösen“, doch stelle sich die Frage, ob dieses ewige Leben nicht ebenso rätselhaft wie das gegenwärtige sei. Trotzdem beharrt Wittgenstein darauf, dass die Lösung des Rätsels des Lebens in Raum und Zeit *außerhalb* von Raum und Zeit, also im Ewigen, liege (TLP, 6.4312). Dieser scheinbare Widerspruch lässt vermuten, dass er die „Lösung des Rätsels“ nur durch den „Sinn der Welt“, der außerhalb der Welt liegt und den er mit Gott verband, gewährleistet sah, nicht durch die zeitliche Unsterblichkeit der menschlichen Seele. Ein glückliches Leben in der Gegenwart, so scheint er jedoch anzudeuten, könne dem Rätsel des Lebens näher kommen, da es anstatt innerhalb der Grenzen von Raum und Zeit in „Unzeitlichkeit“ erfolgt.

2. Philosophische Untersuchungen: der Aspektwechsel

In seinen Dialogen mit einem fiktiven Du versucht Wittgenstein, den Leser zum eigenen Denken anzuregen, dies durch aufmerksame Betrachtung der Phänomene bzw. Objekte seines Philosophierens. Diese Haltung kann als eine wache, staunende, ganz auf den Augenblick konzentrierte, gesehen werden und entspricht demnach dem „Leben in der Gegenwart“. Der philosophierende Mensch vergisst Zeit und Raum, indem er die vielfältigen Aspekte eines Gegenstandes wahrnimmt; er ist in seiner Betrachtungsweise dermaßen absorbiert, dass er subtile Nuancen erfasst, die er als ständige Veränderungen erfährt, so dass er das Objekt seiner Betrachtung sozusagen fortwährend in Variationen wahrnimmt. Er sieht den Aspektwechsel, der gleichsam „aufleuchtet“. Dieser Aspektwechsel bewirkt im Grunde jedoch nur eine scheinbare Veränderung am Objekt; die Änderung geht

eigentlich nur im Betrachter vor sich, der durch die genaue Beobachtung aller Facetten des Gegenstandes – aus unterschiedlichen Perspektiven – die Dinge so oder so zu sehen lernt. Folglich ändert sich nur die Wahrnehmung des Betrachters durch die Genauigkeit seiner Betrachtung, durch seine Fähigkeit, derart auf den Gegenstand seiner Betrachtung und damit Objekt seines Philosophierens einzugehen.

Der Aspektwechsel wird als Folge des Staunens mit Ausrufen wie „So ist es hier“, „so ist es dort“ begleitet, oder „Dasselbe – und doch nicht dasselbe“ (LS, § 517). Insofern als der Aspektwechsel ein Staunen hervorruft, wird die Nähe zu einer ethischen Haltung deutlich: Staunen als Denken (LS, § 565), d.h. als ein nicht voneinander zu trennendes Denk- und Seherlebnis ist für Wittgensteins Philosophieren von unschätzbbarer Bedeutung. Darüberhinaus nennt er in seinem *Vortrag über Ethik* das Staunen (obgleich ein Staunen anderer Art als das beim Erkennen des Aspektwechsels) als erstes der drei Schlüsselerlebnisse – als sein „Erlebnis par excellence“ – für das Verständnis von dem, was Ethik bedeuten könne.

In der Erfahrung des Aspektwechsels durch die Wahrnehmung der Vielzahl an Aspekten aller Phänomene der sichtbaren Welt begegnet man der Schwierigkeit des „Alles fließt“, mit der laut Wittgenstein „vielleicht überhaupt erst anzufangen“ sei (VB, 33).

Das Sehen in Aspekten kann man in Hinblick auf den Zeitbegriff aus sprachanalytischer Sicht, in Hinblick auf Wittgensteins Reflexionen über die Gegenwart, auch auf metaphysischer Ebene betrachten. D.h., dieser Vorgang erfolgt immer *in Zeit*, erkenntlich bereits durch die *Veränderung* bzw. auch „Bewegung“, die der Aspektwechsel bewirkt. Andererseits hat der Vorgang mit Zeit, d.h. hier mit Gegenwart im metaphysischen Sinn zu tun, wie es Wittgenstein in den frühen Schriften beschreibt: als ein Vorgang außerhalb von Zeit, gleich einem Stillestehen von Zeit, einem Vorgang gleichsam in Unzeitlichkeit.

Dieser konzentrierte Vorgang lässt keinen Raum und keine Zeit, über andere Dinge nachzudenken, die den Betrachter sonst bewegen; im Augenblick der aufmerksamen Haltung gegenüber einem bestimmten Objekt existiert nur mehr dieses für ihn: es kommt nahezu zu einer Art Verschmelzung, wie sie Schopenhauer in der ästhetischen Kontemplation beschrieben hat, in der der ästhetische Betrachter, wie oben erwähnt, zum „reinen zeitlosen Subjekt des Erkennens“ wird und sich mit dem Objekt seiner Betrachtung, jenseits des Satzes vom Grunde, auf einer Ebene befindet. Da er dabei dem eigenen Willen sowie dem Weltgetriebe mit all seinen Negativitäten enthoben ist, verspürt er jene glücklichen Augenblicke, die nur selten im Leben zu erfahren sind. Es ist kaum anders als die von Wittgenstein in den frühen Tagebüchern beschriebene „künstlerische Betrachtungsweise“, die die „Welt mit glücklichem Auge betrachtet“ (20.10.16). Der von Wittgenstein angesprochene Zusammenhang zwischen Ethik und Ästhetik besteht darin, dass das Kunstwerk der Gegenstand *sub specie aeternitatis* gesehen, das gute Leben die Welt *sub specie aeternitatis* gesehen ist. Daraus ergibt sich, dass die gewöhnliche Betrachtung die Gegenstände *in* Raum und Zeit, die Betrachtung *sub specie aeternitatis* die Gegenstände *mit* Raum und Zeit, die Dinge sozusagen von außerhalb sieht (TB, 7.10.16).

Obwohl das Aspektsehen auf einer anderen Ebene als die Betrachtung *sub specie aeternitatis* liegt, so kann man doch von Gemeinsamkeiten sprechen – insofern als der ästhetischen Erfahrung eine ethische Komponente

innewohnt, und sofern das Aspektsehen als ein Sehen in der Gegenwart, nicht in der Zeit, zu begreifen ist.

Allerdings ist zu betonen, dass in den Tagebüchern der Schwerpunkt auf der ethischen Haltung liegt, in den *Philosophischen Untersuchungen* das ästhetische Element vorherrscht, im einen Fall es sich um eine kontemplative Schau, ein mystisches Sich-Versenken in der Anschauung des Objekts handelt, im anderen um ein bewegtes Eingehen auf die Gegenstände der Betrachtung.

Außerdem ist anzunehmen, dass beim Aspektsehen der einzelne, konkrete Gegenstand, dieser daher in Raum und Zeit wahrgenommen wird, nicht das allgemeingültige, zeitunabhängige des Gegenstandes.

Bei der Beschreibung der Wahrnehmung der verschiedenen Aspekte durch aufmerksame Betrachtung wird man jedoch an das Beispiel des kontemplierten Ofens erinnert, das Wittgenstein in den Tagebüchern bringt, des Ofens, der für den Betrachter zu seiner Welt wird. Der scheinbar unbedeutende Gegenstand wird zu etwas Besonderem: er steht dermaßen im Zentrum der Betrachtung, dass er zur Welt des Betrachters wird, während alle anderen Gegenstände in seinem Umfeld verblassen. In der „zeitlichen Welt“ wäre der Ofen nicht mehr als ein nichtiges momentanes Bild, in der Betrachtung sub specie aeternitatis wird er jedoch zur „wahren Welt unter Schatten“ (TB, 8.10.16).

Zieht man dazu eine Parallele zu den fiktiven Beispielen in den *Philosophischen Untersuchungen*, so kann man auch dort behaupten, dass die Art der Betrachtung eines Phänomens dieses je nach Betrachtungsweise formt, in unterschiedlichen Bedeutungen erscheinen lässt, gemäß der individuellen Sicht des Betrachters, seiner Art, die Dinge so oder so zu sehen – je nach Perspektive. So mag einem die Zeichnung eines Hasenkopfes einmal als Hasen-, ein anderes Mal als Entenkopf erscheinen, die Illustration eines Glaswürfels einmal als Drahtgestell, dann wieder als umgestülpte offene Kiste (PU II, xi, S. 519-529).

Der Betrachter bzw. das philosophierende Subjekt formt sich also aus unterschiedlichen Perspektiven unterschiedliche Objekte, die ein Anderer auf andere Weise wahrnehmen würde. Doch wie beim Beispiel des kontemplierten Ofens wird das jeweilige Objekt des Philosophierens dabei zur spezifischen „Welt“ des Betrachters, einer ganz *in der Gegenwart* erlebten Welt, denn jeder neue Perspektivenwechsel bringt eine Änderung in der Betrachtungsweise mit sich, hervorgerufen durch das „Aufleuchten“ des „Aspektwechsels“. Der Prozeß der Wahrnehmung der wechselnden Aspekte erfordert eine Befindlichkeit, die gewissermaßen dem Zustand eines „Lebens in der Gegenwart“ entspricht.

Indem der Betrachter in der Entdeckung und Beobachtung der verschiedenen Facetten eines Gegenstandes völlig absorbiert ist, vergisst er ähnlich dem von Schopenhauer beschriebenen „reinen Subjekt des Erkennens“ Zeit und Raum; im Sinne Wittgensteins ist er der glückliche Mensch, der in der Gegenwart lebt.

Mit der Äußerung, dass die „Welt des Glücklichen eine andere als die des Unglücklichen“ (TLP, 6.43) sei, verweist Wittgenstein vermutlich u.a. auf den Unterschied zwischen dem, im Geistigen lebenden bzw. Philosophierenden wie auch künstlerischen Menschen und dem, in Zeit und Raum lebenden und dabei auf persönliche Probleme konzentrierten Menschen, der sich von seinem persönlichen Ich mit seinen Wünschen und Nöten nicht lösen kann, daher auch unfähig bleibt, um so im Gegenwärtigen zu leben, dass er in der Betrachtung eines vor ihm unmittelbar befindlichen Phänomens sich zu vergessen vermag.

Konklusion

Trotz unterschiedlicher Herangehensweisen an das Problem von Zeit und Gegenwart – einer anfangs zu einer mystischen Haltung tendierenden, später einer sprachanalytischen Auseinandersetzung – hat der hier zur Diskussion stehende Satz vom „Leben in der Gegenwart“ auch in späteren Jahren seine Gültigkeit nicht verloren: im Gegenteil, gerade durch den in seinen philosophischen Untersuchungen stillschweigend enthaltenen Appell an den Leser bzw. philosophierenden Menschen, den Erscheinungen der sichtbaren Welt mit Achtung und Aufmerksamkeit zu begegnen, zeigt sich durchgehend, welche Bedeutung Wittgenstein einer wachen, offenen, ganz in der Gegenwart befindlichen Haltung zumaß, ja, dass er dies als wesentliche Voraussetzung für die Wahrnehmung der subtilen Facetten jedweder Phänomene und damit Entwicklung eigener Gedankengänge betrachtete, ohne die ein Philosophieren nicht möglich ist. Zugleich geht daraus hervor, dass dieses sich ganz in der Gegenwart und im Geistigen Befinden einen Zustand gewährt, der die Grenzen von Zeit und Raum überschritten hat.

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The Tacit Dimensions of Transcendentalism in Wittgenstein's *Tractatus*: A Hermeneutic Exercise

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I

The positivists of the Vienna Circle apparently found their hero in Wittgenstein when they read the *Tractatus*. Perhaps, they were amused to see that the *Tractatus* shares the same positivist flavour by treating metaphysics as nonsensical. But sooner they realized that they totally misunderstood the cardinal doctrines of the *Tractatus*, for Wittgenstein did not take any anti-metaphysical stance. The re-reading of the *Tractatus* rather forced Carnap to make the following statement: "I had not paid sufficient attention to the statements in his book about the mystical because his feelings and thoughts in this area were too divergent from mine" (Carnap 1963, p.27). This statement vindicates that it is a clear case of mistaken identity. In fact, the unwritten part of the *Tractatus* assumes more importance for Wittgenstein than that of the written one for it contains the elements of transcendentalism that get revealed through its written part. This is the reason why Wittgenstein in his preface wrote that: "Perhaps this book will be understood only by someone who has himself already had the thoughts that are expressed in it—or at least similar thoughts" (TLP, p.3).

Therefore, it may be surprising to many that a philosopher with a logical bent of mind tried to make inroads into transcendentalism which is otherwise opaque and blurred from the point of view of logic. This is the paradox that one comes across in the *Tractatus*. To quote Wittgenstein's own remark about the *Tractatus*: "my work consists of two parts: the one presented here plus all that I have not written. And it is precisely the second part that is the important one" (Wittgenstein 1963, p.41). Therefore the unwritten part becomes an important subject of study for him. Since the subject matter of transcendentalism remains obscure from the empirical point of view, it cannot be brought under the purview of rigid formal structures of language (ideal language). The elements of transcendentalism cannot even be shown but can only be felt for they transcend both saying and showing.

II

The *Tractatus* starts with a statement "The world is everything that is the case" (TLP,1). The world that Wittgenstein talked about in sections and subsections of 1 and 2 is the world of phenomena with which all of us are acquainted. It is a world of facts existing within the spacio-temporal framework of reference, but not of things.. The point that Wittgenstein tried to emphasize here is that the world of facts is a real world in which facts exist independent of one's will. In a way he flatly dismissed the claim of Hume that there is no external world independent of perceiving mind. Indirectly this is the message given to those who followed the legacy of Hume, namely, Russell and logical positivists. This can also be treated as a radical point of departure from the positivist line of thinking. Further Wittgenstein held that facts alone are pictured through language, for they alone are true or false. In a way the facts in the world and the propositions in language stand on equal footing. This world of facts is the

combination of empirical contingencies and logical necessities. It is this analysis of the world of facts that made Dummet conclude that the *Tractatus* is primarily an essay in the theory of meaning (Dummet 1973, p.679).

What is so interesting in the next move of Wittgenstein is that he tried to set limits to the supremacy of natural sciences through philosophy. As Wittgenstein argued in the process of setting limits to the much disputed sphere of natural science, philosophy "must set limits to what can be thought; and, in doing so, to what cannot be thought. It must set limits to what cannot be thought by working outwards through what can be thought" (TLP, 4.114). Wittgenstein's statement of Wittgenstein suggests that there is something outside the limits of thought that cannot be pictured by the ideal language. This statement culminates in the view that: "The *limits of my language* means the limits of my world" (TLP, 5.6).

III

The above analysis suggests that Wittgenstein is moving towards solipsism. He is of the opinion that solipsism manifests by itself, for it cannot be expressed. A solipsist feels that: "The world is my world: this is manifest in the fact that the limits of language (of that language which alone I understand) mean the limits of my world" (TLP, 5.62). What one can infer from this statement of Wittgenstein is that there is also a world that is private to oneself, and the elements of this world cannot be expressed by means of language, but they exhibit themselves in one way or other. Each one leads a life of one's own priorities, convictions, beliefs and commitments. Therefore: "The world and life are one" (TLP, 5.621). So to say "I am my world (the microcosm)" (TLP, 5.63). But, what is the status of "I" in the above statement? Is it a psychological "I"? No. Then what it is? According to Wittgenstein: "There is no such thing as the subject that thinks or entertains" TLP, 5.631). First of all, Wittgenstein hit a hard nail on the Cartesian subject ("I" as a pure ego) by holding the view that there is no thinking or entertaining subject. It is interesting to note that: "The subject does not belong to the world: rather, it is a limit of the world" (TLP, 5.632). Wittgenstein tried to explain the status of this transcendental "I" with a suitable analogy in section 5.633. The eye cannot be a part of its own visual field. It stands outside it. Similarly the transcendental "I" cannot be part of the world of facts. This is how Wittgenstein admitted solipsism by granting existence to the transcendental subject that alone can witness everything. Therefore, solipsism understood in this form can be characterized as pure realism.

IV

Concerning the issue of the meaning (sense) of the world Wittgenstein held that: "The sense of the world must lie outside the world. In the world everything is as it is, and everything happens as it does happen: in it no value exists---and if it did exist, it would have no value. If there is

any value that does have value, it must lie outside the whole sphere of what happens and is the case" (TLP, 6.41). The world of facts does not contain any value within it. The values belong to 'the realm of ought' but not to 'the realm of is'. Therefore, they do not find any place in the world of accidents and contingencies. The values alone can assign any meaning (sense) to the world.

What is internally experienced alone can provide any meaning (sense) to one's life. Thus life and world become one. This becomes one's own subjective world. What is subjective cannot be put into words, for the simple reason that: "Propositions can express nothing higher" (TLP, 6.42). While explaining the nature of ethical action, Wittgenstein held that: "It is clear, however, that ethics is nothing to do with punishment and reward in the usual sense of the terms. So our question about the consequences of the action must be unimportant. ---At least those consequences should not be events" (TLP, 6.422). Therefore, all the ethical actions are ends in themselves. Hence they are the attributes of the transcendental will, which is different from the will as a psychological phenomenon. If the transcendental will has any effect on the world, its effect is seen in the limits of one's subjective world. As a result of its effect one can see altogether a different world. To quote Wittgenstein in this context: "The world of happy man is a different one from that of the unhappy man" (TLP, 6.43). Wittgenstein continued to remind us that the world of facts and the transcendental world of values have their independent existence. The latter does not have any bearing on the former.

V

The concepts "death", "eternity", and "life" require some special attention in Wittgenstein's thought, for they are the outcome of a very deep philosophical thinking. First of all, it must be understood that the death of an individual person results in the death of his body; and consequently his subjective world. The natural corollary of such a situation is that death is not an event in one's life, for one does not live to experience one's death (TLP, 6.4311). When viewed from the standpoint of the objective world, death does alter it for there would be some change in the actual state of affairs. Thus death has to be viewed from the subjective and objective standpoints.

Then another key concept in Wittgenstein's thought is "eternity". He did not explain it in terms of "infinite temporal duration". According to him, eternity means timelessness that is bereft of past, present and future. In the absence of these temporal dimensions, our (present) life just belongs to eternity. Consequently it does not have any end. Thus life can also be interpreted from eternal and temporal points of view. There is no end to life from the standpoint of the former, but has an end from the standpoint of the latter. The eternal life belongs to the realm of the transcendental subject, and the temporal life belongs to the world of psychological subjects. This is the reason why Wittgenstein held that the solution to the riddle of life in this objective world "lies outside space and time" (TLP, 6.4312).

Coming to the role of God, Wittgenstein maintained that God (the higher) is nothing to do with what is happening in the objective world. The physical world has its own course. The tendency to view the physical world as a limited whole -- "it is this that is mystical" (TLP, 6.4). We hardly realize that there is an eternal world above this

physical world. Perhaps, Wittgenstein indirectly cautioned us not to raise questions about this eternal world, for there are no answers to those questions. In the absence of an answer, the question ceases to exist (TLP, 6.5). The problems of life are untouched. That itself is an answer to them. Those who have really realized the sense of life, maintained Wittgenstein, could not explain its sense. The experience of the realized person (*Jivanmukta*) can never be put into words. His complete detachment from the worldly affairs makes him totally indifferent to this objective world. Isn't this manifestation of his experience?

VI

To conclude: there are lot of similarities between the cardinal doctrines of Advaita Vedanta (a popular Indian philosophical tradition) and those of the *Tractatus*. Like Advaita Vedanta, Wittgenstein clearly distinguished the lower world (the world of facts) from the higher world (the world of bliss or the abode of the transcendental "I", which is also the world of values). What is higher transcends the lower. The lower is always viewed within the framework of spacio-temporal dimensions. All the processes within this lower are subjected to laws of nature. This world is aptly characterized by Wittgenstein, like Advaitins, as the world of accidents and contingencies. There are no other necessities in this world excepting the logical necessities. In contrast to the world of facts, the transcendental world of values provides us with the real sense or meaning of one's life. It is true that: "Wittgenstein's transcendentalism is the hovering spirit of the *Tractatus*. His vision of reality transcends the bounds of the world. Such a vision takes its roots in realizing that the world is only a totality of facts" (Suresh Chandra 2002, p. 34). It is unfortunate that the tacit dimensions of transcendentalism present in the *Tractatus* are somehow obfuscated by the logical analysis of the world of facts that dominated the sections up to 5.5571. Therefore, it would be apt to treat the *Tractatus* primarily an essay in the philosophy of transcendentalism.

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Wittgenstein on the Taste of Time

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It is hard to pin Wittgenstein down on time, but it is easy to see how he started out. In the same way we are misled by grammar into thinking of "mind," "thought," "pain," and so on, as objects or things, objects of reference, we are also misled by such assertions as "I'm out of time," which has the grammar of "I'm out of sugar," into thinking time is a thing.

When words in our ordinary language have *prima facie* analogous grammars we are inclined to try to interpret them analogously; i.e. we try to make the analogy hold throughout. ... (Wittgenstein, 1958, 7)

He argues that apparent contradictions in the way the word "time" works leads to such questions as "What is the nature of time?," "Is time real?," and so on.

"I went back to 1953" has the same grammar as "I went back to Cambridge," so time seems like an object of reference, a thing. (Perhaps like a river or a wall of amber). Wittgenstein insists that not all language is reference to things.

So perhaps time is like pain. But Wittgenstein brings up certain very odd considerations about time that do not seem to apply to pain at all.

How does the temporal character of facts manifest itself? How does it express itself, if not by certain expressions having to occur in our sentences?...

We are inclined to say that negation and disjunction are connected with the nature of the proposition, but that time is connected with its content rather than with its nature. (Wittgenstein, 1974, 215)

Might one also put the question thus: "How does it happen that every fact of experience can be brought into a relationship with what is shown by a clock?" (Wittgenstein, 1974, 216)

Since time and the truth functions taste so different, and since they manifest their nature only and wholly in grammar, it is grammar that must explain the different taste.

One tastes like content, the other like form of representation. (Wittgenstein, 1974, 216)

Time and negation and disjunction have different tastes? How can a truth-function have a taste? The truth functions $\sim p$ and $p \vee q$ and $p \cdot q$ are outside the propositional variables p and q , while time is inside them.

A sentence can contain time in many ways, Wittgenstein says. "You are hurting me" has the time of the thing built in. So does "You will hurt me," and "You hurt me." The propositional content is your hurting me but it has a time built into the very assertion of it. Time is closer to the essence of language than logic itself. So time tastes differently from truth functions. Time is deeper than thought or language.

One of the deepest points in Wittgenstein's work is that pains, thoughts, and so forth are not objects of reference. He went so far in this view of language that some philosophers have argued he was an idealist – that

for him meaning is *never* reference to objects. (Grayling, 1988)

Be that as it may he says that "I'm in pain" is not fundamentally a reference to a pain but a substitute for a primitive cry. I believe that in a very similar way we must look at the many ways we use the word *time* (and the many language-games which surround it). "Don't think, look."

One prominent language-game we play with time is "It's time, you'd (I'd) better hurry." This is not a kind of pain, but a kind of push, akin to anxiety, or impatience.

To think of time as a flowing river or as a space-time continuum like a wall of amber in which events are fixed are ways of thinking of it as a thing or object. Our ordinary time-language draws us into such questions (pseudo problems).

When Wittgenstein talks about time he is talking about what he calls "personal time", not the "measurable time" of science.

It is noteworthy that the time of which I am here speaking is not time in a physical sense. We are not concerned with measuring time. It is fishy that something which is unconnected with measurement is supposed to have a role in propositions like that of physical time in the hypotheses of physics. (Wittgenstein, 1974, 217)

Early on he had considered such mistakes about time instances of the fallacy of false analogy, but later he came to think it was a mistake caused by misunderstanding of philosophical grammar. His central insight was that not all meaning is a matter of reference to objects. This was a profound insight which he tried to express over and over.

When you say you have a pain in your hand you note that what you say has the same grammar as when you say you have a coin in your hand, and you infer that pains and coins are objects. But you can toss the coin up and then catch it, and you cannot do this with a pain, so you must look for some other way of understanding pain-talk, something more primitive, something deeper than our linguistic pain-talk, something out of which pain-talk grew – the cry, which involves no "reference to objects" but still has the essence of a cry of pain.

It is not unreasonable to see pain-talk as having replaced the cry, and so Wittgenstein has succeeded in calling into question whether reference-to-objects is the only kind of meaning language has. Indeed there might be other kinds of language-games that do not fit the "reference-to-objects" game.

So we might expect Wittgenstein to say that time is like pain, not a *thing* like a river or a fixed wall of space-time, but like pain – that is, that time-talk is like pain-talk, a language-game (or many games) other than reference to objects. So we might be inclined to say that (personal) time-talk is founded on anxiety, dread, hope, impatience, which as infants we express by shaking the bars of our cribs, yelling, etc.

About "personal time": my wife sets the clocks 15 minutes ahead so I will not be late to work. This is a "personal time" use of clocks which has little to do with the

scientific measurements of distances in light years among galaxies. (Although there is a connection.)

But Wittgenstein “looks and sees” something more profound. For we find time (personal time) in *every assertion*, whereas pain is *not* found in every assertion. Not every assertion is a cry for help, but, as he says, time is part of, essential to, every assertion. That is, every assertion contains within it (not *outside* it, as with the truth-functions) this relation to “what a clock says.” (1974, 216)

This has the “taste,” not of something added on to the assertion, like negation, conjunction, alternation, implication (between assertions or added to an assertion), but of something *within*, something *essential* to *all assertion*.

By rolling it around in your mouth you can tell if your coffee has cream in it, and you can tell if it's coffee rather than wine. And what is there, under the taste of the coffee, always and every time? One is tempted to say, the tasting itself. In any case the negation and the conjunction of the p's and q's of assertions are inessentials, add-ons to the assertion, as the cream and sugar are add-ons to the coffee. Time is part of the *essence* of the assertion. And if anxiety (impatience, will) is the primordial origin of time-talk, then anxiety or will is the essence of all assertion.

With an assertion (proposition) you necessarily find time. Every assertion is past, present, or future. Every assertion involves time (not the “measurable time” of science and technology, but real time – personal time).

“The stew is wonderful,” I might say, and this is about the taste of the stew. Still I might reject it because it's too hot, or I might want some cheese to go with it, or crackers – these are like the truth-functions. The assertion is the stew's being wonderful, and the functions are add-ons. And the stew's being wonderful has an inevitable, *personal*, time aspect.

An *assertion* (from the Latin, *asserere*, “to put forth”; to state positively, to posit) is an act or expression of *will*. What are we willing with every one of our assertions? What is it that time and assertion endlessly and always put forth? Not a cry of pain, not a cry of pleasure or joy. Time is in there, inside the assertion, along with anxiety or impatience.

Time is essentially related to the will to assert or speak. What can be said about “measurable,” objective time, the river or the changeless amber wall? What Wittgenstein says about personal time *does* have implications for measurable time, because measurable time is an abstraction from personal time. Personal time, yours and mine, is there beneath the measurable time of science like a vast dark ocean, vaster and darker than the physicists' universe. Scientific thought about this measurable time is almost oblivious to personal time.

We must observe, too, that personal time-talk is analytically connected with person-talk and therefore with ethical and religious language – humanistic language rather than scientific language.

Where does this investigation of time-language lead? It of course dissolves the old questions about time that assume it is an object we refer to – is it fixed, does it flow, what is it, did it begin with the big bang, etc. This is a great step forward.

What is also important is that Wittgenstein has shown that there are other language-games besides the scientific “reference-to-objects.” To the extent that con-

temporary philosophical naturalists (for example, Daniel Dennett (2003), David Wegner (2002), and Owen Flanagan (2002)) depend upon such notions as that there is no will, no mind, and so on because there are no physical objects for these terms to refer to, it is clear that they have not appreciated Wittgenstein. They are stuck in the dismal scientism of the “reference-to-objects” theory of meaning.

Furthermore Wittgenstein's thought about language-games is liberating to those who believe ethical and religious language can make sense though not conforming to the rigid reference-to-objects view. In this Wittgenstein opens many doors for philosophy. When we consider the actual language-games of ethics and religion it becomes clear that certain terms cluster together around other, more central terms. In ethics, such central terms are *person* or *human being* and these terms connect in an analytic way with ethical terms such as *duty*, *responsibility*, *right*, *wrong*, and so on with no precise demarcations. Ethical language-games may shade off or develop into legal language-games, comprising such terms as *guilty*, *innocent*, *legal*, and so on. The religious language-games usually center around the terms we use to speak of God, and the concepts that encircle these terms include *sin*, *repentance*, *salvation*, *the afterlife*, *evil*, *good*, *creation*, and many others.

It is arguable that to speak of persons *without* ethical and religious language is a serious, even dangerous, mistake. These are usable language-games and should not be cast aside in favor of the reference-to-things language-game of science. These language games include a number of terms whose meanings have analytic connections with each other. To try to talk about ethics or religion from the viewpoint of the scientific language-game is misguided. To use *person* without ethical and religious concepts is wrongheaded, like talking about a cat as if it were merely a stone. Rather than ban these humanistic language-games we must observe them, as Wittgenstein said. We must *look and see* what grammars ethics and religion actually have.

In ethics we speak of persons and free will and moral responsibility. In religion we speak of God and of our personal relations with each other. The word *religion* is from the Latin *religis*, to relegate, to “put us in our place.” Ethical and religious concepts are essential to our conception of ourselves as *people*.

Language-games do come and go, as Wittgenstein said. The language of witchcraft has died away, but the language-games of ethics and religion should not be artificially deleted from our language as the naturalists wish. From an idealistic viewpoint, no humanistic language-games would mean no humanity. To be a person in the full moral sense, you must be familiar with the ethical language-game. You must know what it means to be a person.

Wittgenstein, in his investigations into language-games, does not assert the truth or falsity of any particular ethical or religious views. Wittgenstein was not concerned with that, but with “what it makes sense to say” in such language-games. We look at language and see what it makes sense to say about this topic and that. In this, too, he liberated philosophy from the narrow “reference to objects” view point.

Philosophers should also be thankful for the implied solution he provides to the problem of representationalism. If we have in our minds only representations of the actual

objects in the external world, how can we ever verify these representations without direct access to those objects? How can we ever see past these representations to the things these representations are representations of? Wittgenstein's language-games dissolve this problem, by removing the question of the world of objects and the commitment to the "reference to things" view. If reference to objects is *not* the only way language works, then this problem dissolves. This means that the idealist who once would have said the world is mental might now argue that the world is linguistic. Some reworking might have to be done to get a full-fledged "linguistic idealism."

Wittgenstein never said any such thing, as far as I know. But there is perhaps a tinge of an older metaphysics to be detected in the later Wittgenstein, one that he was led toward by Schopenhauer – that the world is the expression of will. (See Schopenhauer, 1939, 73). Will (or perhaps impatience, or even yearning) causes language, and language produces the world. It is as if Wittgenstein opens the door to such old-time metaphysics and says, "Make sense of it if you can...it's not *necessarily* nonsense."

When Wittgenstein said that he had had a "wonderful life," I think he might have meant that, in spite of how pitiful our human existence is, he had tasted the joy of having accomplished philosophical work of immense power and lasting value. I do not think it an exaggeration to say that he had for a time held philosophy in the palm of his hand.

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Time and Media Culture. Findings of Media and Communication Science

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1. Introduction

The modern precursor discussion has shown that one-sided reductionism of the concept of time is just as inappropriate as the claim that the concept of time has nothing to do with the arts and cultural sciences. Time is "an interdisciplinary concept par excellence" (Mainzer 1999, 7)¹. Although the individual scientific disciplines have developed their own historically variable and theoretically heterogeneous concepts of time, they only describe and/or explain parts of the respective disciplinary time issue. Another aggravating factor is that most scientific disciplines entertain many different concepts and notions of time (Steininger 2002, 10-27). Beck was correct when he observed that "analysing the various concepts of time developed by historical treatments of natural sciences [...] corroborates the constructivist view that what time concepts have in common is not the perception of objective real time, but the cognitive and social construction of problem-solving knowledge." (Beck 1994, 82) Rarely in the individual disciplines has the perception of medium found inclusion in the concept of time. Why have discussions of time to date generally failed to touch on media? This paper sets out to explore why individual disciplinary concepts of time that ignore media do not go far enough. The circumstance alone that time is a topic of social communication moves media centre-stage in this "time discourse", since "assertions about time are media *content* that play a role in the social construction of time that should not be underestimated" (ibid, 10).

2. Media and Time

Media are created by people, so it is legitimate to ask questions about the specific historical structures of culture that have made such a production meaningful or even necessary. Once posed, it is evident that time, a previously atypical subject of media and communication studies, ekes out a shadowy existence compared to the constant emphasis on acceleration (Beck 1994, 176; Hömberg 1992, 99 and 2001, 10). The connection between media and time has previously been addressed from various angles. Distinctions can be made between aesthetic angles, perceptual angles and the angle of media use. In this context, Faulstich (1998, 205) sees media as institutions that organize communication systematically and meaningfully, present them in specific ways, and dominate socially as a mediation mechanism of cultural and social interaction processes.

Let us turn first to media and the *aesthetic structuring of time*. Photography was the first technical image medium to accomplish a new codification of time and space. The material vestige of the photographic image left behind by "reality" validates the authenticity of what "has been", showing us the "reality" of people and spheres in a "past state" as a manifestation that is "directly visible" (Grossklaus 1997, 4). In terms of its technical concept, the camera as a "speedy device" underlies specific principles of a modified relation to "reality": speed, acceleration,

composition, networking, fragmentation and merging, proximity and visualisation. The film brings together photographic moments into time sequences (ibid, 6). According to Hickethier, the notion of intersubjective "synchronization" and the "continuity" of time are a "powerful certainty", against the backdrop of which our cultural perception partakes of the aesthetically formed time structures, as outlined by Grossklaus (Hickethier 1992, 207). Hickethier regards both culture as a whole and cultural products as meaning givers "since it is the works, the individual products, that create finiteness and make what is portrayed seem meaningful" (Hickethier 1992, 208). This meaning giving is brought about by the media by aesthetically structuring time. For instance, the aesthetic structure of theatre, film, radio and TV reveals time compositions "which as a rule are not governed by synchronization and continuity." (ibid)

Moving on to the media and the synchronization of *time perception*, it can be said that individual variations in the perception of time call for social synchronization. This fact was not recognized in reflections on media and communication development until relatively recently. "One of the most important social *zeitgeber* ('time-givers') in developed societies is the mass media." (Hömberg 2001, 10) "Simultaneous mass media", which exceptionally typify linear time consciousness, act as *zeitgeber* by structuring the day and synchronizing media attention. According to Grossklaus, historical media transitions have always marked a change in the perception of time, such as the change "from linear (religious) historical time to the linear-mechanical-industrial time construct of abstract time" (Grossklaus 1997, 4).

As regards the relationship between *media use* and time, opinions are unanimous among the authors who make concrete observations on this subject: Media use is a social action handling time (Neverla 1992, 41); Media use is an intentional action with subjectively intended signification that (like all actions) can also be viewed as time structuring (Beck 1994, 152ff.); Perception of time and orientation around time can also be viewed in terms of using media temporality (Grossklaus 1995, 7).

