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Forword of the Editors

Starting with this issue of METAPHYSICA the journal will be published by ontos verlag in cooperation with Philosophia Verlag, Munich. Therefore Professor Dr. Dr. Hans Burkhardt, editorial manager of Philosophia Verlag is appointed as the fourth editor of METAPHYSICA. Hans Burkhardt will, in particular, look after the special issues published once or twice per year. As of 2006 we also plan to publish a regular review section which will be looked after by Dr. Käthe Trettin, Frankfurt/Germany. As new members of our editorial board we welcome Professor Dr. Oliver Scholz, University of Münster, Germany and Professor Dr. Peter Simons, University of Leeds, United Kingdom.

The Editors
Hans Burkhardt, Rafael Hüntelmann
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ARTICLES

RICHARD SCHANTZ

Die Natur der Intentionalität

Abstract

The author characterizes the structure of intentionality and, building upon this characterization, defends a version of intentionalism or representationalism. Intentionalism's central thesis is that the mind is a system of object-involving abilities, a system of abilities to refer to objects and events in the world – to represent them. The author tries to make plausible the view that all mental phenomena possess intentionality – even those which like sensory experiences, bodily sensations and allegedly undirected emotions are commonly brought up as counterexamples against intentionalism.

I

Die Philosophie des Geistes ist gegenwärtig sicherlich eines der produktivsten und innovativsten Gebiete der Philosophie. Sie befasst sich mit allgemeinen Fragen über die Natur mentaler Phänomene und ihren Platz in der Welt. Was ist ein Schmerz, ein Gedanke, ein Wunsch, ein Gefühl? Was heißt es für jemanden oder für etwas, zu denken, zu fühlen, verliebt, zornig oder bewusst zu sein? Was unterscheidet ein denkendes und fühlendes Wesen etwa von einem Stein, der vermutlich überhaupt kein mentales Leben besitzt? Kann ein Computer, der aus Plastik, Silizium und Drähten besteht, leiden, kann er befürchten, dass seine Oberfläche zerkratzt wird? Vermutlich nicht. Aber was ist dann so besonders an dem Stoff unseres Gehirns, dass wir solche Befürchtungen hegen können? Ein Grund, warum solche Fragen als philosophische und nicht bloß als wissenschaftliche angesehen werden, ist, dass es einen beträchtlichen Dissens darüber gibt, wie wir auch nur beginnen sollten, sie zu beantworten. Sollen wir uns

auf die Methode der Introspektion stützen? Oder sollen wir uns, dem späten Wittgenstein folgend, über unsere Begriffe und über die Bedeutungen oder Gebrauchsweisen unserer Wörter Klarheit verschaffen? Oder sollen wir uns gänzlich auf das verlassen, was uns die verschiedenen Wissenschaftler mitteilen, z.B. was uns Behavioristen über das Verhalten sagen, oder was uns Neurophysiologen über unser Gehirn sagen, oder was uns Psychotherapeuten über unsere unbewussten Motive sagen?

Angesichts dieser verwirrenden Problemlage könnte man versucht sein, die Flinte gleich ins Korn zu werfen. So behaupten denn auch einige Philosophen, allen voran Richard Rorty, dass unsere Konzeption des Geistes gar keine Einheit, keine Natur, besitzt, sondern dass sie vielmehr ein ziemlich ungeordnetes Bündel von Vorstellungen ist, ohne einen vereinheitlichenden Faden, der sie miteinander verbindet.¹ Ich bin anderer Meinung. Ich werde in diesem Aufsatz die Auffassung verteidigen, dass Intentionalität, das Gerichtetsein auf Gegenstände, das Einheit stiftende Merkmal des Geistes ist. Ich verteidige also Franz Brentanos These, dass Intentionalität das charakteristische Merkmal von allen und nur von mentalen Phänomenen ist. Einen Geist zu haben besteht mithin darin, ein System von Fähigkeiten zu besitzen, auf Dinge und Ereignisse in der Welt Bezug zu nehmen, sie zu repräsentieren. Ich verteidige somit den Standpunkt des Intentionalismus oder Repräsentationalismus demzufolge alle mentalen Zustände intentionale oder repräsentationale Zustände sind.

Die These, die ich hier verteidige, ist verschieden von der Irreduzibilitätsthese, der These, dass intentionale Phänomene nicht auf physische Phänomene zurückgeführt werden können, die, im Anschluss an Willard Van Quine, in der einschlägigen Literatur ebenfalls als Brentanos These bezeichnet wird.² Diese beiden Thesen sind verschieden, weil man behaupten könnte, dass alle mentalen Phänomene physische Phänomene sind, dass aber das, was ein mentales Phänomen zu einem mentalen Phänomen macht, seine Intentionalität ist. In diesem Aufsatz werde ich nur die erste These verteidigen, die These, dass alle mentalen Phänomene intentional sind. Man könnte sie auch die „Brentano-Husserl-Sartre-These“ nennen, denn auch Edmund Husserl, inspiriert von seinem Lehrer Brentano, und Jean-Paul Sartre, inspiriert wiederum von Husserls transzendentaler Phänomenologie, haben sich dieser These verschrieben. So proklamiert Sartre, dass es zur Natur des Bewusstseins gehört, intentional zu sein und dass ein

¹ Vgl. Rorty 1979

² Vgl. Quine 1960, 221-222

Bewusstsein, das aufhört, ein Bewusstsein von etwas zu sein, ipso facto zu existieren aufhört.³

Im ersten Teil meines Aufsatzes werde ich die Struktur der Intentionalität entfalten. Im zweiten Teil werde ich mich mit populären Einwänden gegen den Intentionalismus und seine zentrale These, dass das Gerichtetsein auf Gegenstände das Kennzeichen des Mentalen ist, auseinandersetzen.