3. Time and Cultural Science

Media and communication science should always embrace the broader context of cultural science. Thus according to Kirchmann, media history can only be investigated heuristically and meaningfully if it is viewed as a specific paradigm of cultural history. "Media science will have to extend its disciplinary scope beyond what is generally associated with a 'medium'. Not until understanding of the concept has been requisitely broadened, can relational classifications in more removed fields be conceptually defined than has previously been allowed for in the discussion context." (Kirchmann 1998, 44) *All media are a part of culture and constitute its nucleus. Culture consists of "one or several generalized symbolic media" (Faulstich 2000a, 140) as well as communication media which are culturally dominant, acting as signification producing steering and orientation entities. Due to their frequently*

¹ All quotations have been translated into English from original German texts.

exclusive focus, individual disciplines can shed light on important subaspects of time, yet do not generate a holistic understanding on account of technical boundaries. Cultural science as a "context" or "relationship" science succeeds in this. "It takes on the task that would otherwise remain untouched: the question-guided integration of discipline-generated individual findings. It asks the question of meaning." (Faulstich 2000a, 135) It takes account of the fact that time is not just construed through culture, but also through science (Assmann 1999, 17).

Assmann arguably demonstrates that understanding time as a cultural phenomenon is only possible from an all-embracing cultural perspective when she notes that "from the radically individualized perspective of philosophy which emphasizes the inevitable discontinuity of time there is no means of identifying time as a dimension of culture, let alone as a cultural construction" (Assmann 1999, 8). This should not suggest that linking the two separate disciplinary 'islands' should be impossible, since the cultural science and philosophy approaches do have their interrelations and connections. Rather more, the construction of cultural time in terms of shared experience and expectation should distract from the philosophical perception of the 'isolation and fragmentation of time'. "As a rule, the cultures forestall the philosophical question of time, not by providing an answer but by altering it through its constructions." (ibid, 8f.)

Are these cultural camouflages only responsible for the problems that philosophers have with the constant elusiveness of time, or also for the problems of other disciplines? Is their approach to time likewise obstructed by the cultural production of continuous timeframes? These questions have to be answered in the affirmative, borne out by what is true for all disciplines: that cultural shaping of time has "always been articulated in our most intimate personal experiences" and that "the individual experience [is] not detachable from overindividual cultural patterns which take from time its radical irrationality and inadequacy" (ibid). Lang thus rightly poses the question as to the relationship between experience and scientific constructions. He views biotic, psychic and collective or social experiences of time as constructions. These constructions "are linked to results of *concrete constructing processes* which, in turn, are founded on conditional structures which generate a reasonably ordered sequence. We come across such sequences in our experience either directly or indirectly. To this we then add *conceptual constructions* and elaborate them with [...] *real constructions*. We construct tangible time so as to comprehend the sequences experienced." (Lang 1997, 209f.)

In order to comprehend how cultures actually generate, organize and manipulate time, we need comparative research in cultural science. "This requires an epistemological turning point that does not view time as a cosmic *a priori*, but as part of a cultural environment which the individual creates as his life sphere." (Assmann 1999, 9) Taking this approach to cultural research into time, Assmann requires that two principles are centrally understood: (a) That of Kubler (1982), who explores the logic of continuity formation in the dimension of time. Kubler does not attribute this continuity to any act of human consciousness, but puts it down to a 'history of things'. Cultural artefacts (everyday objects, works of art and ideas) are something he regards as a solution to a problem which has a determinable relation to other problem solving. "A sequence discontinues when the immanent logic of problem solving is exhausted and a new question arises that makes new responses necessary.

What is important in this approach is that it breaks with the compelling structure of linear 'history' and regards cultural time as a variety of mutually independent sequences with differing speeds of progression" (ibid). Another major study on the cultural format of time that Assmann refers to is (b) the work of Koselleck (1990) who criticizes the fact that historians only take account of things involving change. This event-centred approach excludes structures which remain the same. This brings about a distorted picture of culture where only transition is recorded (Assmann 1999, 12). According to Koselleck, history is not only related to events, but also to strata. He asserts "that every historical sequence contains 'both linear and recurrent elements'. [...] Alongside a time stratum which 'passes by as a succession of singlenesses', there is a time stratum based on structures of repetition that safeguards 'the condition of possible singleness', as well as a further one which scans intergeneration rhythms where nothing changes, as in the 'recurring cycle between conception, birth and death.'" (ibid, 13) Accordingly, the singularity of a single historical time, which should be distinguishable from measurable natural time, should be questioned (Koselleck 1995, 9f.).

Looking at Kubler and Koselleck together, it becomes conceivable that time emanates from artefacts. These can often assert themselves in the respective problem solving chains for a remarkably long time, thus decelerating cultural time. An attributed time quantum is inherent in artefacts; the higher their technical complexity, the shorter their effective life. Communication media can also be regarded as artefacts (ibid, 14). In the course of studies of occidental time constructs, extending from ancient Jewish and Christian times into the 20th century, it is ultimately demonstrated that every *Zeitgestalt* is a time *regime* that has to reflect religious, political, social and yet also artistic interests (ibid, 157). What Assmann understands by culture is an intergenerational memory that can be activated and communicated beyond (life) time. And notably in this context, practices and models (including media) play a role "with which such long-term spheres of thinking, dialogue, idea, memory and action become established" (ibid, 159f.). An example illustrating the topicality and relevance of the above findings is given by Glasenapp, when he notes that power battles "are not decided on the battlefield alone, but also primarily within the domain of cultural production" (2002, 70). If as according to Barthes the "purpose of myths is to render the world motionless" (1964, 147; Glasenapp 2002, 68f.), then stereotypes can also be ascribed a similarly fixating tendency (Steininger 2004, 190-193). Glasenapp (2002, 70ff) illustrated this tendency in a series of photographs, showing their contribution to the mythical fixating of alien cultures within what, in the broadest sense of the word, can be characterized as imperial discourse. Here media suggest a detachment of alien cultures from the historic principle of change (Glasenapp 2002, 70). Notably this circumstance leads us to realize that time is a culturally dependent variable which manifests itself in every culture as the programme of its evolution process.

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Entscheidungen mit Zeitpunkten oder: Warum ich nicht an Belnaps „(Prior) Choice Principle“ glaube

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1. Einleitung

Die überzeugendste Art, zu erläutern, was ontischer Indeterminismus ist, besteht darin, die demnach zu einem Zeitpunkt gegebenen zukünftigen Alternativen als Verzweigungen von diesem Punkt aus zu visualisieren und sie als „Weltgeschichten“ oder „zukünftige alternative Weltverläufe“ zu erklären. Doch erlaubt die spezielle Relativitätstheorie (SR) das überhaupt? Eine Mitte der 1960er Jahre begonnene Debatte dieser Frage endete zu Beginn der 90er Jahre durch Erschöpfung der Kontrahenten. Leider – denn seit dem Erscheinen von Nuel Belnaps epochalem Aufsatz „Branching Spacetime“ (1992, i.F. BST) lassen sich neue technische Möglichkeiten der Modellbildung absehen, die das Problem mit bis dahin nicht zu erhoffender Präzision angehen können und eine Lösung wahrscheinlicher machen. Das Gebiet befindet sich in der Pionierphase. Man könnte eine Menge darüber sagen, und ich würde am liebsten ausführlich meinen eigenen Vorschlag vorstellen.

Aus Platzgründen muss ich mich aber auf ein einziges und obendrein destruktives Detail beschränken: eine Kritik an Belnaps so genanntem „(Prior) Choice Principle“. Es hängt mit einem größeren Vorschlag wie folgt zusammen: Über modale Verzweigungen am *Vergangenheitslichtkegel* lässt sich verhandeln, über modale Verzweigungen *an der Bezugssystem-relativen Gegenwart als raumweiter Vorderkante* auch. Für einen Indeterministen höchst unwillkommen müssen aber Verzweigungen sein, die das gesamte Raumartige zu einem event dem an diesem event Determinierten zuschlagen. Kurz gesagt stünde in diesem Fall sowohl zuviel als auch zu wenig offen: (1) Wenn nur noch die kausale Zukunft von meinem Hier-und-Jetzt aus offen steht, steht zu wenig offen. Denn dann steht sie als Teil des Raumartigen anderer events leider doch nicht offen – jedenfalls sieht man nicht, wie. (2) Warum sollte bei bis zu einem event e h-artigem Weltverlauf *nur* noch offen stehen, was sich von e *aus* beeinflussen lässt, ansonsten sollte aber bereits alles feststehen? Sieht man es so, dann steht zuviel offen.

Belnap hat nun, obwohl er zweifellos den Indeterminismus befürwortet, ein raffiniertes modelltheoretisches Argument vorgebracht, bei dem aus einer bestimmten Prämisse folgt, dass tatsächlich das gesamte Raumartige eines events dem Bereich des an diesem event Determinierten zuzuschlagen ist. Die Prämisse nennt er (in einer etwas stärkeren und einer etwas schwächeren Version) das „(Prior) Choice Principle“. Ich möchte zeigen, warum ich es nicht für so plausibel halte, wie es aussieht. Der entscheidende Grund, weshalb ich nicht an das Choice Principle glaube, ist metaphysisch, nicht technisch motiviert: Ich glaube, dass (zumindest manchmal) Entscheidungen nicht *an* Zeitpunkten fallen, sondern *mit* Zeitpunkten.

2. Entscheidungen nicht an, sondern mit Zeitpunkten

Beginnen wir zunächst mit Modellen mit klassisch konzipierter, kontinuierlicher Zeit. Die Feinstruktur einer ergebnisoffenen Situation darin lässt vermuten, dass sich gegen die Möglichkeit des Indeterminismus folgendes Dilemma vorbringen lässt (formuliert am einfachsten Fall mit zwei möglichen Weltgeschichten h_1 und h_2):

Entweder es gibt einen letzten Zeitpunkt, zu dem h_1 und h_2 noch ganz übereinstimmen („lower cut“) oder es gibt einen ersten Zeitpunkt, zu dem h_1 und h_2 nicht mehr übereinstimmen („upper cut“, zur Terminologie vgl. z.B. McCall 1990, 232-238 und 1994, 289-294).

1. Im ersten Fall gibt es keinen ersten Zeitpunkt, zu dem h_1 und h_2 nicht mehr übereinstimmen. Zum letzten Zeitpunkt muss es dann aber schon entschieden sein, ob h_1 oder h_2 verwirklicht wird. Denn ab jedem späteren Zeitpunkt wird ja bereits eindeutig entweder h_1 oder h_2 verwirklicht. Zugleich kann aber im letzten gemeinsamen Zeitpunkt noch nicht entschieden sein, ob h_1 oder h_2 verwirklicht wird. Denn zum letzten *gemeinsamen* Zeitpunkt sind h_1 und h_2 noch Alternativen zueinander, d.h. *beide* Möglichkeiten stehen noch zur Verwirklichung offen.

2. Im zweiten Fall gibt es keinen letzten Zeitpunkt, zu dem h_1 und h_2 noch übereinstimmen. Doch wann soll sich dann eigentlich entschieden haben, dass z.B. h_1 und nicht h_2 verwirklicht wird? Zu jedem gemeinsamen Zeitpunkt konnte es sich nicht entschieden haben (der gemeinsame Weg läuft ja gleichsam einfach aus). Aber zum ersten Zeitpunkt der Nichtübereinstimmung ist es bereits entschieden.

Das vorgebliche Dilemma ist für den Indeterministen auflösbar. Genau gesagt ist eine Entscheidung nicht nötig, weil die erste Alternative nicht die behaupteten Konsequenzen hat und die zweite harmlos ist. Zunächst scheint es zwar so, als müsse die folgende, recht gebräuchliche Charakterisierung der Zugänglichkeit zweier Alternativen zu einem Zeitpunkt von vornherein von „lower cuts“ ausgehen:

h und h' sind zu t genau dann gegenseitig zugänglich, wenn gilt: h und h' sind bis zu einschließlich t inhaltlich identisch.

Doch tatsächlich lässt das beide Fälle offen. Es sagt nur etwas darüber aus, ob zu einem gegebenen Zeitpunkt zwei mögliche Weltgeschichten noch alternativ zueinander sind, aber nichts darüber, ob dieser Zeitpunkt der letzte in einer Reihe von Zeitpunkten mit dieser Eigenschaft ist. Es kann auch genauso gut sein, dass es keinen letzten Zeitpunkt mit dieser Eigenschaft gibt. Wie kann ein Indeterminist auf das angebliche Dilemma reagieren?

Zunächst mag er annehmen, die erste Alternative sei verwirklicht, es gebe also einen letzten gemeinsamen Zeitpunkt. Zweifellos wird dann ab jedem späteren Zeitpunkt bereits eindeutig entweder h_1 oder h_2 verwirklicht. Aber warum auch nicht? Es wird ja gerade der Determinismus *nicht* vorausgesetzt. Des weiteren kann der Indeterminist annehmen, die zweite Alternative sei verwirklicht. Hier kann er den ganzen Punkt zugeben, ohne dass das seiner Position schadet. Es hat sich eben noch zu keinem Zeitpunkt der übereinstimmenden Phase etwas entschieden. Vielmehr entscheidet sich der weitere Verlauf durch das Geschehen, indem es geschieht. Dadurch, dass zu einem Zeitpunkt etwas geschieht, das z.B. mit h_2 nicht mehr kompatibel ist, sondern nur noch mit h_1 , wird h_2 ausgeschlossen und ist eben mit diesem Geschehen, aber auch erst mit ihm ausgeschlossen. Im Rückblick kann man sagen, dass es sich *mit* ihm entschieden hat. Zu sagen, dass es sich *an* ihm entschieden hat, ist dagegen reichlich irreführend.

Welche Annahme ist plausibler? Wohl oft genug die zweite: Weder findet die Entscheidung *an* einem Punkt vor Trennung der Alternativen statt, noch besteht sie darin, dass dabei eine bestimmte Weltgeschichte oder auch nur das Bündel aller Weltgeschichten, in denen diese Tat vorkommt, ergriffen würde. Der Handelnde handelt einfach, in einem fort, und dadurch scheiden Weltverläufe für immer als Kandidaten für die Verwirklichung aus. Fasst man h_1 oder h_2 im Sinne Carnapscher Weltbeschreibungen auf, so geschieht eben einfach etwas, das ausschließt, dass noch je h_2 eine *wahre* Geschichte werden kann.

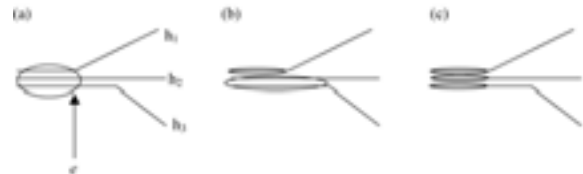
3. Belnaps Argument

Kommen wir nun zur Übertragung auf die relativistische Raumzeit. Im Zentrum von Belnaps Überlegungen steht die formale Beschäftigung mit der Frage nach der Determiniertheit des Raumartigen: das „problem of the wings“. Die „wings“ zu einem gegebenen möglichen event e in einer (nunmehr *raumzeitlichen*) Geschichte h sind dabei die Menge all der möglichen events, die raumartig zu e liegen.

Belnap sieht das technisch präzise Pendant zur philosophischen Frage „Are events in the wings ontologically definite or indefinite?“ in der Frage: „Do point events in the wings belong to the intersection $h_1 \cap h_2$?“ (BST, 400). Die Alternativen h_1 und h_2 sollen dabei dadurch charakterisiert sein, dass sie zumindest alle möglichen events im Vergangenheitslichtkegel von e gemeinsam haben. Es fragt sich nun: Gibt es eine natürliche Bedingung, die zur Konsequenz hat, dass in diesem Fall h_1 und h_2 *auch* die „wings“ gemeinsam haben müssen? Belnaps Antwort ist: ja, das „prior choice principle“ (Postulat 28).

Belnaps Argument basiert auf dem Gedanken, dass an einem möglichen event verschiedene Bündel von Alternativen zur Auswahl stehen und dort eine Entscheidung zwischen ihnen ansteht. Jeweils ein solches Bündel nennt Belnap, relativ zu einem möglichen event, eine „elementary possibility“ (402). Alle Elemente dieser Bündel relativ zu einem möglichen event e zusammen müssen gerade wieder die Menge aller Alternativen bilden,

in denen e überhaupt vorkommt. Ferner darf keine Alternative in mehreren Bündeln vorkommen. Die Menge der „elementary possibilities“ durch e ist also eine Partition, von Belnap notiert als: π_e . Aber es kann sich nicht um irgendeine Partition handeln, wie ein Seitenblick auf e im folgenden Modell motivieren mag:



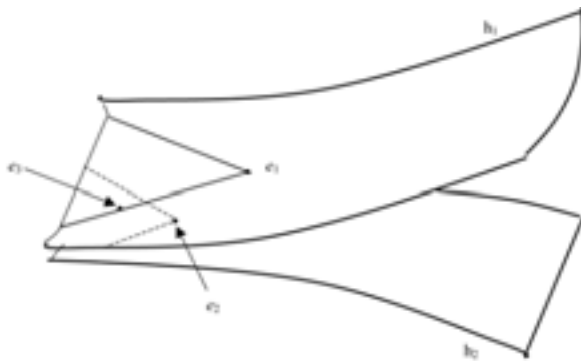
Variante (a) ist nicht feinkörnig genug. Denn an e steht offensichtlich eine Entscheidung für oder gegen h_1 an. Variante (c) wiederum ist zu feinkörnig. Denn an e steht offensichtlich keine Entscheidung zwischen h_2 und h_3 an. An e sind nämlich h_2 und h_3 „obviously undivided“, was heißen soll (Def.18), dass es sogar in der (kausalen) Zukunft von e noch mindestens ein mögliches event gibt, das beide Alternativen gemeinsam haben (Belnap notiert dies als „ $\approx_e$ “). Variante (b) ist dagegen gerade die intuitiv erwünschte Partition, nicht zu grob und nicht zu fein. Ihr zufolge steht an e eine Entscheidung zwischen h_2 und h_3 einerseits und h_1 andererseits an, was die Partition $\{\{h_2, h_3\}, \{h_1\}\}$ ganz richtig wiedergibt. Es handelt sich bei ihr um die „finest partition that respects the no choice principle“, welches besagt: „No elementary possibility can distinguish between h_1 and h_2 if $h_1 \approx_e h_2$ “ (402, 4. Postulat, vgl. auch Def.19). Und gerade als diese Partition wird π_e definiert. Gerade dann, wenn π_e mehr als *ein* Bündel von Alternativen enthält, steht an e eine Entscheidung an, und e ist damit „indeterministic“ zu nennen (Def.23). Befindet sich h_1 in einem Bündel von π_e und h_2 in einem anderen, so ist es angebracht, e einen „choice point“ zwischen h_1 und h_2 zu nennen (Def.24).

Mit dieser Begriffsbildung im Hintergrund kann Belnap nun ein „choice principle“ (Postulat 26) und das „prior choice principle“ (Postulat 28) formulieren:

Choice principle: For each two histories, there is at least one choice point.

Prior choice principle: If e belongs to $h_1 - h_2$, then there is a choice point for h_1 and h_2 , lying in the past of e .

Das „choice principle“ impliziert, dass je zwei Alternativen überhaupt ein mögliches event gemeinsam haben. Das „prior choice principle“ besagt noch mehr: Wenn e nicht sowohl zu h_1 als auch zu h_2 gehört („ $h_1 - h_2$ “), dann muss, von e aus gesehen, einmal die Entscheidung *in Form eines „choice point“* dafür angestanden haben, dass es einen in eine Alternative mit e darin verschlagen hat. Belnap behauptet nun zu Recht: „[I]f any point in the wings failed to lie in the intersection $h_1 \cap h_2$, then the prior choice principle would be violated.“ (Fact 31, 411). Belnaps Begründung ist sinngemäß die folgende. Offenbar müsste im folgenden Fall das „prior choice principle“ für e_2 (in den „wings“ von e_1 , in h_1 vorhanden, in h_2 nicht) verletzt sein.



Warum ist das so? e_2 hat doch seinen Vergangenheitslichtkegel, und in diesem liegt z.B. e_3 direkt auf der „Klebekante“ von h_1 und h_2 . Ist e_3 damit nicht ein „choice point“ für h_1 und h_2 ? Man wird das zunächst vermuten, aber nach Belnaps Definitionen ist es nicht so: h_1 und h_2 sind nämlich bezüglich e_3 „obviously undivided“. Denn es gibt in der kausalen Zukunft von e_3 noch mindestens ein weiteres mögliches event, das sowohl zu h_1 als auch zu h_2 gehört: e_1 . Allein an e_1 sind h_1 und h_2 nicht mehr „obviously undivided“. Denn in der kausalen Zukunft von e_1 liegt kein h_1 und h_2 gemeinsames mögliches event mehr.

Eine Situation, in der das „prior choice principle“ nicht verletzt wird, muss demnach so beschaffen sein, dass alle möglichen events, die nur in einer der beiden Alternativen vorkommen, e_1 in ihrem Vergangenheitslichtkegel haben, bzw. dass alle diese events im Zukunftslichtkegel von e_1 liegen. Genau das ist der Fall, wenn sich h_1 und h_2 auch die „wings“ teilen.

4. Die Kritik am „prior choice principle“ und am „choice principle“

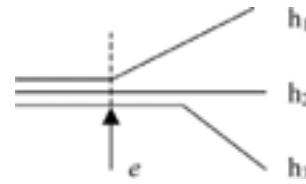
Warum macht das „prior choice principle“ zunächst einen plausiblen Eindruck? Zuallererst ist es sehr plausibel, dass gelten muss:

„Wenn ein mögliches event e nicht sowohl zu h_1 als auch zu h_2 gehört ($e \in h_1 - h_2$), dann muss, von e aus gesehen, einmal die Entscheidung dafür angestanden haben, dass es einen in eine Alternative mit e darin und nicht in eine Alternative ohne e darin verschlagen hat.“

Denn es ist sehr plausibel, anzunehmen, dass zwei Alternativen wenigstens in einem möglichen event überein kommen bzw. dass zwei Alternativen, die in e übereinkommen, auch im Vergangenheitslichtkegel übereinkommen. Doch auch wenn es ihm zum Verwechseln ähnelt - dies ist *nicht* das „prior choice principle“. Denn das besagt vielmehr:

„Wenn e nicht sowohl zu h_1 als auch zu h_2 gehört ($e \in h_1 - h_2$), dann muss, von e aus gesehen, einmal die Entscheidung in Form eines 'choice point' dafür angestanden haben, dass es einen in eine Alternative mit e darin und nicht in eine Alternative ohne e darin verschlagen hat.“

Dass die Entscheidung die Form eines „choice point“ im Sinne von Definition 24 in Belnaps „Branching Space-Time“ haben muss, ist eine weit stärkere Forderung. Erinnern wir uns, dass sie sich am besten mit einem Längsschnitt wie dem folgenden motivieren ließ:

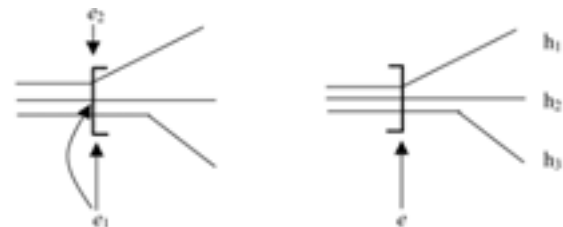


Entscheidend ist das Folgende: e sollte hier ein „choice point“ zwischen h_1 einerseits und h_2 und h_3 andererseits sein, aber noch keiner zwischen h_2 und h_3 . Denn an e sind h_2 und h_3 noch „obviously undivided“, h_1 und (z.B.) h_2 sollen es aber nicht sein. Und gerade das sollte ein Kriterium dafür sein, dass zwischen h_2 und h_3 noch keine Entscheidung ansteht, zwischen h_1 und (z.B.) h_2 dagegen schon. Das legt die folgende Erklärung nahe:

- Wenn es *nach* e noch weitere mögliche events gibt, in denen beide Alternativen überein kommen, kann es sich bei e noch nicht um einen Entscheidungspunkt zwischen beiden Alternativen handeln.
- Vielmehr muss ein Entscheidungspunkt ein solches mögliches event sein, das zwar in beiden Alternativen vorkommt, für das aber auch gilt: Dieses ist das „letzte“ mögliche event, mit dem es sich so verhält, d.h. es liegt nicht in der kausalen Vergangenheit irgendeines anderen möglichen events, das in beiden Alternativen vorkommt.
- Also gibt es zu zwei Alternativen immer einen Entscheidungspunkt, der so beschaffen ist, dass nach ihm nicht noch weitere mögliche events kommen, die in beiden Alternativen enthalten sind, sondern dass es sich bei ihm um das letzte so beschaffene mögliche event handelt.

Doch was wäre der Status dieser Erklärung? Bei näherer Betrachtung zeigt sich: Als Argument für das „prior choice principle“ ist sie entweder lückenhaft oder petitiös. Petitiös ist sie, wenn (c) eine Prämisse in einem Argument für das „prior choice principle“ sein soll. Denn (c) ist das „prior choice principle“. Lückenhaft ist die Erklärung, wenn man sie so auffasst, dass aus (a) und (b) (c) folgen soll. Denn (b) sagt zwar wie ein „choice point“ aussehen müsste, wenn es einen gibt, aber nichts darüber, dass es immer einen geben muss.

Kann man sich ein sinnvolles indeterministisches Szenario vorstellen, in dem es keinen „choice point“ gibt? Aber ja! Schon die vorangehende Darstellung lässt sich fast in diesem Sinn deuten:



Die vorangehende Darstellung entspricht der rechten Seite dieser Darstellung: e ist letztes gemeinsames mögliches event von h_1 einerseits und h_2 und h_3 andererseits. Aber es ist auch denkbar, dass es sich verhält, wie links dargestellt: Es gibt gar kein letztes gemeinsames mögliches event, sondern h_1 einerseits und h_2 und h_3 andererseits koinzidieren zwar für jedes mögliche event vor e_1 und e_2 ; e_1 und e_2 sind aber erste mögliche events, in denen sie divergieren. Zugleich ist angenommen, dass die möglichen events dicht geordnet sind. In diesem Fall gilt

für *jedes* dargestellte mögliche event, das sowohl in h_1 als auch in h_2 vorkommt, dass davor ein weiteres mögliches event liegt, das sowohl in h_1 als auch in h_2 vorkommt. Das “prior choice principle” ist also im linken Szenario ständig verletzt und es kommt überhaupt kein “choice point” in Belnaps Sinn vor. Gilt das “prior choice principle”, so ist ein solches Szenario ausgeschlossen.

Dennoch ist nicht zu sehen, was am Szenario auf der linken Seite absurd sein soll. Vielmehr hat sich schon in Abschnitt 2 herausgestellt: Die Annahme von ersten divergierenden Punkten zweier Alternativen ist *mindestens* so plausibel wie die Annahme eines letzten gemeinsamen Punktes. *Entscheidung durch Geschehen*, und zwar mit einem Punkt, *nicht an* einem Punkt, ist alles andere als ein kontraintuitives Konzept. Es ist nicht zu sehen, warum das in der relativistischen Raumzeit anders sein sollte. Man sollte diese Möglichkeit jedenfalls nicht *a priori* ausschließen. Kurz: Das “prior choice principle” (und auch schon das “choice principle”) Belnaps würde erste divergierende Punkte ausschließen. Es ist jedoch unplausibel, dass es *nur* “lower cuts” gibt. Also ist das “(prior) choice principle” Belnaps eine zu restriktive Forderung.

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Three Flawed Distinctions in the Philosophy of Time

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There are three distinctions in the philosophy of time which I want to examine. It is worthwhile to examine them because they are basic. I mean the distinctions between A-series and B-series, between synchronic and diachronic identity, and between perdurance and endurance.

1. McTaggart's Series a

It was the Hegelian McTaggart who first distinguished between the A-series and the B-series. Following C.D. Broad, who extensively commented on McTaggart's philosophy, this distinction was adopted by almost all analytic philosophers of time, though they disagreed with the conclusion to which McTaggart arrived on the basis of that distinction, namely that time is unreal. Today, philosophers of time even group themselves as either A-theorists or B-theorists.

However, McTaggart's distinction arises from a misunderstanding of Russell's ontology of time. He calls the series generated by the relation 'earlier than' "A-series" and takes it to be the time according to Russell's view. The B-series, which he contrasts to the A-series, is generated by the tenses present, past, and future. He analyses the tenses as relations to a present.

Now, McTaggart emphasises that the B-series changes (what is future to a present, becomes present and finally past etc.) while the A-series does not. Then he argues that the gist of time is change and that therefore the A-series is not really temporal, or that it is at least incomplete and has to be supplemented to form what he calls the C-series. He characterises the A-series as static and the earlier-relation as a mere order relation.

But the popular opposition of order and dynamics misleads him here. When Russell describes a relation as an order relation, he means only that it obeys certain formal laws and he does not imply at all that it is somehow static. A static model of some piece of reality leaves out the temporal dimension or, at least, takes into account only what is simultaneous. In that sense Russell's ontology is not static at all. It includes temporal relations and temporal relations other than simultaneity.

As to McTaggart's argument that the A-series cannot be temporal because it does not change, it is misleading and wrong mainly for two reasons. Firstly, the task is to analyse ontologically the general structure of temporal phenomena, the task is to analyse the dynamics, not to dynamise the analysis. The task of science, including philosophy, is to find out what the entities involved in its research object are and what their laws are; it is to describe and explain, not to imitate the object. Secondly, the B-series remains changing just because the ontological analysis leading to it is incomplete: the changes in the holding of the tense relations are left out in the analysis. As soon as they are taken into account, as is the case with the C-series which combines A- and B-series, we have no longer a changing series.¹

Undoubtedly, time is change and an earlier-relation from which change has been abstracted to have pure order is an absurdity since the order is meant to be according to time. Order is always order in a certain dimension. Moreover, if one looks more closely how Russell introduces temporal relations, one cannot discover any indication for the impossible attempt to abstract the order aspect from the perceived temporal phenomenon. On the contrary, in accordance with his empiricist principle of acquaintance Russell introduces the relation 'earlier' with respect to a full-fledged temporal phenomenon such as a sequence of two tones, e.g., a c-tone and an e-tone. This phenomenon of the c-tone resounding and then the e-tone resounding is as dynamic as anything can be and not at all static. Russell explains that the relation 'earlier' is the relation we hear holding between these two tones.

2. The Distinction between Diachronic and Synchronic Identity

The terms "diachronic" and "and synchronic" have been adopted from linguistics. "Synchronic" means roughly "simultaneous" and "diachronic" "non-simultaneous". Thus "synchronic identity" refers to identities between simultaneous entities and "diachronic identity" to identities between non-simultaneous entities. Now, strictly identical entities, entities which are one and the same, are always simultaneous. Not all simultaneous entities are strictly identical, of course, but all entities which are temporal and strictly identical are simultaneous, that is to say, all temporal entities are simultaneous to themselves. This is true independently of whether the entities have a short or a long duration. That an entity has a relatively long duration does not prevent it from standing in the simultaneity relation to itself. Obviously, a long duration does not prevent it from being identical with itself either. Therefore, all temporal entities whatever their duration are simultaneous and strictly identical, which entails the "synchronic identity" pleonasm.

If "synchronic identity" is a pleonasm, then "diachronic identity" is a *contradictio in adjecto*. Being strictly identical implies being synchronic (simultaneous) and being synchronic implies not being diachronic (non-simultaneous). That follows by the law of hypothetical syllogism.

We have noted already that even objects of long duration are simultaneous to themselves and not later or earlier than they themselves. However, relations 'earlier' and 'later' do occur in connection with a persistent object and that is what may mislead the users of the term "diachronic identity" to think there is non-simultaneity in such an object. Yet, this non-simultaneity concerns only our contacts with the object, not the object itself. One contact with the object occurs later or earlier than another. That does not make the object later or earlier than itself.

It seems that the term "diachronic identity" means nothing but the persistence of an ordinary object through time and change. We ordinarily like to say that an object "remains the same" instead of saying merely that it "persists". The former phrase, though, implies already an ontological analysis of the phenomenon of persistence, if it

¹ cf. E. Tegtmeier: Der Hyperdynamismus in der Ontologie der Zeit. Logos 1 (1994).

is used in philosophy, namely that persistence grounds on strict identity, i.e., that the ordinary thing remains strictly the same while changing. The phenomenon of persistence has to be taken to involve only the relatively long duration and continuity of an ordinary object. As in any empirical science, the phenomena of ontology are less determinate than their theoretical analyses.

On the whole, there are three different ontological analyses of the phenomenon of persistence:

1. the substance analysis,
2. the strong serial analysis,
3. the weak serial analysis.

According to the substance analysis, an ordinary object is simple and remains literally the same in spite of its changes. According to the strong serial analysis, an ordinary object is a series of momentary things and remains literally the same in spite of its changes. According to the weak serial analysis only the momentary stages of the ordinary object exist. Hence, it is not literally the same during time and change. According to this analysis, the persistence of the ordinary object is not grounded on strict identity, but on close causal connections between its momentary temporal parts. The main theoretical, ontological difference in the background between the weak and the strong serial view is the acknowledgement of a series as an entity which the former view presupposes and the latter view does not.

Now, what to make of the distinction between synchronic and diachronic identity? If "diachronic identity" is taken to describe the phenomenon of persistence, what about "synchronic identity"? If it were a synonym of "strict identity of simultaneous entities", then it would be true independently of what ontological analysis is right that diachronic identity is synchronic identity, with the "is" being the "is" of strict identity. We saw that even permanent objects are simultaneous to themselves. Thus, we arrive at a no-distinction.

Even if "synchronic identity" is taken to mean simply "strict identity" it would still be true according to the substance and the strong serial view that diachronic identity is synchronic identity (i.e. strict identity), according to the substance and the strong serial view. And the last "is" again expresses strict identity and hence the identity of diachronic and synchronic identity.

Obviously, this strict identity does not hold under the weak serial view. However, under the weak serial view there is diachrony (non-simultaneity), namely between the momentary stages of the ordinary object. Thus one could express a complaint about the composite term "diachronic identity" pointedly by saying that if there is diachrony (with objects as weak series) there is no strict identity and if there is strict identity (with objects as substances or strong series) there is no diachrony (non-simultaneity) (The distinction between synchronic and diachronic identity seems to have come up in the attempt to make sense of Aristotle's metaphysics.²)

3. Lewis' Distinction Between Perdurance and Endurance

Lewis' distinction concerns just the phenomenon called diachronic identity. i.e., the phenomenon of the persistence of an ordinary object. He claims that there are two

kinds of ontological views of the phenomenon of persistence, those viewing it as perdurance and those viewing it as endurance. I object that Lewis' distinction and classification is neither exclusive nor exhaustive.

Lewis defines persistence, perdurance, and endurance as follows:

Let us say that something *persists* iff, somehow or other, it exists at various times; This is the neutral word. Something *perdures* iff it persists by having different temporal parts, or stages, at different times, though no part of it is wholly present at more than one time.³

The definitions are not general because they presuppose an absolutist view of time, i. e., they presuppose time points. Analytic philosophers which are logically oriented tend to think that it is easy to translate from absolutist to relationist temporal terms. They are wrong. Take e.g. Lewis' definition of persistence. It assumes existence to be a relation to time points. The relationist equivalent of a time point would be the simultaneity to a very short anchor event such as a clock signal. Hence it would be a relational property. But a time point of the absolutist is by all accounts an individual and therefore both are not substitutable for each other. Moreover, a case against the existence of relational properties has been made.⁴ Naturally, this is relevant not only for relating existence but also for relating predication to time points.

Lewis' classification is not mutually exclusive either. There are ontologies with a relationist view of time and substances (i.e. persisting entities) which perdure as well as endure. These substances are simple though they have temporal parts.⁵ It depends on whether one takes ordinary objects literally to consist of their temporal parts or not. A corresponding ontology with temporal absolutism could be put together without great difficulties since the duration of the substance need not be reduced to that of its temporal parts if the substance does not consist of its temporal parts.

The relation between the duration and temporal location of the persisting thing to the duration and location of its temporal parts is critical, indeed. If one tries to place the weak and the strong series view in Lewis' classification, one gets into difficulties. The members of the series, the temporal parts of the ordinary object, are each localised at a certain point of time, but the series as whole is not. That does not matter with the weak series view because the series is not assumed to exist in addition to the members. But it is a difficulty with the strong series view which takes the series as a whole to exist in addition to its members. Lewis' definition of persistence entails under the strong serial view that what perdures (the series of temporal parts) does not persist, since it defines persistence as existence at various times. The consequence is queer, indeed, as the strong serial analysis is designed for no other purpose than to explain ontologically the phenomenon of persistence. The strong serial analysis cannot be fitted into Lewis' schema, anyway, because it implies that the ordinary object both perdures (by virtue of its temporal parts, which are the members of the series) and endures (virtue of the series as whole).

It is also questionable to take existence to be a relation to time point and to equate existence with temporal location. That Lewis does the latter can be

³ D. Lewis: On the Plurality of Worlds. Oxford/Cambridge (Mass.) 1986, p.203.

⁴ see R.Grossmann: Russell's Paradox and Complex Properties. *Nous* 6 (1972).

⁵ see E. Tegtmeier: Grundzüge einer kategorialen Ontologie. Freiburg 1992, §9.

² See: E. Tegtmeier: Individuation, Identity, and Sameness. A comparison of Aristotle and Brentano, in: *The Object and its Identity*. *Topoi* Supplement 4).

gathered from his substitution of "exist at" in the definition of "persist" by "present at" in the definitions of "perdure" and "endure". What about the existence of any non-temporal entity? What about the existence of the time-points themselves? These questions point to flaws in Lewis ontology.⁶ However, in order to develop an adequate classification of the alternative ontological analyses of the phenomenon of persistence it is not only useful to have an articulate and thought-out ontological theory, but also to take into account the relevant ontological alternatives such as the alternative between absolutist and relational view of time or the alternative between complex and non-complex ontologies. Mereological ontologies, to which Lewis's own belongs, are designed to avoid complexes.

The tripartite classification into substance, strong serial, and weak serial views, is, of course meant to be an alternative to Lewis' dichotomy and an alternative that is based on a more sophisticated and sound ontological background than that of Lewis.

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⁶ For further criticism see E. Tegtmeier: Warum Lewis' Unterscheidung zwischen Mitdauern und Währen verfehlt ist, in: W. Löffler (ed.): Substanz und Identität. Paderborn 2002.

Wittgenstein's Phenomenology: Reconsidering the Relationship of Experience and Language

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Although Wittgenstein's work is not usually associated with the term phenomenology, he nevertheless makes explicit use of it at two very different points in the course of his philosophic thought, i.e. during his middle period and again towards the end of his life. Virtually unknown outside the circle of Wittgenstein studies, even those within the ranks have rarely discussed this aspect of his work. The reason for this situation is comprised of many factors, not the least of which was a lack of access to Wittgenstein's *Nachlaß*. With the publication of the *Wiener Ausgabe* and the *Bergen Electronic Edition*, this gap in the research has started to close. Indeed, several interpreters have made efforts to examine and unravel this unusual, if not puzzling, phase in his development. Yet, many aspects of Wittgenstein's phenomenology and phenomenological language remain unclear, including their significance for his later work. Following Herbert Spiegelberg's lead, I intend to examine Wittgenstein's first brush with phenomenology in order to draw connections between these two lesser known phases of his work, primarily focusing on what I see as an important shift in his methodological approach to philosophical difficulties, eventually leading to a reconsideration of the relationship between experience and language. The first section briefly discusses the concept of Wittgenstein's phenomenology – understood as the attempt to construct a phenomenological language – and his subsequent rejection thereof, in order to set the stage for a significant shift in his thought. The second section jumps ahead a bit to discuss his more mature treatment of the inner/outer dualism as it relates to Wittgenstein's concepts of grammar and language-game.

1. Moving in a New Direction: The Shift to Immediate Experience

As Wittgenstein began to gravitate away from his ideas in the *Tractatus*, his philosophical interests came to focus primarily on immediate experience. He increasingly addressed issues involving our immediate perceptions of the world and our linguistic attempts to convey them.

When he returned to Cambridge at the beginning of 1929, he immediately set about explicating his new philosophic direction. In *Some Remarks on Logical Form*, Wittgenstein admits to the inadequacy of his approach in the *Tractatus*, and signals a move towards the investigation of both spatial and temporal perception. As he held previously, language hides the true structure of the world, however, the focus of his new investigation calls for the "logical analysis of actual phenomena" and ordinary language. Where Wittgenstein had previously held that atomic propositions were completely independent of one another, this early-middle view speaks of systems of propositions being compared with reality, and not just against a single point. While certainly not a complete departure from his earlier position, he does hint at the need for a phenomenological grammar and corresponding language to completely describe our experience, in order to get at the actual structure of the world. We need only find, he says, the "appropriate symbolism" to describe the phenomena as directly perceived, leaving out all hypothetical additions [*hypothetische Zutat*]. This

description of immediate experience is what Wittgenstein initially means when he speaks of phenomenology.

At that time, he was fond of using what he called the "magic lantern" simile to illustrate his point regarding the problem of the relationship between language and experience. He would speak of the film running through the projector, one frame after another. The 'present' consists of the frame lying before the projection lamp, the future awaits its turn on the feeder reel, while the past has already moved onto the catch reel. As spectators, however, we are only presented with that which is projected onto the screen. It has neither a future, nor a past; there is only that which is present before us. Wittgenstein characterizes the problem of describing immediate experience as such: while the picture before the lamp is said to have "neighbors" (for it is only one of a sequence of pictures), the picture on the screen does not. In attempting to develop a phenomenological language capable of unbiasedly representing immediate experience, he realized that in describing such experiences as mentioned above we cannot make use of language involving terms like sequence, past, present or future. We must include only that which is on the screen and nothing else. He sees the two reside on different levels; language as unfolding in the physical world and the phenomena as an atemporal immediacy. In his own words, "we find ourselves, with our language so to speak, not in the domain of the projected picture but in the domain of the film" (Wittgenstein, 1975). Thus, the question becomes: How can language, which unfolds in time, describe a realm not in time?

Finding that there are no moves left to be made, Wittgenstein concludes before the year is out that a description completely devoid of hypothetical components is neither necessary, nor even possible. Language, he thinks, could never bridge the gap between what is referred to here as primary – immediate experience – and that which is secondary – language or any means of representation. He feels that the problem has been improperly formulated in terms of an irresolvable separation of the sensing subject and the perceived outer world. To this end, he writes, "Experience is not something that one can demarcate by determinations of something else which is not experience; rather a logical form" (Wittgenstein, 2000).

He concludes that what is now necessary is to determine the essential from the non-essential in our everyday language, and the role of grammar takes on a new importance. Thus, a second fundamental shift in his thought has occurred as he rejects the idea of an artificial language of immediacy – an undistorted representation capable of tapping directly into the world of appearances. "How strange if logic were concerned with an 'ideal' language and not with *ours*" (Wittgenstein, 1975). The distinction between a primary and secondary language is declared flawed – the product of a philosophic error.

2. Moving Beyond the Dichotomy

As I have said, Wittgenstein's first attempt at phenomenology very quickly came to a self-proclaimed end. At this point, he sees the future of his investigations to be the grammatical analysis of our everyday language; for it is here where the errors of philosophy, especially his own, will ultimately find their resolution. However, it is worth noting that not everyone believes Wittgenstein to have abandoned his phenomenological undertaking.

Herbert Spiegelberg contends that what Wittgenstein has given up is not a phenomenological analysis, but rather this narrow sense of it. He continues hypothesizing that a broader sense remains intact within his notion of grammar (Spiegelberg, 1981). A letter Spiegelberg later received from G. H. von Wright lends support to this view, where he says that what should be of most interest to phenomenology is Wittgenstein's notion of grammar. The obvious question here is why? The short answer lies in that Wittgenstein is still very much interested in investigating the relationship between experience and language. But, unlike his earlier conception of immediate experience, his later one points to its inseparability from language. This growing awareness of the interwoven nature of experience, language, and grammar is perhaps best illustrated by Wittgenstein's treatment of philosophic dualism.

Since the modern era dualistic thought has exercised a remarkable presence in almost every aspect of our lives, having left its indelible mark on many of our most important discourses. If, for example, the problems of substance and causality are construed in terms of the concepts mental and physical, we have already set up a certain framework or course for the discussion of the world and subject; in other words, the inner/outer distinction is already firmly in place. Viewed in this way, the dichotomy does not result from our analysis; rather one conceptual framework has been uncritically applied to the discourse. This is what Wittgenstein means when he refers to the "method of projecting". This split has come to inhabit not only our scientific conceptions, e.g. the term socialization – the internalization of the external relationships of our surroundings into the individual, but our everyday understanding of the world as well, e.g. as an independent order of reality in contrast to an inner realm of life (or existence). Because his own thought – his early phenomenology – was dominated and structured by an inner/outer (mediated/unmediated) dichotomy, it should not strike us as strange that this theme should receive so much attention in his later work. Wittgenstein's brief, but insightful remark in the *Investigations* (§580), "An 'inner process' stands in need of outward criteria," is bluntly calling into question our understanding of the relationship between inner and outer, by asking, "Is this an absolute distinction?...[and] Why do we feel the need to make use of it in *this* situation?"

However, Wittgenstein's grammatical investigations represent more than an attempt to overcome this dichotomy. The concepts themselves are nothing to be overcome, but rather it is our tendency to see things in a particular way that requires attention. Thus, one cannot really talk of having conquered a philosophic problem, but merely having come to terms with it (this difference can be seen in the German terms *Überwindung* and *Verwindung*). Certainly the uses of the concepts inner and outer are not always unwarranted, and Wittgenstein's point (if one can speak of him making points), is rather that an uncritical relationship to the uses of these concepts can hinder other avenues of understanding and approaching the world. This

is our bewitchment by languages – our preoccupation with a particular model. Wittgenstein illustrates this tendency by examining the common association of "thinking" and "process":

Thinking is not an incorporeal process which lends life and sense to speaking, and which it would be possible to detach from speaking, rather as the Devil took the shadow of Schlemiehl from the ground.— But how "not an incorporeal process"? Am I acquainted with incorporeal processes, then, only thinking is not one of them? No; I called the expression "an incorporeal process" to aid in my embarrassment when I was trying to explain the meaning of the word "thinking" in a primitive way (Wittgenstein, 1971).

The misleading aspect mentioned in the quote lies in our understanding of processes. To speak of an 'incorporeal' process exceeds our actual experiences of processes, i.e. we are *only* acquainted with or know about mechanical and physical processes. What we have tried to do is broaden our notion of physical processes to include a realm that the dichotomy itself makes inaccessible to such conceptualizations. Although indicative of, this passage can only take us so far with respect to, Wittgenstein's critique of the inner/outer. His most explicit treatments of these themes, and among his last, are to be found in the second volume of *The Last Writings on the Philosophy of Psychology*.

When referring to the thoughts and feelings of others we usually associate an inaccessibility or internality to them. It is common to hear someone say something like, "I don't know what he or she is feeling," or perhaps "I don't know what you are thinking," while gesturing to one's head. This kind of talk leads us to believe that the thoughts, feelings, sensations, etc. of others are unknowable to us. But is this the case? Are such things as feelings impossible for us to understand and know? Are we really clear about our determination in this matter? Clearly, Wittgenstein would say, "No".

What we have done, according to Wittgenstein, is mix-up different language-games. We have let a particular model of understanding dominate its application.

Why do we say: "I didn't know what went on behind this brow", although it can be of no importance to us whatsoever what goes on behind someone's brow. Our uncertainty doesn't at all refer to what goes on in the inner; and even if it does refer to the mental, the mental finds its expression in the bodily (Wittgenstein, 1993).

I take the main point to be that by reading the 'surface' grammar of our language into the experience itself, we mistakenly grant this characterization a certain significance not necessarily warranted; that somehow this way of looking at things belongs to the *essence* of thinking.

In the *Investigations*, Wittgenstein proclaims that language-games should be viewed as *Urphänomene*; they occupy a unique and originary place within our *Weltanschauung*. He writes: "[We should] look upon the language-game as the *primary* thing" [das *Primäre*] (Wittgenstein, 1971). Thus, language has a privileged position in his investigations, not because language has some form of ontological priority over experience, but rather because language is our investigative mode of access. Here, language serves the curious role of both subject *and* means of inquiry. Since we cannot get outside of language by means of it, we must subject our mode of inquiry itself to critique. We must always be on our guard from reading the structures of language as those of

immediate experience. And yet, to speak in this manner is already misleading; for one of Wittgenstein's later insights was that one cannot separate language (broadly conceived) from experience. To talk of them as two completely autonomous entities confuses the issue. We would have made, in Wittgenstein's own words, a quite innocent yet "decisive movement in the conjuring trick" (Wittgenstein, 1971); we have already unknowingly given a fairly definite structure to the concept or problem.

However, just because we *can* come to recognize that we project certain structures does not mean that we can "get by" without them. We are, after all, always already engaged in activity – even if one of those activities is armchair philosophizing. Here again, talk of projection can be misleading, for it invites one to understand an absolute division between language on one side and experience on the other; a division between what is experienced and the one doing the experiencing. Precisely this separation is what Cartesian dualism necessitates. While once the acknowledged goal of his earlier phenomenological grammar, he later deems this view misguided.

3. Concluding Remarks

Language comprises not only that which is spoken, written, or signed, but encompasses the entirety of human activities, which are concretely situated *in* the world. As such, the inseparability of language (expression) and experience indicates a perspectival shift from a Cartesian model, where language is portrayed as medium between two irreconcilable spheres, towards an understanding of language that recognizes its various "functions," including that of dualism. This is a subtle, but often overlooked, aspect in Wittgenstein's later thought. To speak of mediation projects precisely the subject-object dichotomy that he says requires a certain level of restraint; for to divide reality into: that which is experienced / language / that which experiences, would ignore the constitutive aspect of language in experience. To be sure, experience does *not* collapse into language; rather the absolute division between the two falls away to reveal their inseparability and mutual constitution. And once we have reached this level of constitutive primacy, questions of justification, inquiry, and reason quickly lose the force of their significance. In other words, we cannot get beyond or outside of language by means of language, and this simply means that talk of this nature continuously collapses in on itself.

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On the Problem of Expression in the *Tractatus*

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According to Wittgenstein, the value of the *Tractatus* lies “in the first place” in the fact that in it “thoughts (*Gedanken*) are expressed”; “this value”, he adds, “will be the greater the better the thoughts are expressed. The more the nail has been hit on the head” (*TLP* Pref.). At the heart of the book there seems also to be a problem of expression. In this paper I will try, above all, to identify what this problem consists in (I-III), and I will suggest that several of Tolstoy’s ideas on art may have conditioned the perception that Wittgenstein had of it (IV). I will begin with a number of general observations on the content of the *Tractatus*. The idea is that, given the senselessness of its propositions, we must suppose that it is not them that are the object to be understood, but rather an ineffable knowledge, relative to the conditions of representation. I will then argue that the expressive aspects of the book become relevant both in leading the reader in this direction, and for the task of expressing thoughts that cannot be communicated directly.

I

The *Tractatus* is a book of philosophy; it “deals with the problems of philosophy”. Wittgenstein denies, however, that it is a “text-book” (cf. *TLP*, Pref.), a book to read in order to learn some philosophical theory. In his opinion “philosophy is not a theory [...]. The result of philosophy is not a number of ‘philosophical propositions’” (*TLP* 4.112). According to the Preface, the book shows “that the method of formulating (*die Fragestellung*) these problems rests on the misunderstanding of the logic of our language” (*TLP* Pref.). This assumption seems to be closely linked to the aim of the book: to draw a limit to thinking or, better, to the expression of thoughts (cf. *TLP* Pref.). What Wittgenstein holds to be the “unassailable and definitive” truth of the thoughts communicated by the *Tractatus*, presumably has something to do with this operation. In order to draw a limit to thinking, it would be necessary to think both sides of it, that is, also to think “what cannot be thought”. But that which cannot be thought, simply cannot be thought. With regard to language, however, it seems possible distinctly to separate significant from senseless propositions. The idea is that, if a proposition cannot be a term of the definite series of the general propositional form, it will find itself beyond the limit, in the region of non-sense. And given that, according to Wittgenstein, thought is expressed without residue in the use of propositional signs (cf. Mounce 1997, pp. 3-8), that is to say, the domain of the thinkable and the sayable are coextensive, then the thinkable will also be limited thus (cf. Sullivan 2003, pp. 209-211).

Since the sense of the *Tractatus* lies in this limitation, and it is achieved by identifying the general form of the proposition, perhaps it may be assumed that, in its essence, it concerns the question of the expressible and the non expressible, of what we can and cannot do with our language. The “thoughts” expressed in it probably correspond to those that Wittgenstein considered to be genuine intuitions on representation and its limits, intuitions accompanied by a clear awareness of what can and cannot be said. Such an awareness is expressed dramatically in the declaration of the senselessness of his own propositions. Not unlike the pseudopropositions of philosophy, signs appear in them which are devoid of

meaning or are used in a way which does not conform to logical syntax. This happens because, on the whole, they assume reflexively, as their content, elements of our representative apparatus; with language, however, it is not possible to go outside language: “That which expresses *itself* in language, we cannot express by language” (*TLP* 4.121); “What can be shown cannot be said” (*TLP* 4.1212).

According to Wittgenstein, what belongs to form, to the conditions of representation, shows itself once the sayable is clearly represented in an appropriate symbolism. That which can be shown, however, cannot be said, because it does not have the nature of a state of affairs, but rather of form: it is not the accidental and contingent, but the permanent and necessary.

II

Formal realities are *already* present; learning them does not constitute the acquisition of new facts, even of a non-empirical type; hence propositions cannot be formulated regarding them. Since the propositions of the *Tractatus* say many things *about* such realities, they become senseless. Like all other forms of non-sense, they do not in fact say anything; nevertheless not all nonsense *appears* to say nothing. The propositions of the *Tractatus*, in particular, seem to put forward a theory of the world, of language, of logic, etc. This appearance is relevant; it is only through it that the reader can reach the point of view for the essential, necessary, data of our representative system and “*am Ende*”, in a sort of *anagnorisis*, recognise the senselessness of the propositions that have led him to it. This is to say, to understand that the conditions of representation are not states of affairs that can be formulated and, above all, that the aim of the author, in drawing clear distinctions like those between content, structure, and form, or the possible, the accidental, and the necessary, was not to formulate a theory, but rather to direct the reader’s attention to these conditions and their non-representability (cf. McGinn 1999).

The problem is that this still seems to imply that some senseless propositions are understood, have some content, some sense. Indeed only a sense can be communicated and understood. On the other hand, it seems that, if we understand something, we know what we understand and we can say what we understand; hence, if we cannot formulate what we believe we have understood in a way that makes sense, we simply do not have a thought in our mind. For the *Tractatus* there are no inexpressible thoughts: thought is “the significant proposition” (*TLP* 4). It follows from this that they cannot be thoughts in the technical sense of logical pictures of facts, those that, according to the Preface, the book expresses. If the content of the book is that which has been hypothesised, then such thoughts regard non-representational contents. The formal structures, the conditions of representation, but also the value, are contents of understanding different from the logical pictures of facts; thus the knowledge that concerns them does not consist of representations and consequently cannot be expressed, communicated, in propositions. Nevertheless, Wittgenstein seems to assume that his propositions do concern it and that the reader can understand them; given that they are nonsensical, it is not clear how this is to be interpreted.

III

Perhaps we can also speak of “understanding” with regard to the propositions of the *Tractatus*, as long as we avoid recourse to the untenable idea of ineffable truths (cf. Moore 2003, on whom the proposed interpretation depends). They are not truths of the type that the propositions attempt to express in some way; nor, on the other hand, is anything shown in them. What they do is something else. For Wittgenstein, when we focus our attention on what makes the representation of the world possible, nothing is left to represent. Quite simply something is *shown* to us. What results is a knowledge, but it is ineffable, because it is not representational. As A. Moore notes, it is a symptom of the possession of this knowledge that one attempts to express it and the propositions of the *Tractatus* try to do precisely this: to put into words that which is shown to us when we focus our attention on the conditions of sensible language. It is as if they considered the ineffable knowledge of such conditions a knowledge of something. Their outward appearance of sense derives from this. However there is not *something* to communicate; what they do in reality, under this appearance, is to direct the reader's gaze to what is shown, which is always before him in the clearly formulated propositions. That this is the author's intention can be understood by the reader only thanks to the propositions' appearance of sense: “When he has climbed out through them, on them, over them” (TLP 6.54).

There has been discussion of the fact that while in the Preface Wittgenstein presents his book as an object of understanding, in the final lines, on the other hand, he refers to himself (“he who understands me...”) (cf. Diamonds 1991). The contrast is more apparent than real. After all, the author identifies himself with a textual strategy and a style; his direct intervention by means of the personal pronoun simply activates (involves) the reader with a profile determined by the type of interpretative (and not) operations that he supposes he is now able to carry out. This reader matches the one evoked in the opening lines of the Preface, capable perhaps of understanding the book, having in turn already thought the thoughts that are expressed in it, “or at least similar thoughts” (TLP Pref.). What follows from the reading is, in fact, the acquisition of a vision (cf. TLP 6.54), whose presupposition is the sharing with the author of a genuine knowledge of contents transcending the possibilities of representation. The problem of expression of the *Tractatus* has to do with this “sharing” and with what this presupposes in the reader.

In question is the expression of real “thoughts”, of a state of ineffable knowledge; the propositions of the book are a symptom of the possession of this knowledge and they owe their existence to the need to communicate it, because the solution to the problems of philosophy depends on this. It does not follow from this that the reader understands nonsensical propositions; nonsensical propositions do not offer anything to understanding. In effect it is not the propositions of the *Tractatus* that the reader can understand, but rather the ineffable knowledge that has its closest form of expression in them. I believe that when Wittgenstein stresses that the value of his book “will be the greater the better the thoughts are expressed. The more the nail has been hit on the head”, he is referring precisely to the appropriateness of his propositions in (attempting to) express the inexpressible knowledge of these thoughts.

IV

It seems possible to evaluate the appropriateness in question also in aesthetic terms. Wittgenstein appears to be aiming at a work which is also successful from a literary point of view. The book should also give the reader “pleasure” (*Vergnügen*) (TLP Pref.). It must not be thought that this depends on something like an ornament which is external to the content. Wittgenstein does not seem to consider the literary, expressive aspect as a sort of wrapping for an equally elaborate content. By intending his work to be “rigidly philosophical and at the same time literary” (Wittgenstein 1980, p. 96), he seems instead to want to indicate a profound unitary fact, almost as if what the book was trying to communicate also depended on the *form* in which it is written, as if the form corresponded intimately to the way in which the author had discovered and built the content for himself and for his readers.

That this is how things stand is demonstrated in the first place by two stylistic features which are more readily perceived, that is the system of numbering and the brevity of the propositions of the *Tractatus* (cf. Gmür 2000, pp). The former corresponds to the author's way of working and makes clear for the reader at the same time the structure (and the possible reading pathways) of what the author considered to be the presentation of a system (cf. Meyer 1993). Thanks to the brevity of the propositions, the relations between the propositions, signalled by the numbers, become clearer, noticeable almost at a glance.

On the value of brevity, the motto that we find at the beginning of the book is explicit: “... and everything that one knows, that one knows not only by having heard it as a rumour or a whisper can be said in three words”. If, on the one hand, this demonstrates Wittgenstein's sensitivity to the diffidence towards the inadequate use of language, widespread in Central European culture of the time, on the other, it brings us back to the book's problem of expression, in relation to which his care over its brevity and clarity must not be one of the last things taken into consideration. “What is known”, in this case, is in fact something that the propositions cannot say. This poses a problem of sincerity for the author. Unlike the reader, he knows right from the start that the sense of his propositions is only apparent. However he needs this appearance to place the reader in contact with what he considers to be a genuine state of knowledge; from this comes the problem of a textual strategy that can respond on one hand to the need to communicate ineffable contents and, on the other, to the need for sincerity: it had to become clear that the propositions were not the presentation of a theory. Wittgenstein must have sensed this need particularly strongly (although later and referring to a different question, the testimony in Rhees 1983, p. 174 is particularly significant). Considering his familiarity with and appreciation of Tolstoy, perhaps we may dare the conjecture that, in writing the *Tractatus*, he saw himself working to satisfy conditions similar to those indicated by Tolstoy for artistic creation.

Tolstoy held art to be “a human activity consisting in this, that one man consciously by means of certain external signs, hands on to others feelings he has lived through, and that others are infected by these feelings and also experience them” (Tolstoy 1930, p. 123). Hence he considered the sincerity of the artist to be fundamental, “that is, that the artist should be impelled by an inner feeling to express his feeling”; indeed, sincerity impels him “to find clear expression for the feeling which he wishes to transmit” (ivi, p. 229). And given that, “if the work of art is good as art, the feeling expressed by the artist is

transmitted to others", we may go so far as to consider sincerity to be the ultimate condition of the success of art (cfr. *ivi*, 228-229).

Not unlike Tolstoy, Wittgenstein intended art as expression, as a means of coming into contact with something else and thus, we may presume, included the literary aspect of his work. We read in the *Notebooks*: "Art is a kind of expression. Good art is complete expression" (Wittgenstein 1961, p. 83e). The reference to Tolstoy is explicit in a later note: "There is a lot to be learned from Tolstoy's bad theorising about how a work of art conveys 'a feeling'. – You really could call it, not exactly the expression of a feeling, but at least an expression of feeling, or a felt expression. And you could say too that in so far as people understand it, they "resonate" in harmony with it, respond to it [...]" (Wittgenstein 1980, p. 58e).

Albeit with a critical distance, Wittgenstein seems to share the idea of the expressive nature of art. In the end what he supposes for the ideal reader of the *Tractatus* is an "entering into consonance". It may furthermore be supposed that his need for clarity depends on a need for sincerity analogous to that which Tolstoy required of the artist. Stressing the philosophical and at the same time literary nature of the *Tractatus*, indeed may also mean perceiving expression as the place of contact between the sense of the argument and the sense of self. His care over the clarity, the construction of propositions which, in their brevity, result as complete communicative constructions, is not separate from his preoccupation that in the end the appearance of sense is set aside and authenticity re-established. In Wittgenstein's eyes, the clarifying effect of his propositions must have been, finally, precisely this: that he who understands *him* recognises them as nonsensical (*TLP* 6.54). If for the author writing propositions as appropriate as possible to the expression of an ineffable knowledge is the symptom of its possession, then for the reader "throwing them away", when he has used them as steps to climb up beyond them, is a symptom of the acquisition of such knowledge.

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Wittgenstein as a Detenser, *Tractatus*' Ontology as Timeless

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1. Basic Ideas of A- and B-proponents Against McTaggart's Paradox

In this section, I try to clarify the basic suppositions and ideas of A- and B-proponents, reformulating how they react against McTaggart's paradox.

Let me start by introducing McTaggart's contradiction. He begins the argument with the incompatibility of what he calls A-properties such as past, present and future. Every event must be one of the other, but no event can be more than one. But, at the same time, every event has them all. Here, we simply think that we can point out there's no contradiction to be avoided, because the characteristics are only incompatible when they are simultaneous, and there is no contradiction to this in the fact that each term has all of them successively. However, McTaggart has already expected the kind of opposition and says that this explanation involves a vicious circle or a vicious infinite regress. For it assumes the existence of time in order to account for the way in which moments are past, present and future. The A series has to be presupposed in order to account for the A series.

There have been many counterarguments against McTaggart from both sides of A- and B-proponents. Let's take a look at them in turn respectively to contrast each fundamental ideas.

The A-proponents believe that tensed sentences are necessary if the complete nature of temporal reality to be described. They think McTaggart is wrong when he translates such sentence as 'Event E is present, will be past, and has been future' into 'Event E is present in the present, past in the future, and future in the past.' For them, the former sentence contains tensed expressions, whereas the 'is' in the latter is tenseless; so, the rephrasing cannot carry the same semantic content from the original into the new one. They think tense (or time) cannot be erased in any way because of its fundamental existence in the reality. No one could jump out of tense (time) in the A series (temporal passage) to take a bird's-eye view of the A-properties sub specie aeterni at one time.¹ In other words, no one could escape from the present. Therefore, any attempt to translate the tensed sentence into the tenseless sentence would be destined to be a failure. For them, both of the reality and language are tensed, so McTaggart's contradiction would not appear unless he takes a bird's-eye view or makes the erroneous translation.

On the other hand, the B-proponents hold the nature of time can be captured by tenseless sentences. For them, McTaggart is wrong because he thinks the A series is more fundamental than the B series and that the reality is tensed. In their view, the reality is tenseless. Temporal system is what consists of successively ordered events with the same ontological status, and tenseless sentences

are sufficient to describe the temporal system. If A-proponents argue against them that they fail to subsume the privileged present and transitory change of time in their tenseless framework, B-proponents would answer back that the privileged present and the temporal change are not realistic but linguistic characters, and that they could express the change by tenseless language. All the temporal points in the B series are equally real. They think McTaggart's paradox would not appear unless he understands the reality is tenseless.

In my view, neither A- nor B-proponents present necessary and sufficient arguments to capture what the paradox is and where the contradiction stems from, but that is not my main concern in this paper. In the next part, I try to demonstrate that Wittgenstein be a detenser, B-proponent, and that the reality constructed within TLP be tenseless.

2. *Tractatus* Read from the View of Wittgenstein as B-proponent

As is well-known, Russell is one of the B-proponents. However, I don't have much evidence for whether or not Russell and Wittgenstein have mutually influenced each other as to this issue. My aim in this paper is mainly to hypothesize Wittgenstein be a detenser, and to give TLP a textual interpretation.

First of all, we can easily find a direct reference in 6.3611 about temporal passage, where Wittgenstein says "... 'the passage of time'---there is no such thing---..." This statement needs some comments to be correctly interpreted. In TLP, there are two different sides; one is the reality and the other is the picture (language, or I). What he intends to say in 6.3611 is that there's no passage of time in the reality. In his mind, all the temporal change in the reality is not a transition but just a change of state of affairs. When he continues to say in 6.3611 that "we can describe the lapse of time ...," he intends to mean that if there are two different states of affairs described, we can know the lapse of time. This means to say that the passage of time is a kind of mirage created by us or our use of language after our describing the successive two states of affairs. Thus, we can infer from 6.3611 that temporal properties like change depends upon us or our use of language.

Then, let's reconstruct the ontological framework in TLP, viewing it as timeless. For Wittgenstein, the reality²² or the world consists of successively ordered timeless events which have all equal status. He calls such an event a fact.

- 1.1 The world is the totality of facts,...
- 1.11 The world is determined by the facts, and by their being *all* the facts.
- 1.2 The world divides into facts.

¹ To be more precise, the temporal point of which no one could jump out is the present. No one could ever take a view from the past or the future; we could never stand outside the present. Here, there appears the peculiarity of the incompatibility of the A-properties. Let me look at another case as example; color incompatibility. Whereas the present has asymmetric relations to the past or the future, such colors as red, blue and yellow are liked in a symmetric way. Unlike the impossibility of standing outside the present, no doubt it's possible to take a bird's-eye view of the colors.

² I know Wittgenstein makes clear distinction between the world and the reality, and also that there's a paradoxical dilemma in making a coherent interpretation of 2.06 and 2.063. But I would not go into the detail and like to take up the topic on a different occasion.

Then, Wittgenstein introduces a term called a state of affairs, which "is a combination of objects." (TLP 2.01) He says "what is the case---a fact--- is the existence of states of affairs." (TLP 2) So, 1.1 can also be stated this way:

1 The world is all that is the case.

Whereas a fact is real, a state of affairs is a mere possibility. The totality of states of affairs is nothing but the totality of possibilities, which is called logical space.

1.13 The facts in logical space are the world.

A state of affairs is constituted by objects. An object is what is timeless; so a state of affairs or logical space is also timeless. There would be no change of objects or of the possibilities of states of affairs. Change in the world is just an alternation of states of affairs. He states these points as follows:

- 2.012 In logic nothing is accidental: if a thing can occur in a state of affairs, the possibility of the state of affairs must be written into the thing itself.
- 2.0121 If things can occur in states of affairs, this possibility must be in them from the start.
- 2.0123 If I know an object I also know all its possible occurrences in states of affairs....
A new possibility cannot be discovered later.
- 2.026 There must be objects, if the world is to have an unalterable form.
- 2.027 Objects, the unalterable, and the subsistent are one and the same.
- 2.0271 Objects are what is unalterable and subsistent; their configuration is what is changing and unstable.

Now we can get the fairly clear image of the reality in TLP and correctly understand the following statements with no fear of misinterpretation:

- 2.04 The totality of existing states of affairs is the world.
- 2.05 The totality of existing states of affairs also determines which states of affairs do not exist.
- 2.06 The existence and non-existence of states of affairs is reality.

Here I would like to point out that temporal properties depend upon our use of language. We can prove it from 2.021, 2.0231 and 2.024.

- 2.021 Objects make up the substance of the world.
- 2.0231 The substance of the world can only determine a form, and not any material properties. For it is only by means of propositions that material properties are represented.
- 2.024 Substance is what subsists independently of what is the case.

Now let's turn our eyes to the other passages in TLP. I said in the part 1 of this paper that B-proponents would think the privileged present and the temporal change are not realistic but linguistic characters. It's already clear that the latter, the temporal change, is nothing but an alteration of states of affairs in the reality, as well as it's a kind of mirage created by our use of language. Then, how about the former one? How does Wittgenstein think as a detenser of the privileged present? I believe he agrees that there IS the privileged present. But unlike A-proponents, he doesn't place it in the reality. He thinks it's with us as *nunc aeternum*, the eternal present. In

his view, the privileged present is captured as the unique viewpoint which bounds the whole of time. By his words,

- 6.45 To view the world sub specie aeterni is to view it as a whole---a limited whole.

The privileged present, the unique viewpoint, is always with me. In other words, I'm always living in the present; I cannot live outside of it; I cannot live in the past or the future. Living a life is to be always in the present. He says:

- 6.4311 If we take eternity to mean not infinite temporal duration but timelessness, then eternal life belongs to those who live in the present.

Then, let me put the argument another way. The reality and the language has the same forms in common that the latter can depict the former. However, one big difference between them is whether they have A-properties or not. Of course, the reality doesn't have A-properties in his view, while language has A-properties; language is tensed. All we have as means to approach the world is language. Since we cannot know the world without use of language, the world we capture is destined to be tensed. Wittgenstein expresses this idea in the following way:

- 5.6 *The limits of my language* mean the limits of my world.
- 5.62 The world is *my* world: this is manifest in the fact that the limits of *language* (of that language which alone I understand) mean the limits of *my* world.
- 5.621 The world and life are one.
- 5.63 I am my world. (The microcosm.)

Now let me challenge to interpret 5.541 through 5.5421 as an illustration of my view of Wittgenstein as detenser. The issue of the statements is one of the long-discussed issues in TLP.

Wittgenstein says such propositions as 'A thinks (believes) that *p* is the case' or 'A has the thought *p*' look, if considered superficially, as if the proposition *p* stood in some kind of relation to an object A. However, he concludes like this:

- 5.542 It is clear, however, that 'A believes that *p*', 'A has the thought *p*', and 'A says *p*' are of the form "*p*" says *p*': and this does not involve a correlation of a fact with an object, but rather the correlation of facts by means of the correlation of their objects.

What does he intend to say? We should know his idea that 'there is no such thing as the soul---the subject, etc.---as it is conceived in the superficial psychology of the present day' (TLP 5.5421). The same arguments are followed like this:

- 5.631 There is no such thing as the subject that thinks or entertains ideas.
- 5.632 The subject does not belong to the world: rather, it is a limit of the world.

It's wrong to consider the proposition as a correlation of a fact with an object. Then, why is it that we can regard the proposition as the correlation of facts? In TLP, a thought in the proposition 'A has the thought *p*' is a logical picture of the fact that *p* is the case. (cf. TLP 3) When we can picture *p* to ourselves, we call it 'our thinking of *p*'. (cf. TLP 3.001) Then, the proposition involves the correlation of one picture and one fact. In TLP, a picture is

also a fact, this involves the correlation of two facts.³ And we can also imagine another case that *p* cannot depict any state of affairs; in this case, *p* must be nonsense, and the proposition itself also lacks sense.

I don't fully develop my idea in this paper. I know I need more topics to be considered in order for my argument to be consistent. But that will be my next task on another occasion.

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³ In TLP, a picture or language is also a fact in the world. See TLP 2.141.

If Tropes, Then Which Theory of Time?

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1. Tropes and Trope Structures

The general idea of trope ontology is the following. Everything that actually exists and possibly can exist is based on individual qualities – or as some prefer to say – on particular properties. They are the 'elements of being' (D. Williams, 1953) or provide the 'alphabet of being' (J. Bacon, 1995). The main categorial feature of tropes is that they are *dependent* entities; a trope does not stand alone but depends ontologically on at least another trope (cf. P. Simons, 1994, 2000). Ontological dependency may then be defined in terms of existence and modality: 'trope *a* is dependent on trope *b*' =df 'it is impossible that *a* exists and *b* does not exist', more formally: ' $\neg \Diamond (Ea \wedge \neg Eb)$ '.

The interesting point about trope dependency is that, far from being a deficiency, it provides the foundation of structures and complex units. Contrary to a popular misconception, tropes are not dull building-blocks which are in need of all sorts of ties and relations in order to knit them together. Rather, the feature of ontological dependence bestows a structure-building aptitude upon tropes. A tree, a house, you, and me – everything very much like an Aristotelian 'individual substance' is a more or less complicated structure constituted and interconnected by the respective individual qualities due to their modality of existence and co-existence (for details cf. K. Trettin, 2001, 2003). Let's have an example which also serves to carry us to the topic of this paper. Consider the sentence

- (1) Mary is singing.

On the trope view, this statement is true, just in case there is an individual quality of singing which depends for its existence on the trope complex called Mary.

Interestingly, there has not been much reflection on how time enters the scene. Usually it has been taken for granted that tropes have a place 'at a time' or are 'located in time'. Accordingly, Mary would just be a bundle of 'compresent' tropes and her singing would be 'part of' this bundle for a certain time period. Although this construal has a *prima facie* plausibility, because in everyday situations we simply presuppose a spatial and temporal framework, it doesn't suffice in philosophical enquiry. For if we take this framework at face value, we are committed to a series of problematic assumptions. First, time (and space) appears to be an absolute container-like whole in which existing things are somehow placed and positioned. But then it is mysterious how they – metaphorically speaking – 'are dropped' into this Big Container. Or, to use another metaphor – how could existing things just 'pop up' in a totally 'empty time'? Secondly, the question arises whether 'time' without any temporally existent objects 'in it' is a coherent concept. What does 'time *per se*' mean? Should it be conceived as a 'form of intuition' (*Anschauungsform*) along the lines of Kantian transcendental aesthetics, that is, as a mere instrumental condition of our empirical knowledge? If, however, one is inclined to think that time is independent of epistemic considerations, how should it be categorised? As the primary entity (together with space) under which all the other categories of being are to be subsumed (cf. I. Johansson, 1989)? But then – and this poses the third problem – one is committed to the view that everything is temporal. No room is left in one's

ontology for timeless or abstract objects. Consider, for instance, the sentence

- (2) 7 is a prime number.

What would be the truth-maker of this statement? Surely, numbers and their qualities are not temporal beings. So, on a view which construes time (and space) as the primary and most general categories, one is at best thrown back to some version of nominalism-*cum*-conventionalism which – at least in this case – is not a very convincing answer. Is the whole of arithmetic and mathematics nothing more than the outcome of our counting things and drawing lines and circles (activities and operations which, doubtlessly, involve time)? How could a statement like ' $2 + 2 = 4$ ' escape relativism, if it depended solely on our individual intentional capacities of abstracting from certain activities and operations? Doesn't the old psychologism in arithmetic, which Frege rightly tried to dismiss, just enter by the back-door?

2. The Mode Approach to Time

If one takes these problematic implications into account and tries to establish an ontology which is inclined to a realism of time, one may come to the conclusion that time should not be posited as

- (a) absolute
- (b) prior to existing qualities/objects
- (c) container-like
- (d) *per se* empty
- (e) a transcendental epistemic form
- (f) a primary category of being.

One has to look elsewhere, if the views of time, characterised by (a) to (f), should be rejected. Let's come back to our example. If Mary is singing, her singing has a certain duration. It surely is an individual quality which 'takes time'. How should one ground this temporal feature of a particular occurrence, if one rejects that time is already 'out there'? The answer I propose is that time is a *mode of existence* of at least a wide variety of tropes and trope complexes. By a mode (Lat. *modus*) I understand – conforming to the usual meaning – a 'way of being'. Entities which exist temporally, have a temporal mode. Accordingly, entities which exist a-temporally, do not. Applied to the version of trope ontology which I have sketched above, the duration of Mary's singing would be a temporal mode of exactly this singing. So time as duration or persistence of something is dependent on what is happening in a specific interval. It is of the essence to notice here the direction of dependency (for details cf. Trettin, 2002). Not the singing is dependent on its duration, rather, it's the time which is dependent on this particular singing. Turning to our second example of '7 being a prime number', the Mode Approach can also offer a respectable answer: The quality of being prime simply lacks a temporal mode of existence. It is able to exist a-temporally. So on the Mode Approach we get a different list of predicates attributable to time. On this conception time is construed as

- (a') relative
- (b') dependent on a wide variety of existing qualities/objects
- (c') not container-like
- (d') not empty
- (e') not a form, but a mode
- (f') not an ontological category at all.

The Mode Approach to Time can therefore be summarised roughly as a view which holds that time is derivative on certain sets of individual existents. Temporal modes are such that they depend on individual qualities which actually exist (exist in our world) – provided there are qualities which have a temporal mode of existence. If it were not for the overwhelming phenomenological evidence of temporal beings, such as durations and changes of something, least, but not last, of beings with a life history like that of ourselves, time would probably not be a concept at all.

Even if one is inclined to accept this general construal of time, which might be characterised as 'deflationist', this conception will surely provoke further questions and objections. I shall briefly consider two of them. (1) If time is dependent on *actually* existing tropes and trope structures, how can one explain that they might have existed at *other times*? Are tropes temporally determined? How can trope ontology, together with the Temporal Modes Approach, account for *contingency*? (2) Can the Mode Approach explicate future occurrences? Obviously, it cannot, because future tropes don't exist *now*, and therefore, *futurity* doesn't exist. Is one of the consequences of trope ontology simply a commitment to *presentism*? There might be more sceptical questions, a prominent one being the *circularity* objection, which claims that time points or temporal intervals are needed in order to individuate qualities. I shall not discuss this point here (cf. Trettin, 2002), but shall concentrate on the problems of contingency and futurity.

3. Are 'Empty Times' Conceptually the Same as 'Times Without Change'?

I shall briefly reconsider Sidney Shoemaker's celebrated essay in which he employs the thought experiment of 'frozen regions' in a possible world (Shoemaker 1969/1993). Shoemaker does not notice that he presupposes a lot of existing things. That they are by 'freezing' supposed to be changeless is – even in the light of this experiment – not very convincing. I shall disentangle the two mixed-up theses:

- (T1) Time could exist without existents.
- (T2) Time could exist without change.

The point is to dismiss (T1) and look more carefully at (T2). Although 'change' is not at all a problem for trope ontology, it is to be seen, whether 'time' can simply be reduced to 'change'. So, in the end, Shoemaker might have a point here.

4. What are 'Future' Tropes and Trope Structures?

More important than the case of 'changeless times' seems to be the case that the Mode Approach, at least at first glance, has no room for temporal things which don't exist in the present. *Question*: Is one condemned to presentism, if one studies time on the grounds of trope ontology? *Answer*: No, provided one can explain 'future' existents by 'possible' existents. As the ontology outlined above involves already modal states of existence, it is natural to explore 'futurity' in terms of 'possibility'. In this section, I shall consider some statements of a modal approach to time based on events (G. Forbes, 1993), and opt for a different modal approach. The first thing to dismiss is the idea of an 'empty set of times'. It is, by now, a common view in metaphysics that one cannot explore the existence of things simply by starting with nothing at all. Thus, the 'null-set' which is surely instrumental in

explaining the theory of numbers, is not a very good guide for starting an explanation of all sorts of *temporal beings*. Nevertheless, I should like to borrow the following idea from the friends of set-theoretical time theory, especially, if they are also inclined to modality. My proposition is that future tropes and their structures can be conceived as possible trope configurations, that is, they might occur in a possible world – be that world conceived as a simultaneously divergence from the actual world or may that world be such that it possibly could happen in the future.

5. Conclusion

If one, for several reasons, is convinced that individual qualities or 'tropes' are the basic ontological elements, there is only one consistent theory of time – the 'relativist' or 'relationist' view, whereas the 'absolute' or 'substantialist' view should be rejected. Nevertheless, time is not unreal. In order to maintain the reality of time, one has to take into account modality. I have advanced a proposition which construes time as temporal modes of actual and possible existents. On this construal even 'empty times' are not excluded – provided they are properly understood. What seems to be *empty* is just the mode of a *possible* trope structure. If we assume – by employing one of my examples – that Mary's singing is a contingent affair, we easily come to the conclusion that Mary's singing could have happened at some other time, e.g., tomorrow or next week, having an equally contingent audience. My proposal is that the concepts of contingency and futurity can be reduced to the concept of possibility.

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How Wittgenstein Generated his Truth-Tables

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The way to construct a truth-table nowadays is straightforward and fast. For n propositional letters, there are two possibilities T and F , whence the number of rows equals 2^n . Figure 1 below shows the contemporary way to construct truth-tables as given in any number of elementary logic texts.

As Brian McGuinness observes, Wittgenstein's *Tractarian* truth-tables show a "...different, now slightly unusual, order for tables of truth-possibilities:..." (McGuinness, 1988, p. 161, fn. 42). In his comments on *TLP* 4.31, Max Black does not give an explanation for Wittgenstein's deviant way of constructing the truth-tables (Black, 1964). It is the aim of this article to suggest an explanation why Wittgenstein generated his truth-tables in this 'unusual' manner.

The truth-value of a certain combination of propositions is determined by the truth-values of the propositions themselves, or as Wittgenstein says in the *Tractatus* (4.3):

Die Wahrheitsmöglichkeiten der Elementarsätze bedeuten die Möglichkeiten des Bestehens und Nichtbestehens der Sachverhalte.

To show how the truth-value of a propositional combination of elementary propositions is determined, a truth-table is used.

According to John Shosky, Wittgenstein invented the truth-table device for representing the truth-possibilities for propositional combinations of elementary propositions (Shosky, 1997). Unfortunately also he does not explain the peculiar manner in which Wittgenstein generates his truth-tables. Figure 2 shows a truth-table in the style of Wittgenstein's 4.31:

Figure 1.			Figure 2.		
PQ	R	(P&Q&R)	PQ	R	(P&Q&R)
TTT	T	TTT	T	TTT	T
TTF	F	FTT	F	FTT	F
TFT	F	TFT	F	TFT	F
TFF	F	TTF	F	TTF	F
FTT	F	FFT	F	FFT	F
FTF	F	FTF	F	FTF	F
FFT	F	TFF	F	TFF	F
FFF	F	FFF	F	FFF	F

As can be seen, figure 2 cannot be reduced to figure 1 by simply permuting columns. What is the rationale behind Wittgenstein's deviant choice in figure 2?

An answer can be found at 4.27. Here Wittgenstein does not use the above simple-minded way for calculating the number of truth-possibilities with respect to a certain number of elementary propositions. He uses the formula¹:

$$K_n = \sum_{v=0}^n \binom{n}{v}$$

Here K_n is the total number of possible combinations, n is the number of propositional letters, and $\binom{n}{v}$ is understood

as choosing v out of n possibilities. It is calculated as:

$$\frac{n!}{v!(n-v)!}$$

For instance, for $n = 3$, and $v = 1$, $\binom{3}{1}$ equals 3. In

Wittgenstein's truth-tables this accounts for giving one of the three positions an F and the other two a T . There are three possibilities to do that, as witnessed by rows two to four, in Wittgenstein's truth-table. Accordingly, the total number of truth-combinations is:

$$\binom{3}{0} + \binom{3}{1} + \binom{3}{2} + \binom{3}{3} = 1 + 3 + 3 + 1 = 8$$

The truth-table is generated, following these different possible combinations. With the aid of Pascal's Triangle Formula one readily proves by mathematical induction that $K_n = 2^n$.

In 4.42 Wittgenstein yet again uses such combinatorial sums:

Bezüglich der Übereinstimmung und Nichtübereinstimmung eines Satzes mit den Wahrheitsmöglichkeiten von n Elementar-sätzen gibt es $\sum_{x=0}^{K_n} \binom{K_n}{x} = L_n$ Möglichkeiten.

L_n is the number of ways in which T and F can be distributed over the K_n rows in Wittgenstein's truth-table over n elementary propositions. First we add the single possibility of assigning only F to all the rows. Then successively we add the number of ways in which to have a single T and the rest F 's, etc. Accordingly, in our example, where $n=3$, the total number of distributions is:

$$\binom{8}{0} + \binom{8}{1} + \binom{8}{2} + \binom{8}{3} + \binom{8}{4} + \binom{8}{5} + \binom{8}{6} + \binom{8}{7} + \binom{8}{8} = 1 + 8 + 28 + 56 + 70 + 56 + 28 + 8 + 1 = 256$$

and so we have a truth-table of 256 rows, eight argument-columns, and one value-column.

Wittgenstein's way does not require calculating the number of possibilities prior to constructing the truth-table. When the number of elementary propositions is large, the contemporary way of generating truth-tables is easier and probably a lot faster. On the other hand Wittgenstein's truth-tables show more of the idea behind the truth-tables, namely that of representing the truth-possibilities².

¹ In his letter to C.K. Ogden of 10.5.1922, Wittgenstein changes his notation for combinatorial sums to that of Ramsey's. He does not explain why he uses this formula instead of 2^n . (Wittgenstein, 1973)

² I want to thank Prof. Göran Sundholm for the suggestion that I write this note and for directing me to the relevant literature.

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The Life of Truth

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The metaphor of truth having a life helps consider the relations between truth and time. In what respects is truth dependent on time? Does truth have a life? Are there any living truths? Are there any dead truths? The metaphor is not to be intended in the sense of truth having an ending life. The thesis I want to defend is this: For every truth T , T is either eternal or immortal. To put it differently, I claim that truth is permanent (not temporary). So the complete title of this paper should be 'The never-ending life of truth'.

Sections 1 and 2 deal with eternal and immortal truths respectively and the grounds for making this distinction. In Section 3, I ask whether such a distinction holds for falsities as well and conclude it does. In Section 4 some consequences of the distinction are drawn. Finally, in Section 5 some hard cases are considered.

1. Eternal Truths

A preliminary question I won't deal with is what the truth-bearers are, what 'true' is predicated of. Are they propositions, sentences, statements, beliefs? I do not think that an answer is essential to the theses I will argue for. The main claim of this paper is that, whatever a truth-bearer is, truth is either eternal or immortal¹.

Our first question is: Is truth dependent on time? There are truths which are not dependent on time. Consider the following:

(1) $2 + 2 = 4$.

Truths as (1) are absolute truths, that is, not dependent on time. These I shall call *Eternal Truths*. (I leave aside considerations on mathematical objects: if you are an intuitionist, take it as a fungible example). Beside there are truths which are dependent on time. Consider the following:

(2) Caesar crossed the Rubicon.

Truths as (2) are relative truths, that is dependent on time. In what sense, one may ask, are they dependent on time? They have a date of birth. Before 49 BC, it wasn't true that Caesar crossed the Rubicon. After 49 BC, it is. In this sense, truths as (2) are dependent on time, while truths as (1) are not, since the latter are always such. (To put it in modal terms, absolute truths are necessary truths, relative truths are contingent truths.) These are the grounds for making such a distinction, but a further question must be posed concerning the relative truths.

2. Immortal Truths

The question concerning the relative truths is this: Must we distinguish between past, present, and future truths? If truth has a life, why not distinguish the (living) truths of the present and the (non-living) truths of the past and future? Compare the following examples:

(2) Caesar crossed the Rubicon

(3) Paris is the capital of France

(4) A sea-fight will occur tomorrow.

One may think at the following hypothesis: present cases like (3) are living truths, since Paris is presently the capital of France; past cases like (2) are no more living truths, since Caesar is not presently crossing the Rubicon; future cases like (3) are not yet living truths, since the sea-fight is not occurring now. Thus one may think that past cases are dead truths and future cases are not yet living truths, for the only kind of living truths are present truths.

This is not the correct picture of the relations between truth and time. It is true that truth may have a life, but not in this sense. For, once a truth is such, it remains forever such. Once true, forever true. It is obviously true that Caesar is not presently crossing the Rubicon, but this does not imply in any sense that it is no more true that in 49 BC Caesar crossed the Rubicon. Once a truth becomes such, nothing can change it and turn it into falsity. History goes on indeed, but the truths of the past cannot be turned into falsities. Think of the absurd consequences of the contrary hypothesis: it would imply that it is both true and false that in 49 BC Caesar crossed the Rubicon.

Thus, if I am right, we must recognize that past and present truths do have a date of birth but do not have a date of death. Once they are born, so to say, they have a never-ending life. These I shall call *Immortal Truths*.

Notice the difference between eternal truths and immortal truths. *Eternal Truths* do not have a date of birth nor of death. *Immortal Truths* have a date of birth but not of death.

Now what about future cases like (4)? Once a relative truth becomes such, it never dies. But cases like (4) are not yet truths. Unless determinism is a correct picture of the world and history (which I do not believe but cannot discuss here), the future is open. Presently is neither true nor false that a sea-fight will occur tomorrow. So, (4) is presently neither true nor false.

To resume about relative truths. Past and present truths are immortal truths; future truths are not really truths. (An interesting question which I cannot treat here is when and how a present truth becomes a past truth).

By consequence, the main thesis of this paper is demonstrated: For every truth T , T is either eternal or immortal, since it is either an absolute truth as (1) or a relative truth as (2) and (3), while cases like (4) are not truths.

Notice that claiming the never-ending life of truth, the permanence of truth, does not commit one to the bivalence principle. The question is not: For every statement S , S is either true or false. It is rather: For every true statement TS , TS is forever true (either eternally or immortally).

¹ Another question I won't deal with is the relation between truth and meaning. On truth, the past, and theories of meaning cf. Dummett 1969, McDowell 1978, Dummett 2003.

3. Eternal and Immortal Falsities?

Does the same distinction apply to falsities? Is it the case that a falsity is either eternal or immortal? Consider the following:

(1') $2 + 2 = 5$.

This seems to be an eternal falsity, while (1) is an eternal truth. Such a falsity is not dependent on time. Now consider the following:

(2') Caesar crossed the Mississippi.

This is not an eternal falsity, since in principle it was not impossible for Caesar to cross the Mississippi. Actually it didn't happen and then, after the death of Caesar, we are entitled to say that (2') is an immortal falsity. Such a falsity is dependent on time and has a date of birth, namely the death of Caesar or whatever date in Caesar's life we take (2') as referring to and at which he didn't cross the Mississippi. But consider the next example:

(3') Paris is the capital of Russia.

This is not an eternal falsity, since in principle it is not impossible for Paris to become one day the capital of Russia. Actually it is not the case, but one day it might happen. So, this is not an eternal falsity but whether it is an immortal falsity is not clear. It is obviously dependent on time, but the difference with (2') is that the possibility stated by (2') passed away, while the possibility stated by (3') is still open to realization. On the other hand, if we take the statement as referring to particular spatio-temporal circumstances, we must take (3') as saying that, as we are concerned, in 2005 Paris is not the capital of Russia. In this sense it is an immortal falsity, since nothing can turn it into truth. It might happen one day that Paris becomes the capital of Russia, but that would not turn into truth the false statement that in 2005 Paris is the capital of Russia.

The conclusion to be extracted from that is that both falsities concerning the past and the present are immortal falsities. (As to statements about the future, the problem does not rise if we take them to be, as I said in the previous Section, neither true nor false).

To resume about falsities. Falsities which are not dependent on time are *eternal* falsities. Falsities which are dependent on time are *immortal* falsities. So it is clear that there is, if I am correct, a perfect symmetry with the thesis concerning truth. For every falsity F , F is either eternal or immortal.

4. Consequences of the Distinction

Consider some important consequences of the distinction between eternal and immortal truths (or falsities). For instance, some consequences concerning their knowledge. In general, inquiring is justified since truth is permanent (were it temporary, it wouldn't). As to eternal truths, conceptual inquiry and analysis is justified since they are always true. As to relative truths, empirical and historical inquiry is justified since past and present truths never die. The evidence at our disposal may be scarce or inadequate, or lacking. If evidence of p is lacking, we are incapable of asserting p . But this does not mean that truth is assertability (cf. Putnam 1999, 49-59). For some empirical statements at least, we must recognize a gap between what p says and what counts as a proof of p (cf. Dummett 2003, 32-34). If truth were assertability, the content of p would be identical with the proof of p , that

which is incorrect. The difficulty of identifying truth with assertability is evidence in favor of our claiming the permanence of truth. Assertability is a mortal property. Truth and falsity are not. Furthermore, consider the role of new evidence ruling out a previously accepted hypothesis: we conclude that the hypothesis was *thought of as true*, not that it turned from truth into falsity². (Otherwise the sense of inquiring itself would be completely different.)

There are also practical consequences. It is the permanence of truth that determines the practical usefulness of true beliefs. Some pragmatists claimed that truth is usefulness and that a true belief becoming useless stops being true (cf. James 1907). They claimed, in this sense, that truth is temporary. Our practical experience counts as evidence for the opposite, as more acute pragmatists recognized (cf. Ramsey 1927, Dokic and Engel 2002). The truth-conditions of a belief are identical with the success-conditions of an action based on that very belief.

5. Hard Cases

There are hard cases contending indeed our previous distinctions. Consider a past or present case on which we have no evidence at all, for instance:

(5) On the night of his eighteenth birthday, Napoleon sneezed three times.

(6) In New Zealand, 100 persons are actually sneezing.

On the one hand, one may think that these cases are neither true nor false. There are plausible ways to resist such a conclusion (even on non-realist assumptions³), in particular conditionalist accounts of the following kind: If someone were present on the night of Napoleon's eighteenth birthday, he could have verified the immortal truth or falsity of (5). Similarly: If someone were connected in the appropriated way with everyone actually in New Zealand, he could verify the immortal truth or falsity of (6). But this issue does not directly impinge on the claim of this paper. Remember the issue is not whether the principle of bivalence holds, but whether truth is permanent (eternally or immortally) or temporary. In this respect we must admit that, as we saw in Section 4, the lack of evidence cannot turn into falsity a true statement or vice versa.

Now consider some harder cases, namely some future cases of which we seem entitled to predicate the truth:

(7) In the year 3000 the author of this paper will be dead

(8) The war will provoke a great amount of suffering

(9) The fire is going to burn the house.

The problem is that, on the one hand, we resist predicating truth-values of statements about the future and that, on the other, some of those statements at least seem to be true. The truth of (7) is grounded in a law of nature concerning human beings. The truth of (8) in the necessary consequences of war. The truth of (9) in the dispositions of fire and of the materials the house is constituted of. Now the question is: What kind of truths are these? These are not eternal truths, for they depend on time. Nor are they

² "The geocentric hypothesis in astronomy is a case in point; we regard it not as a superseded truth, but as a former theory which never was in reality true. If any judgment is really true, the presumption is in favour of its predicate always remaining the idea which will represent the reality sufficiently for all purposes which ought to be recognised in making the judgment." (Macintosh 1912, 180)

³ See Dummett (2003, 28) on truth and a justificationist (not strictly verificationist) account of meaning: "a statement about the past could be true if someone at the relevant time could have verified it, even though all reason for asserting it may have blown away."

immortal truths, for they lack a date of birth. Using the metaphor of life, we might say that these are truths about to be born, truths-to-be. The relevant laws of nature and dispositions make them similar to eternal truths even though they refer to spatio-temporal circumstances as immortal truths do. Whether they are reducible to eternal or immortal truths, remains in my opinion an open question.

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Grenzen der Zeit: Wie die Urknall-Kosmologie die Wissenschaftstheorie in Frage stellt

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Einführung

In den letzten Jahren wurde erstmals ein konsistentes Weltmodell formuliert, das die Struktur und Entwicklung des beobachtbaren Universums widerspruchsfrei und empirisch adäquat beschreibt. Zugleich werden die Hypothesen der Kosmologen immer spekulativer. Der Vortrag analysiert und bewertet das Problem der Anfangsbedingungen in Quantenkosmologie und Wissenschaftstheorie: Welche kosmologischen Erklärungen sind möglich, wenn die Gesetze selbst Anfangsbedingungen sind und/oder wenn in den üblichen Erklärungsschemata Anfangs/Randbedingungen bekannt sein müssen, in der Kosmologie jedoch gerade erklärt werden sollen? Damit zusammen hängt auch die potenzielle Unüberprüfbarkeit kosmologischer Aussagen über den physikalischen Zustand vor oder anstelle der klassischen Urknall-Singularität und die potenzielle Unterbestimmtheit kosmologischer Modelle.

Die moderne Urknall-Kosmologie, die nach einer Erklärung für die Entstehung unseres Universums sucht, stößt somit auf grundlegende wissenschaftstheoretische Fragen, zum Beispiel: Welches Erklärungsmodell lässt sich hier überhaupt noch anwenden? (Die Standardtypen sind deduktiv, nomologisch, kausal, Vereinheitlichung/Reduktion, teleologisch, anthropisch, transzendent). Und was ist der Status und die Rechtfertigung von Prinzipien (Symmetriebrüche, Kosmologisches Prinzip, Anthropisches Prinzip)?

Hier ist auch die Philosophie gefordert – nicht, um konkrete physikalische Antworten zu liefern, aber zur Begriffsklärung, zur Reflexion über die Voraussetzungen und zur Auslotung des Möglichkeitsraums sowie zur Rekonstruktion der Erklärungstypen. Dabei ist zu beachten, dass die kosmologische Grundlagenforschung zwar teilweise extrem hypothetisch ist, aber deswegen nicht irrational oder beliebig. Auch sind die Fragen nach anderen Universen und den fundamentalen Konstanten und Gesetzen sowie den Anfangsbedingungen nicht sinnlos.

Zuweilen wird behauptet, solche Fragen seien sinnlos oder unwissenschaftlich ("metaphysisch") oder illegitim, weil schließlich nicht *alles* erklärt werden könne, weil die Wissenschaft überhaupt nichts erklären könne oder weil Warum-Fragen gar nicht in den Bereich der Naturwissenschaft gehörten. Hieran sind aber weder die Behauptungen noch die Begründungen richtig. Bei jedem Faktum *darf* "warum?" gefragt werden, und mit jeder Erklärung versucht der Wissenschaftler, solche Fragen zu beantworten. Dass man dabei nicht zu einer letzten Antwort, zu einer abschließenden Erklärung, zu einem unbewegten Beweger, zu einer *causa prima* kommt, macht die Suche nach *tieferen Erklärungen* keineswegs überflüssig oder hoffnungslos. Auch daß ein *erklärendes* Naturgesetz aus der Sicht der nächsttieferen Ebene zur *beschreibenden* Gesetzmäßigkeit herabgestuft wird, zeigt nur den relationalen Charakter von Erklärung und Beschreibung, nicht aber die Unmöglichkeit von Erklärungen überhaupt. (Gerhard Vollmer)

Nachfolgend eine Übersicht wichtiger Erklärungsmöglichkeiten und theoretischer Alternativen:

1. Anfangsbedingungen

(1) Viele verschiedene Anfangsbedingungen sind physikalisch möglich oder wirklich. Diese Auffassung führt im Extremfall zu einem "Prinzip der Fülle" und der Annahme vieler verschiedener Universen, von denen jedes beispielsweise die Instantiierung spezifischer Anfangsbedingungen sein kann. Warum wir diejenigen, die wir beobachten, tatsächlich beobachten, könnte dann an einem trivialen Selektionseffekt liegen: Unter anderen physikalischen Bedingungen könnten wir schlichtweg nicht existieren. Diese anthropische Erklärung ist freilich keine Kausalerklärung im tieferen Sinn.

(2) Die Anfangsbedingungen sind für die Entstehung unseres Universums irrelevant, weil es sich aus ganz unterschiedlichen entwickelt haben könnte. Dann muss es einen physikalischen Attraktor gegeben haben, also ein Zustand, zu dem sich alle oder zumindest viele verschiedene Ausgangssituationen hin entwickeln, und aus dem dann ein Universum wie unseres resultiert. Solche Attraktorklösungen wurden für diverse kosmologische Szenarien diskutiert: Gemäß der Hypothese von der Kosmischen Inflation werden die Anfangsbedingungen durch eine hinreichend lange Phase der exponentiellen Expansion gleichsam "vergessen" oder sogar unendlich weit in die Vergangenheit zurückverlegt. Schon in den Mixmaster-Modellen wurde versucht zu erklären, wie sich aus einem chaotischen Urzustand die spezifische Ordnung unseres Universums entwickelt haben musste. Im Modell des Zyklischen Universums im Rahmen der Stringkosmologie führen ganz unterschiedliche Anfangsbedingungen (im Fall der Ausrichtung der Branen-Universen) zum selben Resultat (eine nahezu simultane Kollision dieser Paralleluniversen, was einem Urknall entspricht).

(3) Eine noch stärkere Hypothese besagt, dass es nur eine einzige oder überhaupt keine Anfangsbedingung geben konnte. Das müsste dann von einem physikalischen Gesetz festgelegt worden sein. So spekulierte Stephen Hawking, dass die Anfangsbedingung des Universums genau die gewesen sei, dass das Universum keine Anfangsbedingung hatte (*no boundary proposal* im Rahmen einer mit Pfadintegralen beschriebenen euklidischen Quantengravitationstheorie). Wenn die Anfangsbedingungen nomologisch erklärbar sind, lässt sich allerdings nicht mehr von Anfangsbedingungen im üblichen Sinn sprechen. Umgekehrt kann man argumentieren, dass in der Kosmologie das physikalische Gesetzesgefüge selbst eine Art von Anfangsbedingung ist – zumindest für unser Universums.

(4) Schließlich wird versucht, die Anfangsbedingung(en) durch spätere Randbedingungen zu ersetzen. So könnte der gegenwärtig beobachtbare physikalische Zustand des Universums schon hinreichend sein, um den mutmaßlichen Anfang der Zeit zu erklären, nämlich im Sinn einer Retrodiktion (das ist Stephen Hawkings aktuelle Version einer *top-down*-Kosmologie durch Beobachter-

selektion, wonach die quantenkosmologische Wahrscheinlichkeitsverteilung irrelevant ist, da ja eine – gegenwärtige – Messung vorliegt). Noch stärker ist die Loop-Quantenkosmologie von Abhay Ashtekar und Martin Bojowald, die von einer Quantengravitationstheorie (der *loop quantum gravity* oder *Riemannian quantum geometry*) ausgehend durch Symmetriebedingungen und Vereinfachungen eine Zusatzbedingung ableiten kann. Dann genügt es, die Eigenschaften des Universums heute als "Input" für die Gleichungen zu nehmen und zurückzurechnen. Neben den bekannten Naturkonstanten ist hier vor allem die Alltagserfahrung entscheidend, wonach sich die Natur nicht binnen kürzester Zeit radikal ändert. In diesem quantenkosmologischen Ansatz werden die Anfangsbedingungen des Universums selbst ein Teil der Naturgesetze und sind somit nicht länger unerklärlich.

2. Fundamentale Konstanten

Verschiedene Möglichkeiten sich auch für den Status beziehungsweise die Erklärbarkeit der fundamentalen Konstanten denkbar:

(1) Es existieren viele Naturkonstanten (wie die Lichtgeschwindigkeit, Planck-Konstante, Gravitationskonstante), die nicht weiter ableitbar oder reduzierbar sind und deren Werte nicht erklärt, sondern nur empirisch bestimmt werden können. Insofern wären die Konstanten kontingent. Warum wir in einem Universum mit den Konstanten, die wir messen, leben, wäre dann nicht weiter erklärbar. Wenn es allerdings viele Universen mit ganz unterschiedlichen Konstanten gäbe, käme der Selektions-effekt des (schwachen) Anthropischen Prinzips zum Tragen.

(2) Es existiert nur eine einzige Naturkonstante (beispielsweise die String-Länge), und alle anderen sind aus ihr und den physikalischen Gesetzen deduzierbar. Das wäre ein großer Erfolg für eine Theorie, lässt aber noch wesentliche Fragen offen: Warum hat die Konstante den Wert, den sie hat? Ist er durch die Theorie fixierbar (dann wäre die Konstante strenggenommen keine empirische Größe mehr), oder sind viele oder gar alle möglichen Werte denkbar? In diesem Fall stellt sich erneut die Frage nach anderen Universen und der Anwendung des Anthropischen Prinzips. Denkbar ist auch, dass die Werte dieser Konstante (oder aller fundamentalen Konstanten, wenn es mehrere gibt) nicht zufallsverteilt sind, sondern einer – wiederum durch ein Gesetz determinierten – Wahrscheinlichkeitsverteilung mit einem Maximum (oder mehreren) gehorchen. So wäre es möglich, dass die Naturkonstante(n), die wir messen, nicht (nur) anthropisch selektiert sind, sondern in der Nähe dieses Maximums liegen und insofern statistisch erklärbar sind. Diese Überlegung liegt beispielsweise Lee Smolins Szenario vom kosmischen Darwinismus zugrunde, wonach sich Universen über die Bildung Schwarzer Löcher gleichsam fortpflanzen und solche besonders vermehrungsfreudig und somit wahrscheinlich sind, die von einem besonders "fruchtbaren" (im Hinblick auf die Entstehung Schwarzer Löcher) Ensemble von Naturkonstanten gekennzeichnet sind. Smolin zufolge ist unser Universum ein Beispiel dafür – und auch besonders "lebensfreundlich" (bezogen auf erdähnliches Leben), weil die Bedingungen dafür ähnlich sind wie die für die Entstehung Schwarzer Löcher.

(3) Es existiert überhaupt keine Naturkonstante. Aus einer "finalen Theorie" lassen sich alle bekannten Konstanten letztlich ableiten oder erklären. Sie sind also eliminierbar wie die konventionellen metrischen Einheiten, wenn man

auf "natürliche Einheiten" (Planck-Größen) übergeht und beispielsweise $c = h = G = 1$ setzt.

3. Fundamentale Gesetze/Theorien

Schließlich stellt sich die Frage nach dem Status und der Möglichkeit fundamentaler Gesetze oder Theorien.

(1) Ist unser Universum einzigartig und einzig, oder existieren viele andere Universen, die mit anderen physikalischen Gesetzen und Theorien beschrieben werden müssen? Wenn letzteres der Fall wäre, könnte es eine noch umfassendere, multiversale Theorie geben, von der die einzelnen fundamentalen Theorien wiederum nur Spezialfälle wären. Eine solche Supertheorie könnte als "Multiversum-Generator" fungieren, insofern sie beschreiben müsste, wie die vielen verschiedenen Universen möglich und wirklich sind. Auch hier könnte wiederum ein echtes Prinzip der Fülle herrschen, insofern alle Lösungen der Supertheorie gleichberechtigt sind. Oder es existiert eine Wahrscheinlichkeitsverteilung ähnlich wie oben bereits diskutiert.

(2) Wenn es nur eine fundamentale Theorie ("theory of everything", TOE) gäbe, hören die Probleme dennoch nicht auf. Existieren viele Versionen dieser Theorie (korrespondierend mit vielen Universen?), herrscht geradezu eine "mathematische Demokratie" (wie Max Tegmark vermutet hat) und sind also doch wieder anthropische Kriterien relevant? Oder ist die TOE eindeutig, einzigartig, logisch isoliert oder logisch ausreichend (etwa als einzige einem Selbstkonsistenzprinzip genügend)? Ist sie letztlich logisch deduzierbar, so dass die Empirie nur eine Art Wittgenstein'sche Leiter darstellt, die man nach dem Anstieg auf die höhere Werte wegwerfen kann, weil sie fortan überflüssig ist? Doch selbst dieser stärkste Ansatz wird die Kontingenz nicht eliminieren. Denn aus dem Gödel-Chaitin-Theorem folgt, dass auch sie einen unerklärlichen Rest enthält und aus prinzipiellen Gründen nicht letztbeweisbar sein kann. Insofern bleibt das Universum oder Multiversum ultimativ zufällig oder unerklärbar. Und somit wird sich auch die uralte Frage, warum überhaupt etwas ist und nicht vielmehr nichts, im Rahmen einer physikalischen Kosmologie nicht beantworten lassen.

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mit vielen Verweisen zu den hier angesprochenen Aspekten:

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Investigating Wittgenstein's Notes on Logic of 1913 and 1914

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In a letter to Russell, dated 22 May 1915, Wittgenstein writes:

Received today your kind letter of 10.5. (...) I'm extremely sorry that you weren't able to understand Moore's notes. I feel that they're very hard to understand without further explanation, but I regard them essentially as definitive [*im Wesentlichen für endgültig richtig*]. And now I'm afraid that what I've written recently will be still more incomprehensible, and if I don't live to see the end of this war I must be prepared for all my work to go for nothing. – In that case you must get my manuscript printed whether anyone understands it or not. (CL, 102)

The "notes" mentioned above correspond to item D 301 in von Wright's 1982 catalogue of the *Nachlass*, the manuscript produced by Moore from his talks with Wittgenstein in Skjolden in April 1914. It is printed as Appendix II of Wittgenstein's *Notebooks 1914-1916* under the title "Notes dictated to G.E. Moore in Norway". If we take into consideration two letters to Moore of 18 February and 7 May 1914 (cf. CL, 76-77 and 85-86), as well as another letter certainly following a telegram sent on 10 March (cf. CL, 82 and 83), it becomes manifest that Wittgenstein wrote at that time a work entitled "Logik", which he meant to use to obtain his BA degree.

Consequently, the notes Moore denominated "Wittgenstein on Logic, April 1914" are evidently a synthesis in English of that German text. The "manuscript" Wittgenstein refers to in the letter to Russell of 22 May 1915 must be, therefore, the one of "Logik", not the notes which compose MS 301, in such a way that his investigations in the first two wartime notebooks (MSS 101-102) still had that work as a reference.

In fact, Wittgenstein holds Moore's notes "essentially as definitive", something that does not happen in relation to his first philosophical record, the "Notes on Logic" (TS 201) – if one excludes his review of P. Coffey's *The Science of Logic*, published on March 1913 in *The Cambridge Review*. TS 201(a-1) consists in a "Summary" of Wittgenstein's conceptions, dictated at the request of Russell to P.E.B. Jourdain's secretary at the beginning of October 1913. We shall never know if the typescript has been prepared by Russell himself or by someone else, but we know that Wittgenstein corrected it later, when he was already in Skjolden. In addition there is a manuscript in Russell's hand divided into four sections ("First MS.", "2nd MS.", "3^d MS." and "4th MS."), undoubtedly a translation of a German text organized in such a form, despatched to Russell in October. Three letters of Wittgenstein to Russell, dated 20 September, 17 October and 29 October (cf. CL, 39-40, 41-42 and 45-46), together with two other undated, apparently from November 1913 (cf. CL, 47-49 and 50-51), allow to reconstruct in its main lines the sequence of events (and see McGuinness 2002, 244-247 and 257, Monk 1990, 91-93, Biggs 1996a, 7-10, and Geschowski 2001, 9-14).

Now, in another undated letter to Russell, from November or December 1913, Wittgenstein says:

The big question now is, how must a system of signs be constituted in order to make every tautology

recognizable as such IN ONE AND THE SAME WAY? This is the fundamental problem of logic! – I am convinced I shall never publish anything in my lifetime. But after my death you must see to the printing of the volume of my journal [*Band meines Tagebuchs*] with the whole story in it." (CL, 61)

In all probability, "the volume of [Wittgenstein's] journal with the whole story in it" was the same which originated the "Notes on Logic", containing in its continuation remarks that later formed "Logik". This can only be the pre-war notebook alluded to in the very first entry of MS 101 (cf. 9.8.14: 1r) and in a list of Wittgenstein's papers, dated January 1917, written out by his sister Hermine (cf. FB, 42). The other volumes were for certain the ones Wittgenstein had left in Cambridge and that in a letter of November 1919 asked Russell to destroy (cf. CL, 135). Wittgenstein's four German "manuscripts" thus derived directly from the missing Norwegian notebook. They are obviously related to the report we have that on 7 October 1913 Wittgenstein dictated in Birmingham "extracts from his notebook to a German short hand writer" (McGuinness 2002, 257; see also the entry in Pinsent's diary for this day in von Wright 1990, 87).

But apart from TS 201a-1 there remains only a similar typescript, TS 201a-2, prepared by Russell before leaving to the United States in March 1914. It consists also of a "Summary" and of another part, here typewritten, which also contains four sections ("First MS.", "Second MS.", "3rd. MS." And "4th. MS."). The most significant feature of this typescript is the fact that it bears as marginalia the Roman numerals I-VI and the word "Preliminary". Russell's aim was to rearrange Wittgenstein's propositions and according to McGuinness (2002, 251-252) this rearrangement might have been made in a copy of TS 201a-2, "by cutting out the paragraphs, putting them in seven piles, arranging each pile in the desired order by shuffling (and in many cases by subdividing individual paragraphs), throwing away unwanted doublets, pasting the remaining slips on new sheets, and then writing in manuscript additions or corrections to improve the style and the continuity". It may have been on the basis of this hypothetical text that H.T. Costello organized the "Notes on Logic" of 1957 (TS 201b), printed as Appendix A of the first edition of Wittgenstein's *Notebooks*. In his introduction, Costello (1957, 230) explains that "[i]n the spring of 1914 Bertrand Russell came to Harvard as a visiting lecturer [having] with him some notes and excerpts, giving the opinions of a brilliant student of his, named Ludwig Wittgenstein" and that he "copied this manuscript, dated September, 1913". Nevertheless, the term "manuscript" may perfectly mean TS 201a-2, which Russell entitled "Notes on Logic by Ludwig Wittgenstein September 1913" and to which he prepared in a separate sheet a list of seven section headings, precisely those of the Costello version (see McGuinness 2002, 247-248, and Biggs 1996a, 4-5). The mistaken date "September 1913" was probably inserted in February 1914, when, following McGuinness (2002, 257), "Russell was busy translating, classifying, and copying" the notes Wittgenstein had left him in October.

Now, McGuinness (2002, 243) reminds us that in the early 1950s Russell showed to D. Shwayder

Wittgenstein's "Notes on Logic", in his opinion the "pair of typescripts" constituting item 201a-2, referring that "copies made from them enjoyed a certain circulation". And then he asserts that "[t]he Costello version is obviously a rearrangement under chapter headings of the Shwayder version". Taking McGuinness literally, Biggs (1996a, 14-22; 29-33), based on a photocopy of a typescript held at the Wittgenstein Archives at the University of Bergen identified as the Shwayder version, has proved that the Costello version does not derive from what he called TS 201a-3 (which is edited in Biggs 1996b). According to Biggs (1996a, 10-13), Costello must have copied the "Notes on Logic" from a "rearrangement, possibly still in manuscript" of TS 201a-2, made by Russell using the typescript consisting of cuttings which McGuinness conjectures. However, in a "Note added in 2001", mentioning the research carried out by Biggs, McGuinness (2002, 258) states that he is "now inclined [...] to believe that the actual composition of the Costello version was probably due to Costello himself, working on the basis of Russell's indications of the sections to which each remark was to be assigned and of the titles of those sections". He goes on saying: "This is much more likely than that Russell himself (a man who had never tied up a parcel in his life) undertook the work of marquetry that I have described." And he concludes: "On this new hypothesis the manuscript from which Costello 'copied' the Notes may have been the very manuscript [...] with Russell's marginal numbering." (2002, 258) It is clear from these passages that, after all, McGuinness does not reject the possibility of Costello having composed TS 201b in 1914. As a matter of fact, despite the opening references to the Shwayder version, he has already affirmed: "(...) Russell sailed for America on 7 March and presumably had with him, already prepared, the 'manuscript' that Costello copied." (2002, 253) The only explanation for this apparent contradiction is that McGuinness alludes to the Shwayder version because of its "certain circulation", meaning with it TS 201a-2. As a consequence, McGuinness' early suggestion that the Costello version of "Notes on Logic" might have been the text Wittgenstein intended to submit as a BA dissertation in 1914 (see 2002, 253-254) must now be, in his mind, out of the question.

Therefore, there is only one genuine version, as it were, of the "Notes on Logic", TS 201a-1. Indeed, Russell's rearrangement, from which derives indirectly the Costello version and directly the Shwayder one, does not restore Wittgenstein's text as TS 201a-1. Nevertheless, it was not this version that the editors of Wittgenstein's *Notebooks* adopted for the second edition of the book, since, besides TS 201a-1, they also made use of TSS 201a-2 and 3. But, even considering the "Summary", TS 201a-1 is quite far from the corresponding parts in the notebook which gave rise to that material, from which derive also the notes Moore took, so highly regarded by Wittgenstein.

The significance of these notes were already pointed out to Russell in an undated letter presumably from June 1914:

Just a few lines to tell you that I received your kind letter and that my work has made considerable progress in the last four or five months. But I have now relapsed into a state of exhaustion and can neither do any work nor explain what I did earlier. However I explained it *in detail* to Moore when he was with me and he made various notes. So you can best find it all out from him. Many things in it are new. – The best way to understand it all would be if

you read Moore's notes for yourself. It will probably be some time now before I produce anything further. (CL, 88)

With the outbreak of the war on 28 July 1914, Russell's reply would reach Wittgenstein much later. He replied to Russell as far as it seems at Christmas:

It was only today that I got your kind letter which you wrote me on 28th July. I find it inconceivable that Moore wasn't able to explain my ideas to you. Were you able to get anything at all out of his notes? I'm afraid the answer is, No. If I should not survive the present war, the manuscript of mine that I showed to Moore at the time will be sent to you, along with another one which I have written now, during the war. (CL, 92-93)

The "manuscript" Wittgenstein mentions here is once more the notebook of "Logik". The other corresponds clearly to MSS 101-102, the first initiated on 9 August and the second, continuing it, on 30 October 1914, which, as can be seen from Hermine's list, constitute a single item.

Some time after, in a letter to J.M. Keynes, apparently of 25 January 1915 (cf. the coded entry for this day in MS 102, 53v), Wittgenstein wonders "if Russell [had] been able to make anything out from the notes [given] to Moore [at] Easter" (CL, 98). However, only on 10 May 1915 did Russell confess to Wittgenstein that he had "got from Moore everything he had to report about tautologies etc., but it was intelligible to [him] only in very small measure" (CL, 100). This letter, which motivated Wittgenstein's discouragement expressed in his reply of 22 May, would have a sequel in one of 21 June 1919, where Russell declares that "what [Wittgenstein] dictated to Moore was not intelligible to [him]" (CL, 118). The context is as follows: Wittgenstein had sent the typescript of the *Tractatus* to Russell and got in the meantime his *Introduction to Mathematical Philosophy*. Then he wrote to Russell on 12 June saying:

I should never have believed that the stuff I dictated to Moore in Norway [...] would have passed over you so completely without trace. In short, I'm now afraid that it might be very difficult for me to reach any understanding with you. And the small remaining hope that my manuscript might mean something to you has completely vanished. (CL, 116)

It is quite obvious from subsequent sources that Russell misunderstood the points at issue in Wittgenstein's "manuscript" (TS 202), namely the fundamental distinction between *saying* and *showing*, which is the main idea of MS 301. But a detailed comparison of these texts would be a subject for another paper.

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Presentist Variations on the Theme and Reference in (Music) Historiography

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1. It is not history (Geschichte) that should be visualized, but *historical condition* (Geschichtlichkeit) that should be understood, says Heidegger (Heidegger 2004). It is impossible to study bottom-up the way reference functions in a special kind of discourse, say historiographical discourse, i.e. building up from statements related to various historical objects to whole texts. One has to start on the discourse level and try to figure out what is special about the kind of discourse in question.

1.1. The basic intuition of presentism is right. What is critical in historiographical discourse is the fact that it takes place in the present, which is the present of historical observation. This relates to the following paradox in historical contemplation: how is it possible that we can study what is actually a finite piece of infinite time? Isn't it as if time stops when one is studying the period $t' \dots \rightarrow t$ ($t' < t$, and $t \leq p$, p = the present of historical observation)? Isn't it as if the present is petrified, an existential rock, from which one can contemplate the historical objects extended, as it were, in space?

1.2. The rock metaphor again: someone alone on a rock, say after a shipwreck, looking around, forgetting, be it for a while, what is so special about his looking, namely, that it is the *only* human looking around. The historian, on his/her part, has to forget -as a condition to his/her functioning as a historian- that his/her looking is special, due to his/her different ontological *status* from the people he/she studies; not in the obvious sense that the latter are dead (since he/she does not study them as dead but as-once-alive), but in the sense that they are images, spots on a picture, links in a chain of inference.

1.3. On the other hand, how is it possible that I, as a historian, can stand completely apart from a historical fact X, which I take, as an object of study, to be distinct and consummated, and which, at the same time, I can relate to –be it only in the epistemical sense? Which is this *ou topos* where this quasi re-enactment takes place?

Dealing with something as being in the historical past is to take it as being closed, deprived of becoming. This freezing of the historical frame corresponds to a stopping in the historian's flux of present time, something like a momentary stopping of the heartbeat for a couple of seconds in a day of one's life. This stopping interval is where historical contemplation first takes place, the place where it originates from.

2. Following Wittgenstein we can take 'time' as one of those words which plague philosophical inquiry, as a result of the latters' excursions beyond ordinary language use. However, we may reverse Wittgenstein's question and face the opposite problem: it is not so much 'time' –or 'history' for that matter- but the ordinary terms referring to historical persons or/and historical facts/events that are problematic, in the sense that they present us with a peculiar *shallowness* ("ordinary" is used here broadly enough to cover the layman and the historian alike). Talking of things past, as a special case of 'knowledge by description' ("special" in the sense that it is *a priori* by description), is shallow. "Shallow" means here: as deep as

a spot on a picture; trying to dig under a term used by somebody else to refer to an historical object –be it a person or a fact- is like trying to dig under a spot in a picture.

2.1. A picture in this sense is an epistemically indexed evaluation condition, a universe of discourse, a possible world, whereby *de dicto* readings could be infinitely shallow and then it is only by means of *de re* readings that digging under the spot can provide for meaning (both readings effected by a third person, i.e. one that interprets the historian's words). Now it is peculiar to historiographical discourse that the *de re* reading of one person is the *de dicto* of the next person and that thus all *de re* readings are reducible to *de dicto* readings, due to the ontological status of things in historical past, a kind of quasi-existence.

3. In this line of reasoning, the 'illness of history' (Nietzsche) can be described as sticking to the safety of the rock, refraining from jumping into the flux of the present. In a way, the cure from this 'illness' depends upon the attenuation or even the neutralization of the very scientific tools that are normally put forward to make the line clearer between the accomplished historical fact and the disjoint historian's present, in other words to guarantee the fact's accomplishedness and the disjointness of the historian's present. How much is history-writing affected by the 'illness' of history? In other words, which is this moment on the utopian rock of frozen time from which on history-writing starts to reproduce what Nietzsche would call the Christian, linear, life-negating model?

3.1. Example: The American composer and musicologist George Perle has written an article on the music of the fourteenth-century French composer of *Ars nova*, Guillaume de Machaut (Perle 1948). Perle detects the presence of short motives, which he says are used as "integrative devices" in Machaut's music. Perle is a twelve-tone composer and his interest in medieval music in general, and Machaut in particular, stems out of his own interests as a composer and what he calls "integrative devices" in the elaboration of the musical material. He thus construes a homology between Machaut and himself, in that both organize a previously unformed musical material with the help of 'integrative devices' such as tenor construction and short motives (the 'Floskeln' of German musicology) in Machaut, and serial techniques (using inversion, retrograde etc.) in Perle. In the picture constructed by Perle those devices are set in the theoretical framework of what he calls 'tectonics'. Perle is quite explicit in declaring that his approach is informed by the homology he sees between *Ars nova* and twelve-tone music. He actually goes so far as to rhetorically stage this homology in the way his text is layed out: the article begins with two lengthy citations, one from a text referring to the *Ars nova* isorhythmic motet, the second to the music of Arnold Schoenberg, in a way to convey the false impression that these are but two paragraphs in the same text:

In the entire history of music hardly an example is found in which the constructive energy of tectonics

attains to such a degree of rigidity as in these compositions. Of their technical refinements, however, the hearer perceives nothing. For the composer possesses the art of clothing each variation number in a brand-new tone-weft, of continually bringing on new harmonic and melodic shades and intensifications of tone, so that an impression of inevitable consistency results [Von Ficker 1929].

All the elements of the composition, down to the remotest ramifications of its less important voices, have been fabricated from one and the same texture; and all the details of the concrete forms lead back to the elements of a basic figure. The result is a stylistic purity, scarcely attainable by any other proceeding, and a really astronomical orderliness of the whole thing...Of course no listener is expected to recognize all the numerous entries and thousandfold variations [Krenek 1939].

In sum, Perle seeks and finds traces of his "integrative devices" in the compositions of Guillaume de Machaut, allegedly a kind of a proto-serial compositional method, i.e. a precursor of his own actual method of composition; So far history has been used in a positive way for Perle, i.e. Perle finds justification of his own way of seeing things as a composer in a composer of the fourteenth century and this gives him some power to move on; power, in the sense that his reading leads to the absorption of the Machaut elements to form a purely Perlean, though an enriched one, image of tectonics.

3.2. The *next step* would be either the destruction of this very image called "Machaut tectonics"; Or what would qualify as nietzschean historical-'illness' path consisting in sticking to tectonics-as-instantiated-in-Machaut, which would next lead to specify what is in Machaut that qualifies as tectonics; Which would at the end lead to the differentiation of what is specific in Machaut's method *contra* tectonics, all in all: to explaining away the first intuition linking tectonics with Machaut and breaking what started as a unitary idea to tids and bits awaiting for their proper historical allocation. The first option, i.e. the destruction of Perle's image, is the only positive way both for Perle (in order for him to continue his involvement with tectonics, as opposed to continuing his involvement with Machaut), *and* for me as an interpreter of Perle's text (be it in my capacity either as a Perle or as a Machaut scholar); actually this is the outcome of a meta-historical account like the one I just gave of Perle.

4. Historical accounts are analogical pictures of realities which do not exist any more and to which our access is limited and conditioned. "Analogical" is employed here in Nelson Goodman's sense, since the pictures in question are characterized by relative *repleteness*, and since between any two spots of the picture a third spot can always be discovered/inserted either without altering the picture or with the effect of producing a new but likewise replete picture of the same historical object. Awareness of these 'pictorial' qualities of historical accounts should lead one not to frustration over the unattainability of historical objectivity but to alertness to the possibility of a successful linking of a relevant historical piece of knowledge with the subjective interests that motivated historical inquiry in the first place; To the possibility, in other words, of moving through successive, non-vicious, hermeneutical circles -or rather spirals- in the succession: construal:destruction... *ad infinitum* - each new circle on a different level from the previous one (hence: spiral). Reference to historical objects (persons, events or situations) like reference to surrounding reality *is* possible, but, unlike reference to surrounding reality, is subject to the ontological regime of the quasi-non-existence of the historical past. In this sense this is a modified presentist thesis: "Presentist" in the sense that the only level upon which reference in history-writing is acknowledged as actually taking place is the historian's present; "Modified" because, to start with, reference to the past *is* accepted, but only in the sense that the latter is ascribed a *quasi-existence*, i.e. nor totally existent neither totally non-existent, but existent as a bi-dimensional picture whereupon historical objects are but spots of various sizes, colors, and shapes.

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„In unserer Sprache ist eine ganze Mythologie niedergelegt“. Bemerkungen zur Ethik Ludwig Wittgensteins

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Wittgenstein schreibt diesen Satz sowohl in den *Bemerkungen über Frazers Golden Bough* [1999b: 38] von 1931 als auch im *Big Typescript* [2000:291] von 1933. Was für eine Art von Mythologie ist in diesem Zusammenhang gemeint?

In seinen letzten Lebensjahren hat sich Wittgenstein verstärkt mit erkenntnistheoretischen Fragen beschäftigt. Die Ergebnisse dieser Überlegungen sind in *Über Gewißheit* [Wittgenstein 2002] veröffentlicht. Ein wichtiger Gegenstand darin ist die Unterscheidung zwischen Sätzen, die wir wissen können, und solchen, die uns lediglich gewiss sind. In diesem Zusammenhang spricht er davon, bestimmte Sätze als eine Art von Mythologie zu begreifen. Nachdem zunächst geklärt werden muss, was genau Wittgenstein unter Sätzen, die gewusst werden können, und solchen, die gewiss sind, versteht, muss noch Licht darauf geworfen werden, welche Arten von Sätzen aus welchen Gründen von Wittgenstein zur Mythologie gezählt werden, wodurch auch deutlich werden wird, in welchem Sinne „Mythologie“ hier zu verstehen ist. Ich werde im Folgenden dafür argumentieren, dass es auch Sätze gibt, die keiner der beiden Wittgensteinschen Klassifikationen eindeutig zuzuordnen sind, die aber als einer besonderen Art der Mythologie zugehörig betrachtet werden sollten. Diese Sätze haben eine epistemische Rolle zwischen Sätzen, die wir wissen können, und solchen, die uns bloß gewiss sind. Sie können meines Erachtens für die Analyse ethischer Grundbegriffe fruchtbar gemacht werden und sind in diesem Rahmen von großer Relevanz.

1. Wissen: Sätze über die Welt

Der Ausgangspunkt von Wittgensteins Überlegungen war Moores Aufsatz *A defence of common sense* (von 1925) [Moore 1977]. Darin hatte dieser geäußert, es gäbe bestimmte Sätze, die er als unbedingt wahr wisse. Dies sind Sätze folgender Form: „I have a human body“, „I am male“ oder „Ich habe zwei Hände“. Moore wollte auf diese Weise die Existenz einer von uns unabhängigen Außenwelt beweisen, indem er solche Sätze als Beispiele auswählte, von denen er der Meinung war, dass jeder sie mit Gewissheit wisse.

Wittgenstein war zwar der Auffassung, dass Moore in der Tat eine besondere Art von Sätzen genannt hat, er stritt jedoch vehement ab, dass man sie *wissen* könne. Denn: „Daß es mir – oder Allen – so *scheint*, daraus folgt nicht, daß es so *ist*. Wohl aber läßt sich fragen, ob man dies sinnvoll bezweifeln kann.“ [2002: §2] Hieraus erhellt Wittgensteins Kriterium für Wissen: Um etwas wissen zu können, muss es eine logische Möglichkeit geben, den fraglichen Satz zu bezweifeln. „Wo kein Zweifel, da auch kein Wissen.“ [2002: §121] Dass es ein Erfordernis ist, an einem Satz zweifeln zu können, hat zur Folge, dass er entweder wahr oder falsch sein können muss. Da man gemeinhin nur als Wissen bezeichnet, was wahr ist, ist es zudem noch erforderlich, den Zweifel daran - die Möglichkeit des Falschseins - durch klare Evidenz auszuräumen: „Ob ich etwas *weiß*, hängt davon ab, ob die Evidenz mir recht gibt oder mir widerspricht.“ [2002: §504] Evidenz wird

nach ausreichender Prüfung festgestellt und "[w]as als ausreichende Prüfung einer Aussage gilt, - gehört zur Logik. Es gehört zur Beschreibung des Sprachspiels." [2002: §82] Das hat zur Folge, dass niemals durch einen allein, sondern immer durch mehrere, nämlich durch die Menschen, die das Sprachspiel spielen, vermittelt Regeln letztlich bestimmt wird, welche Gründe als zwingend anerkannt werden und welche nicht, wann also etwas als ausreichend geprüft gilt. Wittgenstein fasst diese These, die sich aus den Überlegungen seines in den *Philosophischen Untersuchungen* entfalteten Privatsprachenarguments [1999c: §§ 243ff] ergibt, für diesen Zusammenhang so: „Was ein triftiger Grund für etwas sei, entscheide nicht ich.“ [2002: §271] Genau deswegen sind es diese triftigen Gründe, die die Sicherheit eines Satzes letztlich objektiv machen [2002: §270]. Sie sind der Willkür eines einzelnen entzogen und in die Verantwortung der Sprechergemeinschaft überstellt.

In dem Sinne von *Über Gewißheit* besteht Wissen nur, wo es eine Möglichkeit des Zweifels gibt, und wo die Möglichkeit der Falschheit eines Satzes ausgeräumt worden ist. Die Art von Sätzen, die in Frage kommt, um gewusst werden zu können, sind deshalb Sätze über die Welt. Nun hängt zwar, wie ich soeben erläutert habe, von der Sprechergemeinschaft ab, welche Gründe für die Wahrheit eines Satzes über die Welt anerkannt werden, und damit auch, was am Ende als Wissen anerkannt wird. Wittgenstein betont gar, dass: „[d]as Wissen [...] sich am Schluß auf der Anerkennung [gründe].“ [2002: §378] Das bedeutet jedoch nicht, dass die diesbezüglichen Regeln willkürlich in der Weise sind, dass sie ganz ohne Bezug zur Welt entstünden. Es ist die Erfahrung jeweils jedes Einzelnen [2002: §275], die entscheidend ist. Auf diese Weise sind die Regeln mit der Welt verwoben. Der Lebensvollzug der Menschen beeinflusst folglich die Ausprägung der Regeln. In *Über Gewißheit* findet sich zur Verdeutlichung ein Beispiel, dass unsere bisherige Erfahrung mit Büchern uns gelehrt habe, dass sie nicht einfach so verschwinden. Was wäre nun aber, wenn sie es plötzlich doch täten? „Nun, angenommen, wir fänden, daß unter bestimmten neuen Umständen Bücher verschwinden – würden wir nicht unsere Annahme ändern? Kann man die Wirkung der Erfahrung auf unser System von Annahmen leugnen?“ [2002: §134] Wittgensteins Antwort auf diese Frage ist *nein*. Die Änderung unserer Annahmen hätte darüber hinaus zur Folge, dass sich auch die Regeln, was als Evidenz zu gelten hätte, ändern würden. Die Welt wirkt auf diese Weise auf unseren Regelkatalog ein.

2. Gewissheit: grammatische Sätze

Wenn Wittgenstein die Möglichkeit eines sinnvollen Zweifels als Kriterium für Wissen nennt, stellt sich die Frage, was es mit den Sätzen auf sich hat, die nicht sinnvoll bezweifelt werden können. Dabei handelt es sich um solche Sätze, die lediglich als gewiss gelten können. Schließlich gibt es keine Methode, ihren Wahrheitsgehalt zu prüfen. Solche Sätze sind etwa folgender Art: „Jeder Stab hat eine Länge.“ [1999c: §251] oder „Dieser Körper hat eine Ausdehnung.“ [1999c: §252]. In beiden Fällen

wäre eine Verneinung sinnlos. Wir können uns schlicht keinen Stab vorstellen, der keine Länge hat. Ein Zweifel daran ist gleichsam logisch ausgeschlossen. Deswegen sind diese Sätze objektiv gewiss [2002: §194]. Wittgenstein nennt sie grammatische Sätze, weil sie uns die Grammatik unserer Sprache erklären und deren Verwendung regeln. Zieht man den Satz vom zu vermeidenden Widerspruch in Betracht (dessen Gegenteil ebenfalls sinnlos ist), wird deutlich, welch fundamentalen Charakter diese Sätze für unser Sprechen und unsere Annahmen haben. Unser normales Urteilen baut auf diesen fundamentalen Gewissheiten auf und hängt folglich von ihnen ab. [2002: §494] Man könnte meinen, unser Wissen stünde somit auf tönernen Füßen, wie Wittgenstein andeutet: „Am Grunde des begründeten Glaubens liegt der unbegründete Glaube.“ [2002: §253] Das ist aber nicht bedenklich, sondern einfach ein notwendiger Umstand. Menschen lernen Sprache nicht anhand von Zweifeln, sondern von einfachsten Gewissheiten. Denn das Sprachspiel des Zweifels setzt bestimmte Gewissheiten schon voraus. „Wer an allem zweifeln wollte, der würde auch nicht bis zum Zweifel kommen. Das Spiel des Zweifels selbst setzt schon die Gewißheit voraus.“ [2002: §115] Bestimmte Sätze sind nicht bezweifelbar und können dementsprechend vernünftigerweise auch nicht bezweifelt werden. Sie müssen ungeprüft vorausgesetzt werden, damit überhaupt Urteilen möglich ist. Also hat „[d]er vernünftige Mensch [...] gewisse Zweifel *nicht*.“ [2002: §220]

3. Mythologie

Wittgenstein spricht im Zusammenhang mit dieser Menge an voraussetzenden Gewissheiten von einem *Weltbild*, das ich habe, nicht, „[...] weil ich mich von seiner Richtigkeit überzeugt habe; auch nicht, weil ich von seiner Richtigkeit überzeugt bin. Sondern es ist der überkommene Hintergrund, auf welchem ich zwischen wahr und falsch unterscheide.“ [2002: §94] Sobald Menschen miteinander sprechen, ist so ein Weltbild – eine Menge von gemeinsam geteilten Annahmen – notwendige Voraussetzung, ohne die ein Urteilen nicht möglich wäre. Wittgenstein fährt fort: „Die Sätze, die dies Weltbild beschreiben, könnten zu einer Art Mythologie gehören.“ [2002: §95] Gemeint sind damit auf der einen Seite zweifelsohne die grammatischen Sätze. Sie sind ihrem Wesen gemäß nicht prüfbar und müssen deshalb (*vernünftigerweise*) ungeprüft angenommen, also vorausgesetzt werden. Aber auf der anderen Seite gehören auch einige der Sätze über die Welt dazu. Erst wenn ein Satz geprüft und wahr ist, ist er der Mythologie als Wissen entrissen. Aber selbst unzählige empirische Sätze, die uns als wahre Sätze begegnen, müssen ohne Prüfung, ob sie tatsächlich wahr sind, hingenommen werden, weil es aus praktischen Gründen unmöglich ist, sie selbst alle zu prüfen. Man ist darauf angewiesen, zu glauben, dass es sich mit dem Wahrheitsgehalt so verhält, wie es einem von anderen versichert wird. „Australien ist eine Insel, die so und so aussieht“ ist ein solcher Satz über die Welt, den ich zunächst, obwohl ich ihn nicht geprüft habe, als wahr hinnehme, weil es mir so berichtet worden ist. Das gleiche gilt für: „Die Menschen, die behaupten, meine Eltern zu sein, sind wirklich meine Eltern.“ Unzählige weitere ließen sich an dieser Stelle aufzählen. Man könnte zusammenfassend die These aufstellen, dass zur Mythologie nur Hypothesen gehören, also einerseits die grammatischen Sätze, die per definitionem Hypothesencharakter haben, und diejenigen Sätze über die Welt, die noch nicht als wahr geprüft worden sind. Das hätte zur Folge, dass jeder Mensch letztlich seine eigene Mythologie hat. Diese

Feststellung ist jedoch epistemisch von keinem weiteren Nutzen. Interessant wird es erst, wenn man Abstufungen der Relevanz der einzelnen mythologischen Sätze innerhalb der Mythologie vornimmt. Grundlegend wäre zum Beispiel der Satz vom zu vermeidenden Widerspruch und damit solche Sätze, deren Verneinung sinnlos ist; unerheblich demgegenüber, ob ich bereits die geographische Lage Australiens selber geprüft habe. Interpretiert man den Lebensformbegriff im Kontext der Mythologie, stellt sich die Frage, wie viele der mythologischen Sätze geteilt werden müssen, damit eine Gruppe von Menschen eine Lebensform teilt.

Wittgenstein klassifiziert die Moore-Sätze ebenfalls als grammatische Sätze, weil es keine Möglichkeit gibt, sie zu bezweifeln: „Ich weiß, wie man sich davon überzeugt, man habe zwei Münzen in der Tasche. Aber ich kann mich nicht davon überzeugen, ich habe zwei Hände, weil ich nicht daran zweifeln kann.“ [1999a: §832] Diese Feststellung ist nicht unmittelbar einsichtig. Der Satz „Ich habe zwei Hände“ hat mit den Sätzen über die Welt schließlich insofern etwas gemeinsam, als es sehr wohl eine Methode der Prüfung gibt: man kann etwa hinsehen, um sich zu vergewissern. Darüber hinaus ist es prinzipiell möglich, diesen Satz zu bezweifeln, anders als das etwas bei „Jeder Stab hat eine Länge“ der Fall ist. Hier wäre allein der Versuch, ihn bezweifeln zu wollen von vorn herein ebenso sinnlos, wie einen mathematischen Satz $2 + 2 = 4$ anzuzweifeln. „Ich habe zwei Hände“ erscheint, wie es aussieht, zunächst nicht wie ein grammatischer Satz. Trotzdem hat er einiges mit ihnen gemeinsam, denn welche Funktion hätte eine Methode, den möglichen Zweifel auszusräumen? Würde sie wirklich eine Unsicherheit beseitigen? Nein, „[...] denn daß ich zwei Hände habe ist nicht weniger gewiß, ehe ich sie angeschaut habe als nachher.“ [2002: §245]. Der Zweifel ist lediglich logisch möglich, eine Möglichkeit, ihn auszusräumen, gibt es nicht, weil unsere Erfahrung uns keine andere Annahme gestattet, als die, dass wir zwei Hände haben. So betrachtet, ist die Zuordnung zu den grammatischen Sätzen eindeutig. Dass sie erst auf den zweiten Blick gelingt, liegt daran, dass Aussagen über die Anzahl meiner Hände, solche über einen Körper in der Welt sind, und damit kontingenten Aussagen wie „Dort steht ein Haus“ der Form nach gleichen. Sie setzen grundlegendere grammatische Sätze voraus, die in allen Urteilen über die Welt vorausgesetzt werden müssen. Daraus ergibt sich eine Abstufung innerhalb der grammatischen Sätze. Sätze über persönliche Dinge, wie etwa, dass ich zwei Hände habe, sind uns aufgrund unmittelbarer Evidenz gewiss: Wir *haben* zwei Hände. Während uns ein Zweifel an Sätzen über die Welt möglich erscheint, halten wir ihn im Falle von grammatischen Sätzen unmittelbar für sinnlos. Moores Sätze erzeugen eine andere Reaktion: „Wenn Moore das Gegenteil von jenen Sätzen aussagte, die er für gewiß erklärt, würden wir nicht nur nicht seiner Meinung sein, sondern ihn für geistesgestört halten“ [2002: §155], weil „[...] man sich schwer vorstellen kann, *warum* Einer das Gegenteil glauben sollte. [...] Nichts spricht in meinem Weltbild für das Gegenteil.“ [2002: §93]

Wenn man diesen Überlegungen Ausdruck in einer Struktur verleiht, ergibt sich bis jetzt folgende Abstufung einer Mythologie:

1. grundlegende, fundamentale grammatische Sätze, auf denen andere aufbauen. „Jeder Stab hat eine Länge.“
2. persönliche grammatische Sätze: „Ich habe zwei Hände.“
3. individuelle Mythologien: „Meine Eltern sind tatsächlich meine Eltern.“

4. Ethik

Abschließend möchte ich dafür plädieren, unter dem Punkt (2) eine weitere Gruppe von Sätzen als Untergruppe 2.1 anzunehmen. Sie sind – anders als die Sätze aus (1) und (2) – keine grammatischen Sätze, ihr Gegenteil kann also durchaus sinnvoll angenommen werden. Sie sind aber auch keine Sätze über die Welt in dem hier referierten Sinne. Trotzdem sind sie für die Menschen, die diese Annahmen teilen, von fundamentaler Wichtigkeit, so dass sie sie nicht einfach aufgeben würden. Hier ist vom Teilen einer Lebensform zu sprechen, demgegenüber im Falle von (2) (und bis zu einem gewissen Grad auch von (1)) von der *gemeinsamen menschlichen Handlungsweise* [1999c: §206] die Rede sein könnte. Zu den Annahmen dieser neuen Gruppe zählen auch solche ethischer Natur. Sie betreffen weniger einzelne ethische Fragen, als vielmehr grundsätzliche ethische Sichtweisen. Beispielsweise *Menschen sind füreinander verantwortlich*, *Menschen dürfen nicht getötet werden* oder *Die Menschenwürde ist zu achten*. Wir erleben derzeit, dass einige dieser Annahmen in Zweifel gezogen werden. Das ist zwar logisch möglich, niemand hält das von vornherein für ausgeschlossen, trotzdem wirkt es für viele, die in einer Lebensform leben, in der diese Annahmen geteilt werden, befremdlich. Deswegen erscheint es auch fraglich, dass eine Änderung dieser Sichtweisen anders, als durch Überredung und Überzeugung, möglich sein wird. Man kann beispielsweise Menschenwürde als einen Begriff analysieren, der zur Mythologie unserer Lebensform gehört [Vgl. Wachtendorf 2004]. Entsprechend wird man abgerichtet, ihn anzunehmen. Das erhellt, wie derartige Annahmen überhaupt zu diskutieren sind: derzeitige Strömungen empirisch zu argumentieren sind nutzlos. So erscheint es nicht nur unsinnig, mit empirischen Befunden gegen Verantwortung und Menschenwürde anzukämpfen. Es fragt sich überdies, ob es sinnvoll ist, die eigene Mythologie in diesen Punkten zu beschneiden.

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Ist der Satz „Romeo küsst Julia am 17.4.2005“ ein Tensed oder ein Tenseless Sentence?

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1. Tensed und Tenseless Sentences

Es scheint zwei Arten von Aussagesätzen zu geben: die tensed sentences und die tenseless sentences. Beispiele für tensed sentences sind „Morgen wird Romeo Julia küssen“, „Gestern ging ich spazieren“ und „Jetzt fliegt das Flugzeug“. Ein wesentlicher Bestandteil dieser Sätze ist ihr „zeitlicher Gehalt“; sie drücken entweder implizit durch ihre grammatische Form (Futur, Präsens und Perfekt), oder explizit durch einen zeitlichen Signator („morgen“, „jetzt“, „gestern“) den Zeitpunkt aus, auf den diese Aussage referiert. Nennt man die Sprechzeit jenen Zeitpunkt, zu dem das konkrete Token eines tensed sentence ausgesprochen wird, und die Referenzzeit jenen Zeitpunkt, auf den in dem Satz Bezug genommen wird, so kann Folgendes behauptet werden: Im Falle eines Satzes im Präsens fallen die Sprechzeit und die Referenzzeit zusammen, im Falle des Perfekts liegt die Referenzzeit vor der Sprechzeit, und im Falle des Futurs liegt die Referenzzeit nach der Sprechzeit. Der Wahrheitswert der tensed sentences hängt nicht nur von ihren Referenten, sondern auch von der Konstellation der Referenz- und der Sprechzeit zueinander ab. Wenn jemand die Aussage „Romeo wird Julia küssen“ macht, so ist diese Aussage falsch, wenn Romeo Julia nicht (mehr) küssen wird, selbst wenn er sie gerade küsst oder geküsst hat. Wir können daher mit Lowe davon sprechen, dass tensed sentences „token-reflexive“ Wahrheitsbedingungen haben (Lowe 1998, 89f).

Für den Wahrheitswert der tenseless sentences spielt ihre Sprechzeit keine Rolle. Sätze wie „ $1+1=2$ “, „Wenn es regnet, dann ist die Straße nass“ und „Wassermoleküle bestehen jeweils aus zwei Wasserstoffatomen und einem Sauerstoffatom“ sind typische tenseless sentences. Diese Sätze sprechen von abstrakten Entitäten wie Zahlen, logischen Beziehungen und Klassen, während die tensed sentences auf konkrete Entitäten in der Raum-Zeit referieren. Die tenseless sentences haben immer denselben Wahrheitswert, unabhängig davon, zu welchen Zeitpunkten sie ausgesprochen werden. Die Wahrheitsbedingung dieser Sätze ist nicht token-reflexiv.

Während die meisten Aussagesätze leicht nach diesem Schema als tensed oder als tenseless eingestuft werden können, ist die Einordnung von Sätzen wie „Romeo küsst Julia am 17.4.2005“ (RkJ_d) problematisch. Nehmen wir an, dass Romeo am 17.4.2005 Julia tatsächlich einen Kuss gab, so scheint klar zu sein, dass RkJ_d tatsächlich zu allen Zeitpunkten denselben Wahrheitswert hat, nämlich *wahr*. Demnach wäre dieser Satz ein tenseless sentence. Allerdings nimmt RkJ_d Bezug auf partikuläre Entitäten in der Zeit, nämlich auf Romeo, Julia und den Kuss. Nach Lowe sind alle Aussagen über partikulären Entitäten tensed sentences, während tenseless nur Sätze über Abstraktes sein können (Lowe 1998, 89). Demnach ist RkJ_d eher als ein tensed sentence anzusehen.

Um die Frage zu klären, ob RkJ_d ein tensed oder ein tenseless sentence ist, werde ich in Abschnitt 2 zwei Möglichkeiten schildern, wie RkJ_d formallogisch dargestellt werden kann. In der „metric tensed logic“ wird RkJ_d als

tensed dargestellt, während in der Temporallogik mit first-order-approach RkJ_d tenseless erscheint. In Abschnitt 3 soll gezeigt werden, dass Temporaloperatoren tatsächlich Satzoperatoren und keine Prädikatenmodulatoren sind, und die Wahrheitsbedingung der tensed sentences dennoch token-reflexiv ist. In Abschnitt 4 soll schließlich zusammenfassend mein Argument dargebracht werden, dass RkJ_d ein tensed sentence ist.

2. Temporallogische Formalisierungen von RkJ_d

Nach Galton (Galton 1987, 2-11) gibt es prinzipiell zwei Möglichkeiten, wie wir RkJ_d formalisieren können. Einerseits kann hierfür die Prädikatenlogik erster Ordnung verwendet und über Zeitpunkte quantifiziert werden, wie dies u.a. Quine verfolgt. Und andererseits gibt es die Möglichkeit zur logischen Abbildung der Zeiten durch temporale Operatoren, die in ihrer Funktionsweise Ähnlichkeiten zu Modaloperatoren aufweisen. Dieser Möglichkeit geht u.a. Prior nach. Zunächst soll die Temporaloperatorenlogik nach Prior kurz geschildert werden.

Prior (Prior 1968, 116) führt in seiner Temporalen Operatorenlogik (TOL) die verschiedenen Zeiten mittels verschiedener Temporaloperatoren ein. So bedeutet Fp , dass p (irgendwann in der Zukunft) sein wird, und Pp soll heißen, dass p (irgendwann in der Vergangenheit) war. Prior hält jedoch den Temporaloperator S (Sp bedeutet, dass p jetzt ist) für redundant (Prior 1968, 43). Im Rahmen dieses Aufsatzes möchte ich dennoch am S -Operator festhalten, um den Unterschied zwischen tensed und tenseless sentences hervorzuheben. Tensed sentences werden immer von einem der drei Temporaloperatoren begleitet, während tenseless sentences nie einen Temporaloperator haben. Betrachten wir zunächst folgende Beispielsätze:

- (a) Romeo küsst Julia jetzt.
- (b) Romeo küsste Julia.
- (c) Romeo wird Julia küssen.

Um diese drei Sätze logisch formalisieren zu können, führen wir hierzu noch zwei Konstanten r (für „Romeo“) und j (für „Julia“) und das zweistellige Prädikat Kxy (für „ x küsst y “) ein. Wenden wir die Temporaloperatoren gemäß dem Vorschlag Priors an, so erhalten wir für die Sätze (a), (b) und (c) folgende Formalisierungen:

- (a') $SKrj$
- (b') $PKrj$
- (c') $FKrj$

Die Sätze (b) und (c) sind „zeitlich unbestimmt“ (vgl. Gaskin 1995, 1), d.h. sie beziehen sich auf einen im Prinzip unabsehbar langen Zeitraum. Wenn wir den Zeitpunkt näher bestimmen können, können wir nach Prior (Prior 1968, 88) die Operatoren P und F als dyadische Operatoren gebrauchen. Die TOL ergänzen wir mit zwei Operatoren P_t und F_t , und da Prior dies als „metric tense logic“ (Prior 1968, 88) bezeichnet, werde ich sie TOL_m nennen. P_tp bedeutet, dass p vor einer Zeitdauer von t

Einheiten war. Dementsprechend bedeutet $F_t p$, dass p in einer Zeitdauer von t Einheiten sein wird. Betrachten wir folgende Sätze:

- (d) Gestern küsste Romeo Julia.
- (e) Übermorgen wird Romeo Julia küssen.

Nach der Einführung von TOL_m können wir die beiden Sätze so formalisieren:

- (d') P_1K_{rj}
- (e') F_2K_{rj}

Wir können zwei Schlussregeln für TOL_m angeben. Wenn $P_t p$ ableitbar ist, dann ist auch Pp ableitbar; und wenn $F_t p$ ableitbar ist, so ist auch Fp ableitbar. In TOL und TOL_m werden die Zeiten als Temporaloperatoren gedeutet, die uns zusammen mit geeigneten Schlussregeln und Axiomen helfen können, zeitliche Verhältnisse mit Hilfe der Temporallogik darzustellen und zu deduzieren.

Falls die Darstellung der TOL bzw. TOL_m korrekt ist, ist es leicht einzusehen, dass RkJ_d , je nach der Sprechzeit, logisch als $P_{t_0}K_{rj}$, SK_{rj} oder $F_{t_0}K_{rj}$ formalisiert werden kann. Schreiben wir den 15.4.2005, so lässt sich RkJ_d als F_2K_{rj} formalisieren. Ist jetzt der 17.4.2005, so ist der logische Term SK_{rj} korrekt. Und wenn heute der 22.4.2005 wäre, so wäre der 17.4.2005 bereits um 5 Tage vergangen, und wir können für RkJ_d P_5K_{rj} schreiben. Es ist wichtig darauf hinzuweisen, dass RkJ_d je nach Sprechzeit unterschiedlich formalisiert wird. Eine Formalisierung in der Form F_dK_{rj} , wobei d für 17.4.2005 steht, ist nicht legitim und muss – von der Situation abhängig – in FK_{rj} , SK_{rj} oder P_tK_{rj} umgeschrieben werden. Ohne das Wissen, wann *jetzt* ist, können wir die Operatoren S , P und F nicht richtig anwenden, da die „objektive“ Zeitangabe nichts darüber aussagt, ob der Satz in der Vergangenheit, in der Zukunft oder in der Gegenwart vorliegt. Da beide zusätzlichen Schlussregeln ihre Gültigkeit durch die Formalisierung von RkJ_d zu F_dK_{rj} verlieren würden, dürfen wir $F_d p$ und $P_d p$ nicht zulassen.

In dem vierdimensionalen Modell der Welt nach Quine (vgl. Quine 1960, §36) können wir jeden (kognitiv relevanten) Aussagesatz über die Welt in die kanonische Sprache der Logik übersetzen, wobei in dieser Logik über Raum-Zeit-Stellen quantifiziert wird. Ohne auf die Kontroverse um Eigennamen eingehen zu können, möchte ich hier das (vereinfachte) first-order-approach der Temporallogik (TFO, vgl. Galton 1987, 2ff) kurz schildern. Wollen wir die Sätze (a) bis (e) in TFO übertragen, müssen wir die Konstanten r , j beibehalten, eine neue (Zeitpunkt-) Konstante n (für „nun“) und die Früher-Später-Beziehung zwischen den Zeitpunkten einführen und das Prädikat Kxy mit einem zeitlichen Index versehen. Die Sätze (a) bis (e) werden in der TFO so formalisiert:

- (a'') $\exists t[(t = n) \wedge K(rj, t)]$ bzw. $K_n rj$
- (b'') $\exists t[(t < n) \wedge K(rj, t)]$ bzw. $K_{t < n} rj$
- (c'') $\exists t[(t > n) \wedge K(rj, t)]$ bzw. $K_{t > n} rj$
- (d'') $\exists t[(t = n - 1) \wedge K(rj, t)]$ bzw. $K_{n-1} rj$
- (e'') $\exists t[(t = n + 2) \wedge K(rj, t)]$ bzw. $K_{n+2} rj$

An der Komplexität der Formeln ist ersichtlich, dass der Umgang mit *jetzt* in TFO schwieriger ist als in TOL oder TOL_m . Doch ist die Darstellung des Satzes RkJ_d umso einfacher. In TFO kann man für RkJ_d ohne Probleme K_{rj} (bzw. $\exists t[(t = 17.4.2005) \wedge K(rj, t)]$) schreiben. Denn im Gegensatz zu TOL und TOL_m , in denen das *Jetzt* eine privilegierte Stellung hat, sind alle Zeitpunkte in TFO gleichwertig. Ob der besagte Kuss in der Vergangenheit,

in der Gegenwart oder in der Zukunft liegt, spielt für TFO keine Rolle.

Falls der pragmatische Grund eines einfacheren Umgangs keine Rolle spielt, ist es m.E. für die logischen Kalküle nicht von Bedeutung, ob wir mit TFO „rechnen“, oder ob TOL und TOL_m verwendet werden. Zudem können wir Sätze in TFO mittels TOL_m und Sätze in TOL_m mit der Einführung des jetzigen Zeitpunktes jeweils in die andere Sprache übersetzen. So scheint es nicht von Bedeutung zu sein, auf welchem der beiden Wege wir zu unseren Theoremen kommen. Hier sei die Bemerkung erlaubt, dass die Wahl der Methode erst dann bedeutsam wird, wenn wir sie im Lichte ontologischer Überlegungen betrachten. Eine Präsentistin, welche die Zeiten in Gegenwart, Vergangenheit und Zukunft einteilt, wird wohl TOL und TOL_m als die adäquatere Temporallogik ansehen, während für eine Ätternalistin, welche die Zeitpunkte in den Früher-Später-Beziehungen ordnet, TFO die grundlegendere Temporallogik darstellt.

3. Zwei Deutungen der Temporaloperatoren

Bevor ich zu der Argumentation komme, warum RkJ_d ein tensed sentence ist, muss noch geklärt werden, ob die Temporaloperatoren in TOL_m als Satzoperatoren (vgl. Prior 1968, 7f), oder als Prädikatenmodulatoren (vgl. Lowe 1998, 94) angesehen werden sollen. Lowe (Lowe 1998, 94f) ist der Meinung, dass nur in der Deutung der Temporaloperatoren als Prädikatenmodulatoren die Wahrheitsbedingung der tensed sentences token-reflexiv sein kann, nicht aber in ihrer Deutung als Satzoperatoren. Ich möchte in diesem Kapitel darlegen, warum in TOL_m die Temporaloperatoren Satzoperatoren sind, die tensed sentences dennoch token-reflexive Wahrheitsbedingung haben.

In der Deutung der Temporaloperatoren P , S und F als Satzoperatoren (SO) „modulieren“ diese Operatoren den ganzen Satz; die Sätze PK_{rj} , SK_{rj} und FK_{rj} können als „Modulationen“ *desselben* Satzes („ K_{rj} “) angesehen werden. Da FK_{rj} selbst ebenfalls ein Satz ist, könnte dieser Satz noch einmal mit einem (anderen) Satzoperator moduliert werden. Es besteht also bei den Satzoperatoren die Möglichkeit der Iteration, sprich der Hintereinanderschaltung solcher Operatoren. Sätze in Form PPp , Fpp , PFp oder gar $FPFPp$ wären demnach möglich. Dass solche Redeweisen auch in der Alltagssprache vorkommen, lässt sich an Hand dieses Satzes zeigen:

- (f) In zwei Tagen wird Romeo Julia geküsst haben.

Deutet man die Operatoren der TOL_m als Satzoperatoren, könnte man (f) so formalisieren:

- (f') F_2PK_{rj}

Der Satz (f') ist so zu lesen: „In zwei Zeitdauereinheiten (hier: Tagen) wird es der Fall sein, dass es der Fall war, dass Romeo Julia küsst.“ Diese Redeweise ist zwar umständlich und grammatikalisch falsch, stellt aber sicher eine gute Übersetzung von (f) dar.

Es gibt zwei Weisen, wie Temporaloperatoren als Prädikatenmodulatoren gedeutet werden können. In der ersten Deutungsweise (PM_1) kommen S , F und P nicht dem ganzen Satz, sondern nur dem Prädikat Kxy zu. In einer feinkörnigen Lesart gibt es in PM_1 bei den Sätzen SK_{rj} , PK_{rj} und FK_{rj} drei *verschiedene* (zweistellige) Prädikate, sprich $SKxy$, $PKxy$ und $FKxy$. Die einzige

Gemeinsamkeit aller drei Sätze wären die Namen, die daran beteiligt sind, also Romeo und Julia. Da Krj selbst *kein* Prädikat darstellt, können wir in dieser Deutung auch keine Iteration der Operatoren zulassen.

In der zweiten Weise der Deutung der Temporaloperatoren als Prädikatenmodulatoren (PM₂) kommen *S*, *F* und *P* nicht dem Prädikat, sondern der Beziehung zwischen Substanzen und Prädikaten zu. Temporaloperatoren modulieren die *Weise*, wie ein Prädikat einer Substanz zukommt. In PM₂ sind PKxy, SKxy und FKxy zwar nicht drei verschiedene Prädikate, Iterationen von Operatoren können aber auch nicht zugelassen werden.

Sowohl in PM₁ als auch in PM₂ sind Konstruktionen wie (f') nicht möglich. Lowe, der PM₂ vertritt, würde den Satz (f) zwar nicht als sinnlos hinstellen, muss ihn jedoch so umschreiben (vgl. Lowe 1998, 94):

(f^a) In zwei Tagen wird es wahr sein zu sagen, dass Romeo Julia küsste.

Dabei sind die Worte „in zwei Tagen wird es wahr sein zu sagen“ als metasprachlicher Ausdruck zu analysieren. Sie können nicht adäquat in TOL übersetzt werden.

Werden keine Iterationen verwendet, sind SO, PM₁ und PM₂ in TOL gleichberechtigt, in TOL_m jedoch nicht. Versehen wir den Satz Krj mit einem dyadischen Satzoperator *F*₂, so versetzen wir den Satz Krj in die Zeit *F* (Futur), wobei wir zugleich feststellen, dass Krj in zwei Zeiteinheiten von Futur zu Präsens wechseln wird. Nehmen wir an, dass die Rede von der Zukunft berechtigt ist und mit dem Operator *F* dargestellt werden kann, so muss noch die Möglichkeit, von zählbaren Zeiteinheiten zu sprechen, als Voraussetzung für die Redeweise *F*₂Krj geklärt werden. Diese kann mit dem Hinweis auf Normereignisse eingelöst werden. Wenn *F*₂ aber als Prädikatenmodulator gedeutet wird, würden in PM₁ *F*₂Kxy und *F*₁Kxy (in der feinkörnigen Lesart) zwei *verschiedene* Prädikate darstellen, was eine unnötige Vermehrung der Prädikate zur Folge hätte. In PM₂ liegt der Unterschied zwischen *F*₁Krj und *F*₂Krj in der unterschiedlichen Weise, wie das Küssen Romeo und Julia zukommt. Dieser Unterschied lässt sich jedoch schwer explizieren. Da sowohl PM₁ als auch PM₂ Probleme mit TOL_m hat, müssten wir, wollen wir an TOL_m festhalten, die Temporaloperatoren wohl als Satzoperatoren ansehen.

Lowe sieht in SO die token-reflexive Wahrheitsbedingung der tensed sentences gefährdet (Lowe 1998, 94). Der Satz *P_dp* ist wahr, wenn *p* zum Zeitpunkt *d* geschieht, ganz unabhängig davon, wann *P_dp* ausgesprochen wird. Aber ich habe aufgezeigt, dass *P_dp* und *F_dp* in TOL_m nicht zulässig sind, denn sie müssen, um Verwendung in TOL_m zu finden, immer in *F_dp* und *P_dp* übersetzt werden. Und hiermit wird auch die token-reflexive Wahrheitsbedingung bewahrt, sodass *alle* tensed sentences token-reflexive Wahrheitsbedingung haben. Wir können also an SO festhalten ohne die „token-reflexiveness“ der Wahrheitsbedingung von tensed sentences aufgeben zu müssen.

4. Begründung, warum Rk_{J_d} ein Tensed Sentence ist

Zwei Prämissen müssen noch erläutert werden. Zuerst nehme ich an, dass jeder Aussagesatz entweder tensed oder tenseless ist, *tertium non datur*. Ein Satz kann nicht sowohl tensed als auch tenseless sein. Diese These ist wohl unproblematisch. Die zweite Voraussetzung lautet, dass, falls zwei Sätze *a* und *b* *dieselbe* Proposition zum Ausdruck bringen, sie entweder beide tensed oder beide tenseless sein müssen. Diese These ist problematisch, aber nicht unplausibel. Sprachliche Übersetzungen sind Paradebeispiele für verschiedene Sätze mit derselben Proposition. Wird der tensed sentence *a* vom Deutschen ins Chinesische (*a'*) übersetzt, so muss *a'* m.E. dennoch tensed sein, selbst wenn das Chinesische keine (grammatikalischen) Zeiten kennt.

Folgendes kann festgehalten werden: Der Satz Rk_{J_d} kann nicht nur zu K_drj (in TFO), sondern auch zu *F_iKrj*, *SKrj* oder *P_iKrj* (in TOL_m) formalisiert werden. Im Falle, dass *P_iKrj* (*F_iKrj*) die adäquate Formalisierung darstellt, könnte daraus *PKrj* (*FKrj*) abgeleitet werden. Da alle Formalisierungen Übersetzungen desselben Satzes darstellen, müssen demnach auch alle entweder tensed oder tenseless sein. Während wir darüber streiten könnten, ob K_drj (in TFO) ein tensed oder ein tenseless sentence ist, kann seine Übersetzung in TOL_m sicherlich als tensed angesehen werden, und eine Ableitung aus seiner Übersetzung in TOL_m stellt auf jeden Fall ein typischer tensed sentence dar. Wenn meine Analyse korrekt ist, dann sollen wir Rk_{J_d} als ein tensed sentence ansehen, auch wenn er scheinbar zu allen Zeitpunkten denselben Wahrheitswert hat.

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Are the Laws of Nature Time Reversal Symmetric? The Arrow of Time or Better: The Arrow of Directional Process

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1. Introduction

Max Planck hoped that all statistical laws, especially the law of entropy could (and should) be ultimately reducible to dynamical laws:

I believe and hope that a strict mechanical significance can be found for the second law along this path, but the problem is obviously extremely difficult and requires time.¹

Many fundamental laws of physics (of classical Mechanics, of Special Relativity, of Quantum Mechanics) are invariant w.r.t time reversal. According to Prigogine this is a sign that the laws of physics are still incomplete since many processes are irreversible in time (Cf. Prigogine 1993, TDC).

Feynman expresses his view quite directly:

Next we mention a very interesting symmetry which is obviously false, i.e., *reversibility in time*. (Feynman 1997, SNP, p.28)

2. Experimental Facts

Keeping the laws (time-reversal) symmetric and putting the responsibility for the time asymmetric phenomena into the initial or boundary conditions leads to explanations like the following ones: the thermodynamic asymmetry presupposes progenitor states far from equilibrium; the *CP* asymmetry presupposes a spontaneous symmetry breaking of the Hamiltonian; the expansion of the universe presupposes a special singularity (big bang)... etc.

However, many authors have also discussed time symmetric models of the universe (Gell-Mann, Hartle, 1994, TSA, ch.22.5) In this case the universe undergoes expansion and contraction in a symmetric way such that we have periodicity. However there are at least two difficulties: The improbable recurrence and the *T*-violation in weak interactions. The first is expressed by the following quotation:

The difficulty with the time-symmetric models is their implausibility. They require a very finely tuned set of boundary conditions, for which no explanation is offered. (Halliwell 1994, QCT, p.374)

The second is that since *CPT* (charge-parity-time) invariance (of laws) is generally satisfied – all fundamental field equations are *CPT* invariant – but *CP* invariance is slightly violated in weak interactions *T* has to outbalance the difference. Therefore *T* invariance (time-reversal invariance) is not completely satisfied for the fundamental laws of nature.² *CPT* invariance – one of the most important symmetries of Quantum Field Theory – says that physical laws seem to be symmetric with respect to the

complex exchange of particle – antiparticle, right – left and past – future. This *CPT* symmetry has remarkable consequences: It implies that the mass of the (any) particle must be the same as that of its respective antiparticle. The same holds for their lifetimes. Their electric charges must have the same magnitude but opposite signs, their magnetic moments must agree.

Moreover as it appears from recent experiments, *T*-reversal symmetry seems to be violated directly too and not only via *CPT* symmetry and *CP* violation. The violation concerns weak interactions. But since weak interaction concerns all elementary particles except photons the experimental result appears to be very important. There have been two different series of experiments independently made at CERN (Angelopoulos et al. 1998, CLP) and FERMILAB (Schwarzschild 1999, TEO) which seem to prove the violation.

3. Non Recurrence Versus Irreversibility

Skiing in fresh powder snow is a great pleasure. But if the slope is small and one is skiing down frequently, the slope will be filled with traces and after some time no new space (powder snow) is left and thus one has to use one's own traces again (recurrence). This illustration tells us already some important conditions: The motion has to be area-preserving (the skier is not supposed to leave the slope) and in a finite region. Observe now that just by raising the complexity of the system recurrence becomes very improbable: Imagine that there are thousands of skiers on the slopes (the cable cars and lifts of a big ski region in Austria can take up about 60.000 people per hour). The probability that at some later time *t*, earlier such that the whole state of this system would recur has much lower probability.

Boltzmann's Example

Instead of living organisms take the molecules in a litre of gas (air) at temperature $T = 0^\circ\text{C}$ (273 K) and atmospheric pressure ($1.033 \cdot 10^3 \text{ g/cm}^2$). A litre of air (at temperature and pressure mentioned) consists of $2.688 \cdot 10^{22}$ molecules. It will be understandable that this system of $2.688 \cdot 10^{22}$ molecules can be in a huge number of different (micro-) states. The number is about $10^{5 \times 10^{22}}$ so as to realise the macrostate "litre of air under the conditions mentioned". Thus the same (for our lungs the same) macrostate can be realised by a huge number of different microstates. Boltzmann's discovery was that the probability of such a macrostate can be defined as the number of microstates which can realise the macrostate and that this number (more accurately the logarithm of it) is the entropy.

We might ask the questions: Will all the $10^{5 \times 10^{22}}$ microstates of the litre of air be realised at all? And in what time? This leads to an interesting cosmological question: Assume that we are asking how many possible microstates are in the whole universe in order to calculate the entropy of the whole universe. Then the question arises whether every microstate can be realised within the

¹ Planck in a letter to his friend Leo Graetz. Cited in Kuhn (1978, BBT) p. 27.

² This holds, provided there are no other ways out; for instance, that the *T*-violation is not due to an asymmetry in the cosmological boundary conditions or to an asymmetry of our particular epoch and spatial location. Cf. Gell-Mann, Hartle 1994, TSA, p.329.

life time of the universe, if the life time is finite. Since the number of microstates is extremely huge they probably will not all be realisable within the life time calculated by the Standard (Big Bang) Theory. If this is so, then there are more possible universes than the actual universe which obey the same laws of nature and differ only w.r.t. some microstates from each other. In other words the laws of nature have more (possible) models than the one actually realised.

Irreversibility Locally Violated

Schrödinger raised the question: How can we understand a living system in terms of Boltzmann's theory? (Schrödinger 1944, WLF) Or, how can these systems manage to keep, or even to increase, a low entropy level despite of the validity of the law of entropy? The answer, which was partially already given by Schrödinger, includes the following points:

- (i) Living systems (organisms) are not thermodynamically closed; they are open systems.
- (ii) Living systems receive high grade energy (energy with low entropy) from their environment via metabolism, but they pass on low grade energy (energy with high entropy).
- (iii) By process (ii) the living systems are capable of achieving orthogenesis (maturation), i.e. increasing order, quality, and differentiation.

Cosmological investigations show that also planets, especially the earth, behave in a similar way as living systems. It receives high grade energy as electromagnetic radiation (with Planck-temperature of 5600 Kelvin) from the sun and passes on low grade energy as heat radiation (with Planck-temperature of only about 300 Kelvin) into its environment. From the above considerations it will be understandable that we want to avoid the term 'irreversibility' for three reasons:

- (i) What thermodynamic processes and many others like radiation, cosmological expansion, processes of measurement, biological and psychological processes really show is that recurrence of the state of the whole system is very improbable but not that recurrence or time reversal is impossible.
- (ii) From the last example described, it is plain that thermodynamic processes can be reversed locally without violating the second law.
- (iii) Moreover one can show independently that non-recurrence and time-irreversibility are not equivalent notions: since we have cases of non-recurrent phase density and time reversibility in chaotic motion of dynamical chaos.

Summing up:

The difference between dynamical and statistical laws which is usually viewed as the most striking one – time reversal invariance of the laws versus irreversibility of the laws – has to be taken with care. Strict time-reversal symmetry is not any more valid on the microlevel and irreversibility on the macrolevel should be better replaced by very improbable recurrence. However, the differences in this respect are sufficiently large to forbid reducibility of one type of law to the other. But the more careful interpretation paves the way for the compatibility of both types of laws.

4. Is the "Arrow of Time" Compatible with Dynamical Laws?

We shall discuss this question w.r.t. three different descriptions of time (a) – (c).

(a) Time Flows

That time *flows* we grasp from change, mutation and movement (i) w.r.t. to an ordered sequence (ii).

- (i) Without any change time would "stand still" such that changes are necessary conditions of time – at least for our understanding: "It is utterly beyond our power to measure the changes of things by time. Quite the contrary, time is an abstraction, at which we arrive by means of the changes of things." (Mach, E. 1933⁹, MEC p. 273)

That time presupposes change was already pointed out by Aristotle in his definition of time (Phys., 219b1). Cf. also Kant in the *Critique of Pure Reason* (KRV, B233).

That there is no past to future direction of time in regions that are at equilibrium was pointed out by Boltzmann (Boltzmann 1897, ZAM, p. 583). He compared this with gravitation: As there is no downward direction in regions of space where there is no (net) gravitational force, there is also no past to future direction of time in regions that are at equilibrium.

- (ii) Thus it seems better to speak of the asymmetry of a flowing process of a sequence of successive states which are ordered by a partial ordering instead of a "flowing time". In such a sequence we distinguish past and future states and we measure the distance between them with the help of time units (produced by another physical periodic process in a clock).³

The presupposed ordered sequence is best described by the chronology of time or by the basic axioms of tense logic which assume partial ordering, transitivity, antisymmetry, irreflexibility and density.

Newton's Interpretation:

Absolute, true and mathematical time, of itself, and from its own nature, flows equably without relation to anything external... (Newton, Princ, Scholium).

Einstein's Interpretation in GR:

The relative time of an observer plus reference frame is measured by standard clocks. By stipulation it flows equably but it depends on the distribution of matter, fields, and boundary conditions. Every observer plus reference frame has its own time scale and there is no universal time scale that is relevant for all observers.

(b) Time Flows Only in One Direction

The subsequent considerations in (b) and (c) will show that the frequently used expression of the "arrow of time" is misleading, the arrow is intrinsic *in process* (not "in" time).

Concerning the question of how to distinguish a (particle's) movement on a spatial coordinate (in GR: space geodesic) from a (particle's) movement on a time coordinate (in GR: either time like geodesic or null geodesic (see Hawking, Ellis (1973, LSS)), we may formulate two subquestions: (α) Can the coordinates

³ Cf. Also the critical remarks by Paul Davies in his (1994, SUT).

(geodesics) be distinguished by their directions (vectors)?
 (β) Can the coordinates (geodesics) be distinguished by their closure conditions? Both questions can be answered with: Yes. The answer to the first subquestion is very well expressed by the following quotation from Wigner: "The difference between the two cases arises from the fact that a particle's world line can cross the $t = \text{constant}$ line only in one direction (in the direction of increasing t); it can cross the $x = \text{constant}$ line in both directions." (Wigner 1972, TEU, p.239)

The answer to the second subquestion is the following: According to GR, the space of the universe is closed (even if the universe is expanding); that is, there are closed spatial coordinates or closed space-like geodesics. On the other hand, we usually assume that the time coordinate is not closed; i.e., we assume that the non-space-like geodesics (time-like geodesics and null geodesics) are not closed. This assumption has been called the *chronology condition* of spacetime (Cf. Hawking, Ellis 1973, LSS, p.189). This condition plays an important role for the concept of causality. Causality would break down and one could travel into one's own past, if the chronology condition is not satisfied.

(c) Time is Connected with Directional Processes

In addition to the directional feature of time described in (b) which is not at all in conflict with dynamical laws, there are two further features of time which are connected with directional processes.

(i) Assume a very large (long) but finite sequence of decimal places after 0, say the (finite) sequence of natural numbers, i.e. 0, 1 2 3 ... 10 11 12 ... 99 100 101 ... etc. It can be proved that this sequence has a normal distribution. It will therefore be easily understandable that the probability of recurrence for the three numbers 1, 4, 2 (in this order) on decimal places will be not very low. It occurs in 142, in 1420, 1421 etc. In contradistinction to that the probability of the recurrence of an ordered sequence of 10^{10} numbers on decimal places as part of the above sequence will be very much lower. This has nothing to do with entropy or with the increasing of a certain physical magnitude. But it has to do with "direction" and asymmetry.

(ii) Directional processes: First it should be clear that chronological time scales as they are used for time measurement do not define a direction of time even if they indicate that "time flows" in the sense of representing a sequence of partial ordering. Assuming events (states) $S_1, S_2, \dots (\in S)$, reference frames plus observer, RF, and chronometrical scales CS (mappings of durations onto real numbers, standard clock) the following postulates are basic for time T and time interval t :

α) T is a function $\{S_1, S_2, \text{RF}, \text{CS}\} \rightarrow \mathbb{R}^+$ with $T\{S_1, S_1, \text{RF}, \text{CS}\} = 0$

β) For every state S_1 relative to RF and CS, and for any value $t \in \mathbb{R}^+$ there exists a second state S_2 such that $T(S_1, S_2, \text{RF}, \text{CS}) = t$

γ) Transitivity. For any triple of states (S_1, S_2, S_3) relative to RF and CS it holds $T(S_1, S_2, \text{RF}, \text{CS}) + T(S_2, S_3, \text{RF}, \text{CS}) = T(S_1, S_3, \text{RF}, \text{CS})$

From these postulates it follows that for any two events $S_1 S_2$ relative to RF and CS it holds that: $T(S_1 S_2 \text{RFCS}) = -T(S_2 S_1 \text{RFCS})$. This shows clearly that the above basic assumptions and postulates do not define a direction "in" time. They tell us only that the direction from S_1 to S_2 is the opposite of the direction from S_2 to S_1 ; but not which event is first in nature.

On the other hand so-called directional processes (of nature) tell us unambiguously which event is first and which is second. Penrose (Penrose, R., 1979, STA) lists seven such directional processes:

- (1) The decay of neutral K mesons in weak interactions.
- (2) The process of measurement in quantum mechanics, especially the so-called "collapse of the wave function".
- (3) All processes in which entropy increases.
- (4) All processes of radiation.
- (5) All conscious mental processes.
- (6) The process of expansion of the universe.
- (7) The process of the gravitational collapse ending in a *black hole*.

Of these processes (1), (3), (4) and (6) are experimentally very well confirmed. (5) is very well confirmed by introspection and by the descriptions of the psychology of mental processes. The claim that (2) is a directional process is – at least to a considerable extent – a matter of interpretation of the quantum mechanical process of measurement. The time reversal of (7), leading to a *white hole* (no experimental evidence so far) is an open question such that (7) cannot be viewed as an unambiguous case of a directional process. Furthermore it is an open question whether processes (1), (4), (6) and perhaps (7) can be reduced ultimately to process (3).⁴

⁴ Cf. Wheeler (1994, TTd). Concerning (7) the important question is whether the horizon area of the black hole can be proved to be proportional to measures of entropy which has been supported by Christodoulou, Bekenstein and Hawking.

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Meaning and Time: History and the Fregean Third Realm

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Wenn man das Element der Intention aus der Sprache entfernt, so bricht damit ihre ganze Funktion zusammen.

Wittgenstein, *Philosophische Bemerkungen* 20, 1929/30

1. What does time have to do with meaning? Words have meanings, and the meanings of words change from place to place, culture to culture, generation to generation and through the centuries. A good dictionary, especially an etymological one, tells us how complex and subtle such changes are and how rich the resulting spectra of meanings can be. But it is not only words that have meanings. Symbols and signs, a frown, a smile, and all kinds of representations and representational systems have their meanings and are meaningful. They, too, develop and change over time. They have their stories and their histories. I want to call this aspect the “temporally global aspect” of meaning. It is a macro aspect that extends over longer periods of time. Besides (and as we shall see not just “besides”) this global aspect, there is also a “local”, micro aspect regarding the role of time for the constitution of meaning: When we think of something *right now*, when we grasp an idea, express ourselves and communicate something to others, then meaning comes into play in a momentary and dynamic way. On this micro level, meaning is not just grasped but also created and recreated, and modified. This happens in a single moment of time, in the blink of an eye, and in a single person’s mind. This is the “temporally local aspect” of meaning – localized in a moment of time and in a single individual who intends, desires, imagines, thinks and expresses and thereby means something. “What did you mean when you said such and such?” also has the sense of: “What did you mean, intend, to say?” There is momentary intention underlying meaning.

We thus have two temporal aspects of meaning, a global and a local one, a historically extended and a phenomenological-psychologically concentrated one, one that might make us think of externalist views of meaning and one that appears closer to internalism. In this essay I will try to indicate how these two aspects are interwoven and interdependent. This, so it seems to me, is where problems of description and explanation in theories of meaning arise.

The following question is central to what follows: How essential are these two temporal aspects of meaning? That is, how important is time to what we think meaning is? On the one hand, it is obvious that languages and acts of meaning have temporal structures, simply because languages always develop and acts always happen *in time*. But on the other hand, time itself is so fundamental, primitive and universal, that it seems to play exactly the same role in the historical development of any language, be it English, German, or Chinese, and also to be the same in any act of thought, be it thinking of a tree, a house, or of friendship. Hence, how can *time itself* possibly contribute to the specific *structure* of a language, such that it develops, for instance, into German and not Chinese? And how can it contribute to the specific *content* of a thought, making it the thought of a tree and not of a house? Although there are essential *temporal aspects* to meaning, it seems that *time itself* does not matter.

We are all born into societies that have languages, traditions, cultures and all kinds of rich and complex representational systems that each of us, in his or her individual way, will learn, use, and modify. As members of society, we engage in communication. Each time we use a word, we do so in particular circumstances and with particular intentions that go beyond the literal meaning of the words and thus modulate the general meaning for those who use it right there and then. We are sensitive to such changing circumstances, and we are ready to adapt ourselves to them. This leads to modifications, traces and patterns that will be picked up by others in turn. We are always integral parts of the evolutionary processes of customs, cultures and languages, and, in these evolutionary processes, the local, momentary and individual aspects are intertwined with the global, extended and social ones. Each time you act and react, each time you think of something or plan what your next move should be, you are making use of your past experiences, your networks of associations and connections, those Husserlian *Verweisungszusammenhänge* and various kinds of background knowledge, all of which you more or less share with others: past, present, and possibly future.

We hardly ever think in neat syllogisms of pure logic. We usually go by associations, patterns, skills, and the familiar, well-trodden paths of thought. This is like going through grassland or hiking through the mountains. Sometimes there are paths, and sometimes there are none. There are usually open spaces and obstacles. There are mountains and there are valleys, and some ways appear easier and more promising than others. There are usually good reasons why certain paths develop the way they do: why they were chosen in the first place, why people follow them, and why they became well-trodden paths. There are good reasons for saying that water is H₂O, even if we might have another theory of chemistry in the future. But how “objective” are such reasons? What are the grounds and reasons for our concepts of, say, friendship, *Freundschaft*, *amitié*, *péng you*? How “objective” are their meanings and associations and implications? How objective are the values you associate with that fountain pen your mother gave to you some twenty years ago? Meanings are not just objects “out there”. They involve *significance* and *relevance*, not only *Bedeutung* but also *Bedeutsamkeit*, relevance with respect to other objects, other people, and often also, more or less essentially and more or less obviously, certain purposes and certain values. There is a wide range from the objective, via the quasi-objective and inter-subjective (the human and cultural), to the merely subjective (the personal and individual). The boundaries are often hard to draw, and if they are drawn, they are abstract and forced.

Water might be H₂O for a chemist, the means to survival for someone in the desert, or something that reminds you of something else from your past. Each of us can imagine such cases. But for reasons that are different for different people, some cases are easier to imagine or to communicate than others. Some cases require knowledge of theories. Others presuppose personal experiences. Some involve the experiencing subject more than others. Chemistry is more objective. It is something we can discover and that we imagine exists independently of us. But survival and memory are different. They involve the

experiencing subject, individuals who have memories, who survive and to whom survival matters. Nevertheless, involving subjects does not necessarily make things merely subjective, incommunicable or arbitrary. It just requires that the experiencing subject is involved. It still allows for inter-subjective features that are based on *common* cultural factors. Although the concepts of survival, friendship and love are not like H₂O, because they are *about* human beings and presuppose certain experiences, they are not incommunicable or arbitrary. They have general and inter-subjective features. Of course there is then *your* concept and idea of love, as well. But that is a further step.

The ways we experience and remember things in moments of time – in recollection, reproduction, expectation and projection – have effects on what ‘water’ (the stuff, the word, the concept, each in its way) means, or what it can possibly mean, and on the role it might play in our lives. The temporally local structures of perception, awareness, creation and recreation of meanings do matter in the creation of networks of meanings that we have and rely on. The momentary structures of intentionality that we find within each living individual are interwoven with the temporally global structures we find in the history and evolution of meaning that we are born into and that we keep modifying. The individual inherits and instantiates, supports, carries, and thereby modifies the global aspects of meaning.

2. Frege distinguished between *thoughts* and our *grasping of thoughts*. Thoughts for him belong to the “third realm”, an ideal Platonic realm where thoughts exist by themselves, independently of us, and to which we have access only through language. Language, so Frege thought, is our sole “bridge” from the sensible to the “supersensible”. Language has the task of approximating and “assimilating” (*anähneln*) itself to thought (Frege 1923, 167; see also Graeser, 2000, 38). How the “grasping” should be understood was less important to Frege and a question that could be left to psychology. But can we leave it at that? If time and the subject are essential to meaning, if there is an evolution of meaning and if the local, momentary aspects we pointed out above are part of the “grasping” of thought and leave their traces in the global networks and aspects of the meanings of words, then does all this not introduce relevant and “meaningful” structures into the third realm, so that it would well make sense to study the grasping and its logical significance? The Fregean realm of thought is certainly structured, and that part which is accessible to us bears structures that result from the (also temporal) structures of our grasping. Our psychology is not only of local and momentary relevance but also leaves traces in our history and evolution, which all matters to meaning. We can say this also in another way and on another level, the level of study and research: There are not only the natural sciences, such as physics or chemistry, which study things that exist independently of us and do not, so we take it, involve us in any way. There are also the humanities. They are about human beings, but they are not without their own standards. Besides the *Naturwissenschaften*, we have *Geisteswissenschaften*. Meanings and thoughts are not limited to the world of the natural sciences. And as soon as we look at their histories even the natural sciences show traces of human beings and our interests and ways of grasping.

Even if we accept Frege’s picture of an independent realm of thoughts, our language will cut out, or approximate, only certain parts of this realm, and the

development and history of our language will show what those parts will be, which thoughts will be grasped and which will not, what the connections between those thoughts and what the structures of those networks of thoughts will look like. *Our history is part of this realm*. We create facts. We fall in love, we fight wars, and we do science. And in all this, if time has an impact on what language we arrive at and how communication works, if the local and global temporal aspects of meaning are not external but intrinsic to meaning, then those aspects will affect those thoughts and their relations to each other. Even for Frege, who was more interested in the sciences than in poetry, “meaning” (*Bedeutung*) is not just an isolated object but involves relevance and meaningfulness. It seems to me the aspects of significance, relevance, and meaningfulness, *Bedeutsamkeit*, should be part of a theory of meaning in general. Meaning is part of our lives and not like a book that you can pick up and lay down at will. This becomes apparent when we look at those facts and thoughts that are about, and reflect, our own lives. They should belong to the Fregean third realm, too. Analytic philosophy has often not paid enough attention to this.

The Fregean “grasping” (*Fassen*) of thoughts and the Platonic “remembering” (*anamnesis*) of ideas are mental acts and processes. These acts have temporal structures of consciousness and attention, which have an impact on the structures and *Verweisungszusammenhänge* of the thoughts that are grasped and remembered. It thus should be worth our while, as philosophers, to take a closer look at such mental acts. Husserl gave detailed analyses of those acts, of inner time consciousness, synthesis, “retention” and “protention”. For him meaning was based on acts and not something in a third realm. Even if in the beginning he, too, idealized, focusing on abstract and idealized *species* of acts, and can in this respect be seen as a Platonist, his approach to meaning has the advantage of including the mental. Mental acts are instantiations of idealized acts, which in turn are the basis of meaning. Instead of “grasping”, we have “instantiation”. (See Simons 1995, 113.) Husserl later introduced his theory of the *noemata*, which are even closer to real, individual mental acts (*noesis*), because they depend on them. They are even less objects of a third realm. With this view and the transcendental turn and the emphasis on *epoché*, Husserl became less and less of a Platonist about meaning. Meaning is the result of something really happening, an unfolding of pre-linguistic experiences. It seems to me that this approach is more promising than Frege’s if we want to cast some light on the temporal aspects of meaning. At least it brings into focus the temporally *local* aspects of meaning.

But besides the local individual mental acts and their temporal structures of time consciousness and synthesis (*noesis*), there are also *global* temporal structures. We have to take into account that we are born into societies where meanings and whole networks of meanings already exist and are already alive through other participants and their interactions. These networks of meaning are partly the result of evolutionary processes that we always inherit, learn, incorporate, grow into, support and carry on with. In the process of doing so we also gradually modify them. The local and the global are always intertwined and interwoven, and there is no way around the dialectical features of these temporal part-whole relationships.

I think it should now be obvious that time does play a role in meaning. But it is difficult to give examples regarding the human perspective in general, because we cannot easily adopt a point of view that is radically different

from the one we have. A German can say things about the way the Chinese think, because he can try to adopt their point of view by learning their language and living in their society. This is a case in which the culture and language are accessible. But we cannot so easily step out from what is common and fundamental to *all* human beings, since there is no ready place for us. We would, for instance, have to adopt the point of view of a Martian. But this might even be impossible. Martians might be too different from us. It is as Wittgenstein said: *Wenn ein Löwe sprechen könnte, wir könnten ihn nicht verstehen*. (If a lion could talk, we would not be able to understand him. *Philosophische Untersuchungen*, Part II, xi).

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Time Structure and the Structure of Perception

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1. The Perceptual Foundation of Knowledge

Our knowledge about the world is grounded in perception; and a good share of it is based, on visual perception in particular. Due to psychological and neuro-scientific research more and more details are being disclosed about the internal causal process that starts off with rather meager optical images on the retina and ends up in beliefs about the world. As philosophers, however, we must not be content with an exploration of the causal chain between those tiny optical projections on the eye's inside and the complex, conceptually structured representation that makes up the body of our empirical knowledge. What we have to evaluate, in addition, is the epistemic quality of this process; and in this regard what matters is precisely the course of justification. The stations of this course aren't just states of the brain, but states of the mind. Concerning the perceptual foundation of empirical knowledge, what's of particular epistemic interest are the starting points in this course of justification: those states of the mind that are commonly called epistemically prior. Since the optical images on the retina, for sure, are merely neuronal rather than mental, they don't qualify as epistemically prior, although they are causally prime.

Within the empiricist tradition, however, there's always been a strong appeal for pictures that do count as mental and do precede mental judgments. Those views include the extreme positions of the British Empiricists (Locke, Berkeley, Hume) who held that "all thought consists in the manipulation of either simple images derived from sense experience or complex images built up from these simple images" (Tye 1991, p. 5). They also include the more moderate positions of the Logical Empiricists. Carnap (1928), e.g., begins his logical reconstruction of propositional knowledge with a classification of pictorially analyzable sensations.¹ It is the Empiricist Priority Thesis I will question in this paper:

Empiricist Priority Thesis

In the course of the perceptual justification of knowledge, pictorially structured mental representation precedes conceptually structured mental representation.

In my criticism I will take recourse to recent findings on the time structure of neuronal responses in the visual cortex.

2. Representation

What is representation? Due to space and time limits, we have to restrict ourselves to a rather preliminary and largely stipulative account here.² In most general terms, representation can be conceived of as a mapping between two relational structures: a representing structure A and a represented structure B. Each structure X consists of a set of carrier elements EI^X and a set of relations Rel^X that are defined on the carrier set. To make this mapping a representation, two additional conditions must be met.

¹ Both relations characteristic for pictorial representation, viz. the part-whole relation and the adjacency relation (see below), are either implicitly or explicitly assumed to hold at least among the qualities of the visual sense according to Carnap (1928, §77 and §89).

² The view on representation I am presenting here is elaborated by Bartels (2002).

First, relations between the representing elements should somehow reflect relations between the elements represented. In formal terms, this is to mean that the mapping from A to B – say, μ with $\mu[EI^A]=EI^B$ and $\mu[Rel^A]=Rel^B$ – should be a homomorphism from A to B. That is, for each n-ary relation R of A and any sequence $x_1, \dots, x_n$ of A-elements, there is an n-ary relation $\mu(R)$ of B such that the state of affairs

$$R(x_1, \dots, x_n)$$

in A is said to (μ)-represent the state of affairs

$$\mu(R)(\mu(x_1), \dots, \mu(x_n))$$

in B.

Ten knots on a horizontal rope may, e.g., be said to represent the numbers 1 to 10 because the set of knots together with the relation being-right-to constitutes a structure that is homomorphous to a structure that contains the first ten natural numbers together with the successor relation.

Second, representation carries information. A relational fact in the representing structure indicates what is thereby represented to be true. For our purposes it suffices to use the basic notion of indication as the relevant notion of information. We say that a state of affairs S carries information about a (therefrom metaphysically independent) state of affairs S^* given the background H, if and only if what is true of S is probabilistically dependent on what is true of S^* . If we spell this out for any representing state of affairs $Q = R(x_1, \dots, x_n)$ with respect to the thereby represented state of affairs $Q^* = \mu(R)(\mu(x_1), \dots, \mu(x_n))$, we require for any representational system that the following inequality hold – with $\Pr(p|q)$ being the probability of p on condition q:

$$\Pr(Q^*|Q \wedge H) > \Pr(Q^*|H).$$

That is, a system is called representational with respect to some mapping μ just in case the system's being in a certain state of affairs of μ 's domain increases the probability of the μ -represented state of affairs to hold true, given some background H.

3. Pictures in the Brain

Pictures are a species of representation for which, characteristically, adjacency and part-whole relations between the represented elements are preserved by the representing elements (cf. Gottschling 2003). Adjacency and part-whole relations can be defined in purely topological terms. All we need is to assign a topological space to the representing and represented structure each, such that every element of each structure can be assigned to a set of points in the respective topological space. Using the topological notions of neighborhood and connectedness, we can define the adjacency and the part-whole relation for any two elements, a and b:

Adjacency

a is adjacent to b (in symbols $a||b$) if and only if the union of any neighborhood of a with any neighborhood of b is connected.

Part

a is a part of b (in symbols $a|b$) if and only if any neighborhood of b is a neighborhood of a .

We can now say that a representation μ is pictorial just in case the following holds:

- (i) The representing structure A has a substructure with the carrier EI^A and the thereon defined relations $|$ and $\perp$.
- (ii) The represented structure B has a substructure with the carrier EI^B and the thereon defined relations $|$ and $\perp$.
- (iii) Adjacency relations in the representing structure indicate adjacency relations in the represented structure, i.e., $\Pr(\mu(a)|\mu(b) \mid a|b \wedge H) > \Pr(\mu(a)|\mu(b) \mid H)$, for any a and b in EI^A and background H .
- (iv) Part-whole relations in the representing structure indicate part-whole relations in the represented structure, i.e., $\Pr(\mu(a) \mid \mu(b) \mid a|b \wedge H) > \Pr(\mu(a) \mid \mu(b) \mid H)$, for any a and b in EI^A and background H .

This definition not only applies to naturalistic pictures in central perspective, but also, for example, to Picasso's famous cubist painting *Woman with a Mandolin* (see figure 1).



Figure 1. *Woman with a Mandolin* (Picasso 1910).

In the center of the upper third of the canvass we see an oval patch of gray, which we recognize as representing an eye. It is surrounded by an edgy area of white, which, together with other colored areas, apparently represents the head. According to our topological definition, the oval is a part of the edgy area. As it should be, this indicates that what is represented by the oval, viz. the eye, is a part of what is represented by the edgy area, the head. In the lower half of the painting we see a lengthy stripe of dark

color, which is tilted to the right. On its upper right it touches a white area with a zigzag fringe. The dark colored area being adjacent to the white zigzag area represents the woman's left hand being adjacent to the mandolin's neck. The preservation of part-whole and adjacency relations is crucial to an understanding of the representational capacity of pictures. How else could we identify color patches on Picasso's painting as representing elements of the scene if we did not draw on the complex topological relations among them?

Notice that our definition of pictorial representation is supposed to be minimal. It is general enough to cover not only paintings, photographs and the like, but also maps, many diagrams and maybe even acoustic representation like that of shellac records. The definition is not dependent on a notion of geometrical or metric space. It may, however, well be enriched in this respect.

Kosslyn (1994) and other contemporary defendants of the Empiricist Priority Thesis point to neurobiological evidence for pictorial representation in the cortex. Thus, figure 2 shows a chunk of the primary visual cortex of a macaque that was stimulated with a complex circular object. Due to a voltage sensitive dye, one recognizes a particular pattern of high and low neuronal firing rates in the chunk of cortex. Although metric relations have not been preserved, the chunk of cortex exhibits a topological structure of adjacency and part-whole relations among clusters of neurons with high and low firing rates. This structure, as can easily be seen, (probabilistically) corresponds to the structure of adjacency and part-whole relations among the dark and light patches in the stimulus. According to our definition, the claim that the cortex exhibits pictorial representation is, hence, indeed justified. More problematic, however, is Kosslyn's interpretation of the neurobiological data as indicating that there also is pictorial representation in the mind. To this claim we will get back later.

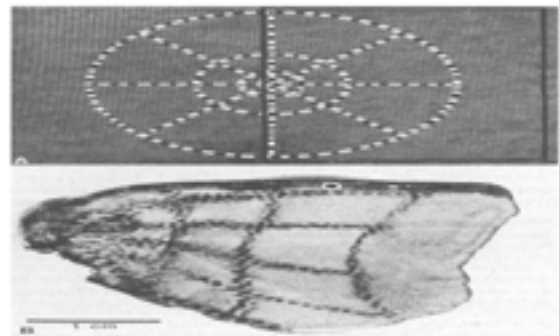


Figure 2. During stimulation with a circular object (left), a piece of macaque primary visual cortex (right) was exposed to a voltage sensitive dye. Dark (light) color indicates a high (low) firing rate of the dyed neurons. Reproduced from Kosslyn (1994).

4. Concepts and Time Structure

About 20 years after that topological structure had been found in the cortex, another radically different structure was discovered in the very same cortical region: the structure of object-related neuronal synchronization. This discovery has frequently been proposed as a solution to the so-called binding problem (Treisman 1996): The brain processes information of different feature dimensions in different areas. In some areas neurons are, e.g., responsive to particular colors, whereas neurons of other

areas characteristically respond to specific orientations. In order to discriminate between a stimulus that consists of a red vertical object next to a green horizontal objects and a stimulus that shows a green vertical object next to a red horizontal object, the brain must bind the feature information together in an object-specific way. For this purpose, von der Malsburg (1982) postulated a mechanism of synchronization: Neurons that code for features of the same object synchronize their oscillatory electrical discharges, while neurons that code for features of distinct objects fire in asynchrony. This prediction was experimentally confirmed by single-cell recording and other methods in mammals and humans (Gray, et. al. 1989; Singer 1999). The findings were simulated (Schillen & König 1994) and analyzed (Maye & Werning 2004) by means of so-called oscillatory networks. The data, simulations and analyses suggest the existence of conceptually structured representation in the cortex: the neural basis of object concepts are oscillatory patterns of neuronal discharges and the neuronal basis of property concepts are clusters of feature-specific neurons. A property concept is predicated of an object just in case the oscillatory pattern of activity that represents the object pertains to the cluster of neurons that are selective for the property in question. Unlike Kosslyn's topologically structured patterns of neuronal firing rates, the time structure in the neuronal responses can be regarded as a structure of conceptual representation.

Conceptual representation is a case of representation for which the compositionality of meaning and content is essential. This has to do with the fact that concepts fulfill two purposes: they provide meanings to the expressions of predicate languages and they provide content to intentional states (Fodor 1998). As given we take the syntax of a predicate language $L = \langle E^L, \text{Rel}^L \rangle$ consisting of a set of terms E^L and a set of syntactic relations Rel^L (at least, conjunction, disjunction, implication, negation, predication and universal as well as existential quantification). Let the language, furthermore, have a denotation function v and a homomorphous denotation structure D with the denotations of the terms of L in $E^D = v[E^L]$ and the corresponding relations in $\text{Rel}^D = v[\text{Rel}^L]$. Then a structure $C = \langle E^C, \text{Rel}^C \rangle$ is called a conceptual structure if and only if the following conditions hold:

- (i) There is a compositional meaning function μ from L to C . That is, if a certain syntactic relation R of Rel^L holds between a complex term t_n of E^L and its syntactic parts t_1 to t_{n-1} of E^L , then the relation $\mu(R)$ holds between the meaning of the complex term and the meanings of its syntactic parts:

$$R(t_1, \dots, t_n) \rightarrow \mu(R)(\mu(t_1), \dots, \mu(t_n)).$$
- (ii) There is a compositional content function κ from C to D . That is, if a certain relation Q of Rel^C holds between a complex concept c_n of E^C and its parts c_1 to c_{n-1} of E^C , then the relation $\kappa(Q)$ holds between the content of the complex concept and the content of its parts:

$$Q(c_1, \dots, c_n) \rightarrow \kappa(Q)(\kappa(c_1), \dots, \kappa(c_n)).$$

This is a relational account of the compositionality of meaning and the compositionality of content. It is equivalent to the functional notion of compositionality according to which the meaning (*mutatis mutandis*: content) of a complex term (concept) is a syntax-dependent function of the meaning (content) of its parts

(Hodges 2001, Werning 2003). Notice that the content of a concept is here identified with the denotation of the term whose meaning the concept is. Again, our definition of conceptual structure is supposed to be a minimal definition that might be enriched by further conditions. Elsewhere I have shown in detail that the structure of object-related neuronal synchrony satisfies the conditions (i) and (ii) (Werning 2005).

5. Binocular Rivalry and Awareness

In the light of the neurobiological data, one might conclude that, on the same cortical level, viz. in the primary regions of the visual cortex, both a pictorial and a conceptual structure of representation is realized. The former consists of topological patterns of firing rates, whereas the latter is based on a time-structured pattern of synchronous and asynchronous discharges. But what does this imply for the structure of perception? Do the data support or defeat the Empiricist Priority Thesis? To decide these questions, we have to ask which of the two structures correlates with awareness. For, only contents of which the subject is aware are in the mind and thus may play a role in the course of the perceptual justification of knowledge.

An experiment that exploits the phenomenon of binocular rivalry might give us a hint. If one exposes the two eyes of a subject to incompatible stimuli, only one of the two stimuli becomes aware at a time. In subjects with strabismus one eye is dominant over the other such that the outcome of the binocular rivalry is predictable: Usually, the stimulus presented to the dominant eye becomes aware, while the second, incompatible stimulus remains unaware. Engel and Singer (2001) exposed strabismic cats to rival stimuli and measured the extent of firing rates as well as the degree of synchronization among the neurons that respond to the stimuli in either hemisphere. For the left eye they chose leftward moving vertical bars while the right eye was exposed to rightward moving vertical bars. From the cat's eye saccades they could read off which stimulus the cat was currently aware of.

The cell recordings provided the following results: If only one eye is stimulated, both the firing rates and the synchronization of the responding neurons in the respective hemisphere increase. If the two eyes are exposed to rival stimuli, the firing rates, too, increase in both hemispheres despite the fact that only the hemisphere of the dominant eye produces awareness of the moving bars as can be read off from the saccade behavior. The neuronal synchronization, however, only increases among the neurons responsive to the dominant eye, whereas the discharges in the hemisphere of the suppressed eye are almost completely de-synchronized. It thus turns out that the distribution of firing rates does not correlate with awareness, while the structure of neuronal synchronization and de-synchronization does.

6. Conclusion

Neurobiological data suggest that in cortical regions involved in early visual processing, pictorial as well as conceptual representation is realized. The former is made up of topological patterns of firing rates which are informationally related to topological patterns in the stimuli. The latter consists of a time structure in the discharges of neurons. The patterns of object-related synchrony and asynchrony among clusters of neurons provide a compositional representation of state of affairs that can be denoted in predicate languages. Cell-recording

experiments on binocular rivalry with strabismic cats, however, suggest that only the time structure in the cortex, which may be identified with conceptual representation, contributes to awareness and may thus play a role in the perceptual justification of knowledge. The topological and, hence, pictorial representation in the visual cortex may play an important role in the causal production of knowledge. However, with regard to justification it remains inert. For, it does not correlate with awareness and does not provide contents to the mind. From an epistemological point of view, the prior epistemic processes of perception are conceptual rather than pictorial. The Empiricist Priority Thesis seems hardly tenable.

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On the (Im)Possibility of Time without Change

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1

The dependence of change on time is obvious: There is no change without time. But does the contrary hold? Can there be time without change? That is, can there be a period of time during which nothing has changed? In a trivial sense, it is obvious that time assumes change: when the concept of change is applied to time itself, the claim that time passed without any change is contradictory. However, in this discussion the concept of change that concerns me will be change of things in time, and not the change of time itself. The question that concerns me here is whether there can be a period of time during which nothing in the world has changed. In this paper I put forward a proof for the impossibility of time without change, by displaying the conceptual dependence of time on change. More specifically I shall prove that the meaningfulness of temporal expressions assumes change, from which it follows that there cannot be any time without change.

Claims for the dependence of time on change are not new in the history of philosophy. However, previous attempts usually focused on the impossibility of verifying claims for the existence of a period of time during which nothing changed.¹ These attempts therefore assumed (explicitly or implicitly) a verificationist theory of truth or meaning. Furthermore, this line of thought not only relies on a controversial, if not refuted, theory of truth or meaning, but is also susceptible to Shoemaker's criticism, which demonstrated that in principle there could be evidence for the existence of periods of time during which nothing changed (Shoemaker 1969). The argument I shall present in this paper, however, will not rely on any specific theory of meaning, but only on general considerations as to the necessary conditions for the meaningfulness of expressions in language, and will therefore be immune to the difficulties of the traditional line of thought. That is, I shall not assume a verificationist theory of truth or meaning, and I shall not assume in advance that there can be no circumstances in which claims for the existence of periods of time during which nothing changed can be verified.

2

In order to prove that the meaningfulness of temporal expressions assumes change, I shall not rely on any specific theory of meaning, but only on general considerations of the necessary conditions for the meaningfulness of expressions in language. In the analysis that follows I shall rely only on the most basic and least controversial features of meaning, ones that can be embraced by any theory of meaning. Furthermore, I shall limit the discussion to the descriptive aspect of meaning, that is, to that aspect of language which enables us to use it to describe reality. (From now on I will simply use the term "meaning" in order to refer to this descriptive aspect of meaning).

In accordance with that limitation, the meaning of any expression in language is exhausted by the function it

serves in describing reality. Given the fact that reality is described by the use of propositions (that is, sentences in language which are either true or false), the meaning of any expression in language can only be its contribution to the meaning of the propositions in which it appears. To this conclusion it is possible to add the connection between the descriptive aspect of the meaning of a proposition and its truth value, that is, the fact that this aspect of meaning determines, at least in part (with other possible determinants invoked by the different theories both of meaning and truth), the truth value of a proposition. It follows therefore that the meaning of any expression in language is defined by its contribution to the determination of the truth value of the propositions in which it appears.

The implication of this analysis is that a necessary condition for the meaningfulness of any expression in language is that this expression can contribute to a description of reality. The same conclusion can be formulated as the claim that a necessary condition for the meaningfulness of any expression in any language is that this expression can contribute to the meaning of the propositions in which it appears; or as the claim that a necessary condition for the meaningfulness of any expression in a language is that this expression can contribute to the determination of the truth value of the propositions in which it appears. With this (perhaps trivial) conclusion I conclude my analysis of the necessary conditions for the meaningfulness of expressions in language.

I must stress at this point that I did not assume any theory of truth or meaning in the previous analysis, and that the final conclusion as to the necessary conditions for the meaningfulness of expressions in language can be accepted by any theory of truth or meaning. Indeed, meaning in this discussion can be viewed as a "black box". All I am interested in this essay is what effect the occurrence of particular expression in a proposition has on the determination of the truth value of that proposition. The knowledge of this effect I shall now use in order to determine whether the occurrence of an expression in a proposition does actually contribute to the meaning of that proposition. The question "what is meaning?", therefore, is irrelevant to this discussion.

3

In light of the previous analysis, I shall now prove the dependence of time on change. I shall do so by showing the dependence of the meaningfulness of temporal expressions on change. That is, I shall prove that temporal expressions can serve no function in describing a changeless reality. As it is a necessary condition for the meaningfulness of any expression in any language that it can contribute to a description of reality, what I shall argue is that the meaningfulness of temporal expressions assumes change, and therefore that time assumes change.

In order to prove that every temporal expression assumes change there is no need to examine each temporal expression separately; all that must be shown is that the two temporal relations, "before" and "simultaneous

¹ Notable philosophers in this tradition include Aristotle (Hussey 1993, 218b21-219a10) and Wittgenstein (Ambrose 1979, 13-15).

with", assume change.² This suffices for proving that every temporal expression assumes change because these relations necessarily obtain between any two events in time: for any two events x and y , either x is before y , or y is before x , or x is simultaneous with y .³ In light of this fact, it is obvious that the collapse of these basic temporal distinctions (that is, the conclusion that in changeless reality there will be no such relations) implies the collapse of all other temporal distinctions.

The proof of the conceptual dependence of time on change, therefore, will be given by showing that temporal expressions, "before" and "simultaneous with", can serve no function in describing a changeless reality. This proof will take the form of a *reductio ad absurdum*. That is, I shall assume the existence of a temporal and changeless reality, and show that contrary to this assumption the temporal expressions of "before" and "simultaneous with" can serve no function in describing this reality. The implication of this conclusion is that a changeless reality is also atemporal. This conclusion will therefore prove that the meaningfulness of temporal expressions assumes change, and thus prove the conceptual dependence of time on change.

I shall assume, therefore, the existence of a temporal and changeless reality, and examine whether the temporal expressions, "before" and "simultaneous with", can serve any function in describing that reality. To begin with the expression "before", it is clear that this expression serves no function in describing this reality. The consideration behind this claim is straightforward: The propositions in which the temporal expression "before" appears are of the general form: " a is before b ". However, for any two events x and y , the proposition that x is before y is false. For, either these events simply do not occur, in which case the proposition is obviously false, or these events do occur, in which case they are simultaneous (and not one before the other) and therefore the proposition is false. The explanation for the latter claim is that in a changeless reality an event cannot begin or end, and therefore every event lasts all the time. Thus, all the events in the presumed reality are simultaneous, and any proposition that claims that one event is before another event is false. The conclusion is thus that the temporal expression "before" can serve no function in describing the assumed reality, as this temporal relation simply does not obtain in this reality.

Turning to the expression "simultaneous with", it might at first seem that this expression does serve a function in describing the assumed reality. The reason is that in a changeless reality all events will last all the time. This entails that in this reality, for any two events x and y , the proposition that x is simultaneous with y is presumably true. However, in order to determine whether the expression "simultaneous with" can serve a function in describing this reality, it is not enough simply to examine whether this expression appears in propositions which describe this reality (that is, true propositions). What must also be

examined is whether this expression actually contributes to the meaning of the propositions in which it appears. This is tested, according to my previous analysis, by examining whether this expression contributes to the determination of the truth value of the propositions in which it appears.

The propositions in which the temporal expression "simultaneous with" appears are of the following general form:

(1) a is simultaneous with b .

What must be considered is whether the temporal expression, "simultaneous with", contributes to the determination of the truth value of proposition (1). This can be examined by comparing proposition (1) with the proposition which results from omitting the temporal determination from proposition (1). Obviously, the expression "simultaneous with" cannot simply be omitted from proposition (1), because the result would not be a proposition. However, ignoring the temporal relation described by proposition (1), it follows from proposition (1) that events a and b occur. The result of omitting the temporal determination from proposition (1) is therefore described in the following proposition:

(2) a occurs and b occurs.

The contribution of the expression "simultaneous with" to the determination of the truth value of proposition (1) can now be examined by comparing its truth value with the truth value of proposition (2). The question is whether the addition of the temporal determination to proposition (2), which results in proposition (1), contributes to the determination of the truth value of the resulting proposition.

Comparing the truth values of propositions (1) and (2), it is obvious that the expression "simultaneous with" does not contribute to the determination of the truth value of proposition (1). This is evident from the fact that the addition of the temporal determination of simultaneity to proposition (2) cannot change the original truth value: either proposition (2) is false, in which case proposition (1) is also false (because proposition (2) follows from proposition (1)); or proposition (2) is true, in which case proposition (1) is also true, (because of the fact that in a changeless reality any two events are simultaneous, as they both exist all the time). The conclusion is therefore that the expression "simultaneous with" fails to contribute to the determination of the truth value of proposition (1), and so therefore also fails to contribute to its meaning. It can thus be concluded that the expression "simultaneous with" serves no function in describing the assumed reality.

The result of this analysis clearly shows that the temporal expressions "before" and "simultaneous with" serve no function in describing a changeless reality. It follows that in a changeless reality there are simply no temporal relations, and therefore that contrary to the initial assumption the presumed reality is an atemporal one. This implies that the meaningfulness of temporal expressions assumes change, thus demonstrating the conceptual dependence of time on change.

4

The previous analysis clearly proves that there the temporal expressions "before" and "simultaneous with" serve no function in describing the assumed temporal and changeless reality. An implication of this is that, contrary to the initial assumption, such a reality is an atemporal one. This conclusion proves the impossibility of there being a temporal and changeless reality.

² In light of the fact that the relations "before" and "after" are converse relations, that is, x is before y if and only if y is after x , there is no need to examine them separately. It is also possible to define the temporal relation "simultaneous with" as "not before and not after". However, I shall not be content with the analysis of the relation "before" and discuss the relation "simultaneous with" separately, due to the different considerations required for the analysis of each relation.

³ It may be objected that this claim ignores the conceptual possibility of different temporal series, such that no temporal relations obtain between them, or the conceptual possibility of a branching series, such that temporal relations does not necessarily obtain between any two events in this series. However, this possibility does not affect the present analysis, because in each series, or each branch, every event has a temporal relation to every other event on this series, or branch, and this assumption is sufficient for the purpose of the present analysis.

In light of the fact that a necessary condition for the meaningfulness of any expression in language is that the expression can contribute to a description of reality, it follows that the meaningfulness of the temporal expressions "before" and "simultaneous with" assumes change. Taking into account the fact that the collapse of the temporal relations "before" and "simultaneous with" entails the collapse of every temporal distinction, it follows that time conceptually assumes change.

Finally, it is possible to answer the question asked at the beginning of the paper, whether a period of time during which nothing changes is possible. Firstly, I must stress the difference between the changeless reality I considered and the possibility of a limited period of time during which nothing changed. It is obvious from the previous discussion that there is a conceptual dependence of time upon change. However, the question is whether this connection is strong enough to exclude the possibility of there being a period of time during which nothing changes, even though things change before and after this period of time.

The answer is that a period of time during which nothing changes is impossible, for the considerations presented earlier with regard to a whole reality apply equally to the supposed period of time during which nothing changes. The conclusion I reach is that without change temporal distinctions simply have no grasp on the things which are supposed to exist in time. This conclusion also applies to the things which are supposed to exist in the changeless period of time: The changes that occur before the supposed period of time, and the changes that occur after this supposed period of time, are not sufficient for ascribing the existence of this period of time, because the necessary conditions for a meaningful ascription of temporal distinctions simply fail to obtain in the supposed period of time.

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French Readers of Wittgenstein

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What can French philosophers teach us about Wittgenstein? One might raise this question because of a strange and silent revolution that has taken place in last few years. The author became the major figure in almost every field of philosophical research. No-one has ever believed that one day, Wittgenstein was going to be one of the most quoted philosophers in France. I think that it should be an interesting task to examine the history of wittgensteinian influences in order to understand the philosophical background in this country.

It should be said that we had to wait for over 50 years for a decent translation of his *Philosophical Investigations*. These are the facts: the French were able to read Wittgenstein only in 1961, when Gallimard Editions had decided to publish a translation of what became the *Tractatus logico-philosophicus* followed by the *Investigations Philosophiques*. They did it in the unique volume, according to Wittgenstein's desire expressed in the introduction to the *PI*. Both translations were made by Pierre Klossowski, a towering figure in the French cultural landscape. With Polish origins, painter Balthus' brother, Klossowski abandoned the priest's way of life, and chose the art. Known as the author of a series of novels about Roberte, this nietzschean was designing women in the way that mixed the mythological and the erotic aspects, and, of course, he was translating. Thanks to Klossowski, on the one hand, the Chinese poems, and on the other, the Austrian philosopher, became comprehensible to the French public.

Unfortunately, Klossowski was not a great specialist of logic. His translation of the *Tractatus*, the only one existing until 1993, contained many errors, even if his style reflects perfectly Wittgenstein's one. As for the *IP*, a collective work of five translators made us able to read with no great risks the *Investigations* only in January 2005!

Thinking about the philosophical situation in Great Britain before Wittgenstein, one must admit that there philosophers were ready to receive his ideas because he entered in their discussions, and his remarks were relevant to the fundamental problems of British philosophy. On the other hand, French philosophy in the nineteenth century and at the beginning of the twentieth century was engaged in very different discussions. The fundamental questions present in those two philosophies shall be the subject of next few paragraphs; afterwards, it will be judicious to sketch the "use" made of Wittgenstein by each of them.

In the scientific aura of those days, the French apprehended the philosophy of science in quite a distinctive manner. First of all, Pierre Duhem opposed Newton in the idea that the fundamental element of the construction of the world was the material atom. In the philosophy of mathematics, Henri Poincaré refused the russellian project of reduction of mathematics to logic, and mainly because of his great influence within the French intellectual world, logic has never become of great importance in the French philosophical scene. By the way, anything linked with logical positivism has never been all the rage.

Let's take the question of solipsism, one of the central issues in the history of English-speaking

philosophy: it was obviously not the most important one in French modern philosophy (here "modern" means "after-Descartes"), especially since Descartes proved, once and for all, the existence of the external world. So the problem was not "whether the world exists", but "whether the Cartesian proof is valid". And it should better be, because the wager was the very possibility of being scientific and approved by at least some Church representatives. On the other hand, British philosophers, even past the "linguistic turn", remained fascinated by Berkeley's idealism, and one of the reactions against this tendency was J.L. Austin's *Sense and Sensibilia*. We are sure to come across some persistent themes in post-berkeleyan philosophy: as his main accusation against the predecessors was the substitution of words by ideas; then the very question of language and its role has grown to be an obligatory part in British philosophy, flavoured by the post-darwinian naturalism. And Wittgenstein has easily found his place in the British intellectual background, with his refusal to see the philosophy as "the Physics of the Abstract"¹ and the disregard of intuition (while it was an essential engine in the philosophy of knowledge for the French). The long process of desubstantialisation in British philosophy was then crowned by *Tractatus*' remarks on the non-existing ego.

Was God one of the main sources of the quarrel between analytic and continental philosophers? This is a very tempting hypothesis when one looks at the first positivists in both countries, as for example Auguste Comte. Obviously, even though the XXth century French philosophers did not conserve the legacy of mind-body dualism anymore, they still believed in the epistemic and metaphysical primacy of thought.

As this issue should remain unclear for the rest of the time, it may be judicious to take a look at the very context of the philosophy of language in the XXth century. Denis Vernant, in his analysis of Russell's *On Denoting*, published in 1980, starts by a comparison of Saussure's and Russell's approach: when the former inaugurates his course on linguistics, what he says is "important rather because of what it excludes than what it affirms" (Vernant 1980, p. 489). Stating that the linguistic subject does not join a thing with a word, but an idea with an acoustic image, Saussure does not acknowledge the reference of a word to its meaning, as Russell did. And if it is not the beginning of the incomprehension, it is surely its significant moment. The question of "how does language signify?" was then in the centre of British and American philosophy, even though there were still two possible ways of dealing with that matter: research inside of the language or the way chosen by the philosophy of mind and cognitive science.

Tractatus had no real influence in France till 1961, although the first remark about this book has been made already in 1924 by Jean Nicod. He advanced the idea that the symbolism of formal logic does not name the relations between propositions, but merely exhibits them – this distinction Nicod takes precisely from the *Tractatus*. We should see that this philosopher, who was qualified by his

¹. Toulmin, Stephen 1993 "Alan Donagan and Melbourne Philosophy", *Ethics* 104, 143-147, p. 146.

fellows as "logistician", is not concerned with the technical achievements of Wittgenstein's first book, but rather the way he uses the language. This early interest for explicitly linguistic questions announces a distinct treatment that Wittgenstein's philosophy gets from its French readers.

However, it was Jean Cavaillès who had written, in 1935, the paper known as a kind of official introduction of Wittgenstein in France. This young logician (whose premature death is probably one of the main causes of the lack of any logical research in French philosophy and mathematics) had been to Prague during the famous congress in August 1934, where one could have witnessed the confrontation of the members of the Vienna Circle, the Prague school, and the Lvov-Warsaw school of logic. He had written a large paper, "L'École de Vienne au congrès de Prague" (Cavaillès 1994), in which he wanted to show the main lines of Wittgenstein's philosophy – the main subject of discussion during this congress, although almost completely unknown in France.

"We know that Wittgenstein's ideas had played a determinant role at the origins of the Vienna Circle, and they characterise at least a part of its innovation as confronted to Mach's philosophy, which would be however something it prolongs." (Cavaillès 1994, p. 566) Cavaillès spells out some main theses of Wittgenstein's work, and the last one is the following: "there is no proposition on propositions"; it marks the era when the idea of meta-language is the inspiration for many French philosophers. Yet it was a British philosopher, J. Ellin McTaggart, who had written the very first paper on this problem in 1923.

Cavaillès remarks, at the end of his discussion on Wittgenstein, that the members of the Vienna Circle did not accept several of his thoughts. Nor they thought that we were unable to formulate a syntax in valuable propositions, neither they reduced the entire book (*Tractatus*) to a system of senseless clarifying remarks. What they seemed to want was to make Wittgenstein's work larger and more flexible. Nevertheless, those two rejected thoughts became inspiring on the French ground.

The first article in French philosophical press which was focused exclusively on Wittgenstein, was the one written by Pierre Hadot, a specialist of the Ancient Greek philosophy, in 1959. In the mid-fifties, he had read in some German review a short comment on the *Tractatus*, and the author of this note quoted the famous letter to von Ficker, where Wittgenstein talks about two parts of his opus, of which only one could have been written. He was fascinated that someone who admitted the positions of the logical positivism, was able to talk about the mystic as well as about something that cannot be said. The French seem to be the first to observe the extra-logical content of the *Tractatus*. Some say that most of them were fully satisfied with that. Jacques Bouveresse regrets today his insisting on the "therapeutic" side of Wittgenstein's philosophy, and one can easily understand why. On the other hand, this "French" reading of *Tractatus* has some similarities with the one proposed by the "New American Wittgenstein". The mysticism seduced some readers but disappointed some others, as we know from Russell's or Neurath's writings. It is not to be forgotten that Gilles Gaston Granger who, in 1969, published a first book aiming the explanation of Wittgenstein's philosophy, was obviously trying to do that in a surprisingly homogenous way. Instead of speaking of "early", "late" or "middle" Wittgenstein, he endeavoured the first, according to Pierre Gochet (Gochet 1969, p. 371), reading aiming to underline a profound continuity between the ideas of *Tractatus* and of *PI*. This

enterprise is also unexpectedly close to the one proposed by the new readers in America.

Those readings have received an analysis by Pascal Engel (1997), which is partly true, but entirely witty, in his *La dispute*: "Wittgenstein was the only one who found grace in their eyes, and it seemed to be the case mainly because he wrote in German, and because the Continental readers were struck by his quite sybillic style as well as by some similarities between his ideas and those of Heidegger!" It becomes even more noteworthy if one takes Jean Greisch's book (1987) about this later philosopher, and finds there a strange allusion to the § 38 of *Philosophical Investigations*, where we learn that philosophical problems appear when language goes on holiday². Greish makes of it a praise of language that is on a celebration (*fête*) (which is partly due to Klossowski's mistaken translation), which is not a problem, as Wittgenstein has seen it, but rather a lucky and marvellous event (he even plays with the title of one of Bouveresse's books, *La parole malheureuse*, naming his opus *La parole heureuse*).

Classic themes traversing the wittgensteinian corpus in English-speaking countries, as the one of scepticism or anti-realism as possible consequences of the "second" Wittgenstein were almost absent in French literature. There was of course Jacques Bouveresse, whose efforts were quite heroic, writing on those topics with an impressive competence; the problem was that no-one felt that there was anything to add, and a debate never rose.

Meanwhile, the critics were furious. Gilles Deleuze, in his *Abécédaire*, "doesn't like to talk about that" because it is a "philosophical catastrophe". Wittgenstein's school "imposed" ("ils ont foutu") a system of terror in which, under the pretext of doing something new, it's poverty introduced as grandeur". One should thus "remain very vigilant" facing those assassins of philosophy.

A particularly noteworthy reaction towards Wittgenstein's philosophy was the one of Jean Wahl, an important figure of French intellectual life in the sixties. He is the author of the introduction to the first French translation of the *Blue and Brown Book*, where he explains to the reader that even if Wittgenstein is an intelligent person, he remains an "inexperienced mind faced with great philosophical problems" (Wittgenstein 1965, p. xviii). Wahl also regrets the abstract character of the language games, staying, according to him, out of reality; this seems to testify of a completely unlike character of what he was looking for in philosophy. Apparently, what was a possible answer for analytic philosophers was an abstract chat for the continental ones. The languages were simply incompatibles.

It seems to be a common view that Wittgensteinian philosophy is not a systematic exhibition of world's order – even though it supposes a coherent apprehension of the latter. He criticised views he was confronted to in conversations or in books he read, and it is a natural reason why French readers did not find their way out of their philosophical queries in analyses that British or American philosophers made of Wittgenstein's texts until the seventies or the eighties. Some of them did however managed to propose an original, albeit sometimes very risky, reading of Wittgenstein's own texts, which appeared to be a relevant way to underline some less known dimensions of philosopher's thought. Thus there is nothing surprising to see Jacques Bouveresse reading Cora

². „Denn die philosophischen Probleme entstehen, wenn die Sprache feiert.“

Diamond, and to see Hadot's 45 years old articles republished with Sandra Laugier's efforts, a person close to the "new Wittgenstein" mentioned above. And all we should do now is to wait until someone, one day, will finally throw away the ladder.

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The Beginning of Cosmic Time

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Introduction

Did time have a beginning, and if so when? According to the standard model of cosmology, time is a parameter in the classical Friedmann-Robertson-Walker (FRW) model, and began in a singularity approximately 10^{17} seconds ago. In this framework the question concerning what was before this 'Big Bang' is considered as meaningless as asking for what is north of the North Pole. Some string theory inspired cosmologists, however, take advantage of an apparent loophole in that argument. General relativity is expected to break down at Planck scales, so the Big Bang singularity might be avoided and it may thus still be asked what was before the Bang. By contrast other theorists maintain that the Planck scale marks a point where time and space lose their usual meaning. In that case, the 'north pole' of the former argument is moved to the Planck time some 10^{-43} seconds 'later' than the classical general relativistic singularity at $t=0$.¹

But what are the presuppositions behind this debate of whether there is a 'north pole' for time? Obviously, it depends on whether the standard Big Bang cosmological model is at least roughly correct (i.e. that the universe is expanding from a hotter and denser state in the past). While this may be questioned, I shall here leave such doubts aside. The other key presupposition in the debate concerns the meaning of time. If time means something over and above what it means in specific cosmological models, then there might not be problems in contemplating earlier times than, say, the Planck time. If the opposite is true the time concept of these models, and the underlying physical theories, must be taken into account. In the following I sketch an analysis of the time concept in philosophy and cosmology, and suggest an answer to the question of time's beginning.

The Meaning of Time

It has been known at least since St. Augustine that it is hard (if not impossible) to give a *reductive* definition of time in terms of other concepts that are themselves independent of time. For instance, operationalism, 'time is what a clock measures', is ruled out as a reductive definition, since one cannot specify what a clock (or a measurement) means without invoking time. Also it seems impossible to provide a meaning of time via a referential theory of meaning, assuming e.g. that 'time is (or means) whatever it corresponds to in reality', since we cannot point to or specify what this 'referent' might be. This situation suggests that time is a fundamental (e.g. irreducible) concept.

It seems to me that for time – and possibly also for other fundamental concepts – the only viable alternative to operationalism and referential theories of meaning is some version of Wittgenstein's idea of meaning as use. Without pretending to give a complete theory of meaning, I assume that a (fundamental) concept is meaningful only insofar as we know something about how the concept may and may

not be used, and in particular, we need to know something about the concept's relations to other concepts. I believe that part of this knowledge for time can be captured as follows:

There is a logical (or conceptually necessary) relation between 'time' and 'a physical system which can be used as a clock' in the sense that we cannot meaningfully refer to (or speak about) either of these concepts without referring to (or speaking about) the other.

The justification for this time-clock relation consists in that it cannot be denied without rendering the concepts time and (physical systems which can be used as) clocks unintelligible, see (Zinkernagel 2005). The time-clock relation has implications both for cosmology (see below) and philosophy. For instance, the implicit denial of the relation is a central ingredient in Hume's famous argument that since the causal laws might fail in the future, the sun might not rise again tomorrow. In (Zinkernagel 2005) I try to show that Hume's argument is flawed because the concepts of 'future' and 'tomorrow' make no sense if they are unrelated to physical processes (which involve causal laws), such as the sunrise.

The time-clock relation is in the relationist spirit of Aristotle and Leibniz (by relationism about time I simply mean that time must be understood in relation to matter and motion). Of course, not everybody has defended relationism. The most famous opponent to this view is Newton who held that "Absolute, true, and mathematical time, of itself, and from its own nature, flows equably without relation to anything external". But does it make sense what Newton is saying? It seems impossible to specify the meaning of 'flow' without relation to something external. Indeed, if we say e.g. that a river flows it does so with respect to the river banks. Newton's identification of absolute time and mathematical time suggests that we should somehow understand absolute time in a purely formal way. Formally, of course, one can label a parameter in an equation 'mathematical time'. But there is no parameter in any equation which, by its own 'nature', flows equably. Furthermore, the fact that our usual notion of time can be associated with a formal (mathematical) structure rests precisely on time being related to physical systems, cf. as when we count the number of sunrises. Thus, it is a mistake (unfortunately widespread) to *identify* time with a mathematical structure such as the real line.

Time in Cosmology

In modern cosmology, time is taken to be a parameter in the FRW model.² The identification of the t parameter with time is made in FRW cosmology by associating t with the time measured on a *standard clock* at rest in the co-moving frame. This is in accordance with the above section on the meaning of time. From the time-clock relation it may also be inferred that if on the way backwards in cosmic history a point is reached where no

¹ Here I use for convenience the standard terminology specifying (fractions of) seconds 'after' the Big Bang. As will be seen below it is more correct to speak of such time indications as limits of the validity of the backward extrapolation of the FRW model from the present.

² See (Rugh and Zinkernagel 2005) for a critical discussion of the physical assumptions (the Weyl postulate and the cosmological principle) needed for deriving the FRW line element. These assumptions become particularly hard to satisfy when the material constituents of the universe are to be described in terms of quantum theory.

physical clock (processes) can exist, then it will be meaningless to ask what is 'before' this time.³ In short: No time before clocks. It therefore becomes crucial to investigate what these standard clocks are and how far back in time they can exist. This will provide an answer to the question of how far back it is possible to make the interpretation

$$t \leftrightarrow \text{time},$$

or, in other words, how far back the FRW model can be taken to be a *physical* model of the universe involving time, and not just a mathematical model involving t .

As discussed in (Rugh and Zinkernagel 2005), every possible standard clock in cosmology involves fixed physical scales (e.g. a fixed length scale given by a rod). A simple example is the light clock discussed by Einstein which consists of a light signal bouncing back and forth between the ends of a rigid rod.

One may distinguish between clocks based on the gross features of the FRW model and 'local' clocks which (to a certain extent) are independent of these gross features. As an example of the first kind, consider, for instance, using the cosmic scale factor – the spatial distance between particles at rest in the co-moving frame – as a clock. Insofar as the scale factor has a physical meaning, the relation between $R(t)$ and t could give a physical meaning to t and thus allow this to be interpreted as time (e.g. $R(t) \propto t^{1/2}$ for a radiation-dominated phase with a flat geometry). To use the scale factor as a clock, however, requires at least two things: (i) The physics has to be under control, that is, one needs to know which particles are in existence and what their interaction properties are, otherwise the precise $t - R(t)$ relation is unknown; and (ii) The scale factor has a physical meaning only if there are systems which are *not* expanding with the universe (or at least systems which are expanding differently), such as a rod which can set a fixed length scale. Point (i) also holds for other gross feature clocks such as temperature which is perhaps the most common 'clock' employed in early universe cosmology (in various phases of the early universe, $t \propto T^{-2}$). And, in analogy with point (ii), in order for temperature to be a physical concept, one needs a minimum fixed length scale, cf. e.g. the standard definition of temperature as $1/T = (\partial S / \partial E)_V$ where the subscript refers to a fixed volume (a fixed length scale).

As an example of a 'local' clock, consider the caesium clock which is based on energy transitions within the caesium atom. These transitions emit radiation with a well-defined frequency which can be inverted and used as a time scale. But since cesium is produced in stars, this clock is unavailable in the early universe. In fact, no clock based on atomic or nuclear energy level transitions is available in the very early universe 'before' nuclei are formed.

A possible objection to the 'no time before clocks' argument concerns counterfactual clocks. For instance, even if there were no caesium in the early universe one could perhaps still ask how many vibrations would have occurred. Whatever the merit of counterfactual clocks, however, the problem with this idea is that not only are there no (cesium or other) clocks in the very early universe – there could not possibly have been any because any

clock will eventually melt as we extrapolate backwards (see below).⁴

The First Clock (When did Time Begin)?

Cosmologists assume that a number of important events took place within the first second of history, corresponding to increasing temperatures (energies) as we go back in time. Thus, the light nuclei vaporize when we reach temperatures corresponding to around 1 second (in the standard cosmology jargon they were formed 1 second 'after' the Big Bang), protons and other hadrons disappear at the quark-gluon phase transition at about 10^{-5} seconds, the electroweak phase transition (which gives mass to the elementary particles) takes place around 10^{-11} seconds, and a period of cosmic inflation is envisaged (according to some models) to occur when we come back to around 10^{-34} seconds.

But are all these time specifications well-defined? Bound systems like protons provide a fixed length scale via their spatial extension but such systems disappear at temperatures corresponding to 10^{-5} seconds. Then, the quality of mass can perhaps be used to set a physical length scale (via the Compton wavelength, see (Rugh and Zinkernagel 2005)). Even if this is possible, however, masses disappear for energies above the electroweak phase transition (which also indicates the current upper limit of known physics – encoded in the standard model of particle physics). At this point then, any known length scale (any known rod) disappears and so does the possibility of having physical clocks. Thus, if the FRW model is a good description of the large scale structure of our universe and the standard model of particle physics is a good description of the small scale structure, then the time concept cannot be extrapolated further back than 10^{-11} seconds.⁵

It may, of course, be speculated that, perhaps, some as yet unknown physics is operative above the electroweak transition. Such speculative physics may provide physical clock processes, but it should then be admitted that the clocks, and therefore time, become as speculative as the physics employed.

If the above argument is accepted, it may be thought that this does not change a lot for modern cosmology since, after all, the time concept may be used down to 10^{-11} seconds which is still quite a long way back in cosmic history. Nevertheless, as seen from the numbers above, there is logarithmically shorter time from the present back to the electroweak transition than from the electroweak transition back to the Planck time. Thus, to accept the above analysis of the time concept is to challenge more than 30 orders of magnitude of early universe cosmology – in which time is usually taken for granted all the way down to the Planck scale.

⁴ Another possible objection concerns that even without a metric there might still be before/after (order) relations between events. Even if this is so, such relations would have to be specified with respect to physical processes (otherwise, what means before or after?) and in this sense one would have to refer to 'non-metrical clocks'. In any case, modern cosmology contemplates events taking place at specific times (see below), and before/after relations are insufficient for such specifications.

⁵ As discussed in (Rugh and Zinkernagel 2005), it is not obvious that clock processes can be constructed from quantum theory alone (and quantum theory is supposed to describe the constituents of the early universe). This is related to what could be called the cosmic measurement problem which concerns the quantum-classical transition in cosmology. The possible insufficiency of quantum theory for clock construction might put into question the notion of time even 'before' the electroweak phase transition is reached in the backward extrapolation of the FRW model.

³ According to a common conception, a clock consists of a system which undergoes a (more or less) regular, constant or repetitive, physical process, as well as some kind of counter (e.g. a clock dial). I am here only interested in the first (core) component of a clock, namely the physical process.

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Thucydides: A New Vision of Time in Relation to a New Vision of the Ethics in International Relations

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My paper is a re-reading of the *History of the Peloponnesian War* by Thucydides, where the new conscience of time, in an indeterminate point between autonomy and determinism, brings about a long term consequentialist policy, where prudence and responsibility constitute themselves as the limits to our lack of possibility to any absolute knowledge and as a reflection of the dynamic alternative dependent on the historical context, which constitute us.

I should say beforehand that my reading of Thucydides' text does not in any case pretend to be definite nor absolute. I only see it as one more possibility, as one more lecture from the hermeneutical point of view (Gadamer, 1960), which may break some prejudgments and limits, to create most definitely others. I read Thucydides as giving us a fantastic lesson about the impossibility of apprehending absolutes, and I revolt against the academy, which always tries to fit great authors in too small boxes. His wisdom spreads all over different spheres: over international relations as well as philosophy of history, ethics and politics.

My paper is structured in three parts. The first one deals with his critique of determinism, the second with his critique of realism and the third part with the consequentialism in Thucydides. As we shall see, all three themes are absolutely interrelated, and can be deduced from his new theory of time or his new theory of ethics related to the limited autonomy of the human being and his/her relation to time. To deal with these topics, I have fundamentally treated three of the chapters of his *History* which appeared to me as the most striking: Mitilene, Melos and Sicily, which represent from the possibility of an alternative to the final failure, and three groups of characters, which constitute convergent lines of optimism and pessimism: Pericles, Cleon and Alcibiades vs. Pericles, Diodotus and Nicias (Thucydides, 1989).

Dealing with *determinism* we have to see the profound contradiction in which our author encounters himself, with his critique of determinism, and his conscience of the impossibility of an absolute autonomy. Thucydides is defending a point undefined in space, between determinism and autonomy. I would define determinism as the necessity for action or behavior, and autonomy, on its opposite side, as the freedom of the subject to act. Freedom could be understood in the old Greek world as the lack of external constraints or independence in decision taken by an individual or community as opposed to other individuals or communities (See Ferrater Mora, 1983; Thiebaut, 2000).

This opposition between determinism and autonomy develops itself in the theoretical environment of the development of rationalism and the sophistic school, in the middle of the Athenian Pericles century, a crucial moment of change in the role of time and in the function of man who becomes a subject in political action, and therefore in historical action, too (Collingwood 1977; Châtelet 1978; Romilly 1979). But it is also a moment of questioning because the incapacity of controlling fate and causality makes them mix the rational and the irrational, and parallels also autonomy and determinism (Regenbogen

1933; Châtelet 1978). To what extent can the human being affect its own fate, and to what extent does the fate affect him? Where is the limit of determinism and where does autonomy start? These are the questions I see underneath the text Thucydides presents us.

The contradiction I was talking about before is the one which derives from the will to write a history as an advice to future actors of history, so that they shall not commit the same mistakes that brought to the fall of the Athenian "empire" (if we like to call it this way), wanting to establish some mechanisms through which history goes by to give the possibility to break them afterwards (See Berlin 1990). Thucydides narrates us, at every single moment, a stronger determinism in the behavior of the Athenian Empire, whose growing ambitious policy diminishes the possibility to go back its path in its decisions, without fearing a fast fall, which will happen anyway. This seems to be the narrative structure in which Thucydides tries to introduce us, the quick fall of an empire, because of its lack of moderation. These are the supposed "natural laws", Thucydides tried to establish, with the hope of being able to control history, so that it could serve as a lesson (Châtelet 1978; Collingwood 1977; Strasburger 1954; Liedó 1983).

But, of course, this is not all. In the first place, the same possibility that future actors could not be driven by this supposed "natural laws" and would be able to change the supposed inexorability of fate, breaks the structure and makes it become dynamic. In the second place, the chapter of Mitilene is the one, which with the utmost clarity establishes the possibility of an alternative (Wasserman, 1956; Romilly 1978). Through a dialog between two speakers, which defend respectively a more moderate policy and a policy which would follow this more radical line of power, Thucydides surprises us in his account, making us see how the moderate option wins the election by the Assembly, against all prediction. This way, he establishes in praxis the possibility of diverting, even if with difficulty, from the apparently necessary line of history. We start seeing here that Thucydides approximates the idea, that there is a structure in history, which may be constant, but the facts change its shape – there is a structure of behavior, although the circumstances change, and the calculus of the outcome can never be forecasted, because of the former (Koselleck 2003; Giddens 1984). A cyclical vision of time, defended by historians before Thucydides, like Herodotus, is being opposed to a helicoidal vision, which would be Thucydides' proposal from my reading on, where the line of change joins the cyclical of the permanent (Strasbourger 1954).

In the next chapter the radical option wins ground, until the final drop, as was expected; but the possibility has been established. As Châtelet (1978) tells us: the work could be defined as a systematic description of the failure of a solution.

In the second part of my exposition I will talk, as I mentioned before, about his critique of the short-term realism. I would define realism in the first place, and conscious of the difficulties for the definition of the term (Crane 1998), as the policy guided by an individual or

collective interest. I establish here the evolution of the oppositions from Pericles, to Cleon vs. Diodotus (chapter of Mitilene) and Nicias vs. Alcibiades (chapter of Sicily), and its parallelism with the opposition between Athens and Sparta during the *History* (Châtelet 1978). Thucydides is usually situated as the starting point of a stream of realist thinkers with an idea of power as the basic shift of human nature (Thucydides Intr. 1989). Thucydides writes in coincidence with many of the realist points, but he also shows their frailties, or better, their different faces (Crane 1998; Alsina 1981).

Thucydides establishes as parting point and as the example of the good acting the politician Pericles, who maintains united politics as well as ethics, in a realization of them prudent and rational. Prudence in Pericles still contains justice, in accordance to our author. From there on, being there no politician who could equal Pericles, Thucydides describes two lines which separate from him in opposing movements: The short-term realism and the long-term realism, vengeance and prudence, Cleon and Diodotus. The relation between the new vision of time and prudence is clear: in the undefined point between autonomy and determinism, we can only be prudent and act with judgment in relation to a non-absolute world of actions, where we have to choose what is the better outcome and where there are not always rules to follow. (Woodhead, 1970)

Thiebaut's definition (2000) of prudence would only be applicable in the case of Pericles' policy. He says that the prudent is the just and fair governor, but one can also understand that it is the one, whose behavior and judgment incarnates a straightness, which attends the principles of justice as well as the application to a concrete situation. In my opinion, though, justice has nothing to do necessarily with prudence; it is just a plus which gives prudence more legitimacy. My definition would be much simpler: Active care on the consequences of one's action. Moreover, prudence would be directly related to rationality, which we could define, with Ferrater, as basic comprehension of reality that permits the intelligent possessor of the same to act consequently. Prudence depends on the possession of rationality, because there exists no prudence without voluntary action. But, as we have seen, rationality, in this sense, has more to do with the possibility to act taking into account some of the consequences our actions may have, than knowing about some principles *a priori* of action. Prudence constitutes itself as control instrument of politics, as a point, undefined in space, between rationality and irrationalism. Athens was not (sufficiently) prudent, in Thucydides' opinion. (Rodríguez Adrados 1985)

Going back to the dialog of Mitilene, where the two speakers decide about the future of the population of this city, which wanted to cheat Athens and is finally defeated. Thucydides separates, via Diodotus, for the first time in political history politics and ethics (Wasserman, 1950). The prudence, defended by Diodotus, is a prudence which does not take into account justice, and which moves solely in the frame of surviving. Thucydides simply says that the moral argumentation is not necessary for correct politics (against Woodhead 1970). Thucydides' conscience of Athens' impossibility to legitimize its politics through justice makes him support an ongoing weak option of prudential consequentialism, which in the last case Nicias defends, before the Sicily battle, against Alcibiades, and, as we know, loses.

Now we come to the last part of my paper, which will deal with a disquisition between long-term and short-term

consequentialism. As we have already seen, this third part is absolutely related to the discussion of realism and prudence, and time and prudence. Therefore, in our conscience of not being able to control what our actions actually are (Arendt 1998), and how they respond to more or less important interests, we now can say that the differentiation between long term and short term is no absolute one, and only derives from our knowledge of limitedness, our wish to control, and our conscience of our incapability.

Consequentialism could be defined as a theory of action, which takes more in consideration the consequences of actions than their principles. The absolute control of the consequences is impossible, and so is also absolute consequentialism. Maybe we could define it as the middle point between determinism (absolute lack of control by the subject) and autonomy (absolute control and freedom), or we could define it as the middle point between a rationalism guided by a moral of principles, which prefers Justice to prudence in action, and an irrationalism guided by the desire, but these middle points are undefined in place and time, because the information varies in its context and is never complete (Rorty 1984; Gadamer 1960; Wittgenstein 1984).

There are no absolutes. Neither consequentialism in the short term nor in the long term are static categories. The more or less long term, which we could take into consideration, would define a bigger or smaller prudence. Prudence in action, which has already been defined before in relation to the calculus of consequences, does not exempt, however, the responsibility before unlucky and not before calculated consequences. Responsibility, on its behalf, could be defined depending on if the policy is more determined or autonomously chosen (Berlin 1990; Del Águila 2000; Arendt 1998).

Athens was not sufficiently prudent, as we saw, to counteract the necessary movement which the empire presupposed, and which would lead her through ambition, to ever more unsustainable situations; but the margin of autonomy, even if very exiguous, makes her responsible of the failure of her politics (Stahl 1966; Tucídides VIII, 1).

I come now to my conclusion. Thucydides appears to me as being of an extreme vanguardism. Even coming from the new wave of rationalism in his century Athens, and without having necessarily to come in contradiction with it, he is conscious of the limits of human mind and comprehension capabilities (Crane 1998). Even though he tried to discover the structure of history and the natural laws by which the human being moves himself in history (Drexler 1976), he was also conscious of his ephemeral being, and of the possibility of changing the structures through actions, of the possibility of an alternative, of the possibility of the human being to become an autonomous being, even if only relatively. Thucydides always knew, as it appears to me, that the simple structure never describes the world (García Picazo 1998; Romilly 1979; Berlin 1990), but conscious of his contradictions, he knew that they come out of our limits, and the conscience of our limit is the first step to deal with knowledge.

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