II

An einer klassischen Stelle sagt Brentano:

Jedes psychische Phänomen ist durch das charakterisiert, was die Scholastiker des Mittelalters die intentionale [...] Inexistenz eines Gegenstandes genannt haben, und was wir, obwohl mit nicht ganz unzweideutigen Ausdrücken, die Beziehung auf einen Inhalt, die Richtung auf ein Objekt [...] oder die immanente Gegenständlichkeit nennen würden. Jedes enthält etwas als Objekt in sich, obwohl nicht jedes in gleicher Weise. In der Vorstellung ist etwas vorgestellt, in dem Urteile ist etwas anerkannt oder verworfen, in der Liebe geliebt, in dem Hasse gehasst, in dem begehren begehrt usw.⁴

Es geht mir hier nicht darum, diese komplizierte und oftmals missverständene Passage zu deuten, und noch viel weniger geht es mir hier darum, Brentanos Gedanken über die Intentionalität psychischer Phänomene, und wie sie aus dem Fundament seiner gesamten Philosophie, der deskriptiven Psychologie, hervorgehen, in allen ihren Facetten zu entfalten - was sicherlich kein ganz leichtes Unterfangen wäre. Mein Ziel ist es vielmehr, die Struktur der Intentionalität, so wie ich, inspiriert von Brentano, sie verstehe, zu charakterisieren. Ich möchte jedoch klarstellen, dass ich insbesondere die Annahme, dass die Objekte, auf die der Geist gerichtet ist, irgendwie im Geist existieren, dass sie „intentional inexistent“ sind, nicht teile. Ich glaube nicht, dass es solch interne oder immanente mentale Objekte gibt. Allgemeiner: ich teile weder Brentanos Erkenntnistheorie noch seine Metaphysik. Und das Gleiche gilt auch für meine Einstellung zu den entsprechenden philosophischen Grundauffassungen von Husserl und Sartre.⁵

³ Sartre 1936/37

⁴ Brentano 1874, Bd.1, 124-25

⁵ Meinen erkenntnistheoretischen und metaphysischen Standpunkt habe ich in Schantz 1990 und 1996 entwickelt.

Wir können, anknüpfend an die obige Passage, sagen, dass es der Kern des Begriffs der Intentionalität ist, dass, wenn wir uns in einem mentalen Zustand befinden, es etwas gibt, auf das wir gerichtet sind, etwas, das uns auf die eine oder andere Weise gegeben ist. Wenn wir denken, dann denken wir an etwas, wenn wir wahrnehmen, dann nehmen wir etwas wahr, wenn wir uns erinnern, dann erinnern wir uns an etwas, wenn wir lieben, dann lieben wir jemanden. Wir können sagen, dass mentale Zustände Objekte haben, dass für einen mentalen Zustand Intentionalität zu besitzen, heißt, auf ein Objekt gerichtet zu sein. Das Objekt, auf das ein intentionaler Zustand gerichtet ist, werde ich sein intentionales Objekt nennen. Das intentionale Objekt eines Gedankens wird in einer Antwort auf die Fragen „Worauf bezieht sich der Gedanke?“ oder „Worauf ist der Gedanke gerichtet?“ angegeben. In diesem Sinn kann alles und jedes ein intentionales Objekt sein – Ereignisse, Prozesse, Eigenschaften, Universalien, Zahlen, Götter und Gespenster. Daher ist die Kategorie intentionaler Objekte keine metaphysisch einheitliche Kategorie, die man etwa der Kategorie physischer Gegenstände oder der Kategorie abstrakter Gegenstände gegenüberstellen könnte. Es gibt nichts, was alle intentionalen Objekte gemeinsam haben. Sie existieren nicht einmal notwendigerweise, denn ich kann an Zeus oder Pegasus denken. Es ist aber auch keineswegs der Fall, dass sie notwendigerweise nicht existieren, denn schließlich existiert Berlin, und schließlich existiert der Papst.

Wenn ich sage, dass nicht alle intentionalen Gegenstände existieren, dann will ich mich dadurch keineswegs á la Alexius Meinong auf eine Ontologie nichtexistenter Gegenstände festlegen. Ich behaupte nicht, dass einige Dinge existieren und andere nicht, so wie einige Dinge schwarz sind und andere nicht. Vielmehr lege ich Russells und Quines Auffassung zugrunde, dass „existieren“ kein Prädikat erster Stufe, sondern ein Quantor ist. Der Begriff eines Dinges und der Begriff der Existenz sind zwei Seiten ein und derselben Münze. Die Wortform „es gibt“ benutzen wir um Existenz auszudrücken. Strenggenommen ist also der Ausdruck „Dinge, die nicht existieren“ ein Oxymoron. Russell sagte, dass er in Theorien wie derjenigen Meinongs das Gefühl für die Realität vermisst, das selbst in den abstraktesten Studien bewahrt werden sollte. Einhörner, so bemerkte er in diesem Zusammenhang, sollten in der Logik genauso wenig zugelassen werden wie in der Zoologie.⁶ Dem möchte ich hinzufügen, dass, was für die Logik gilt, auch für die Philosophie des Geistes gelten sollte. Es gibt keine bloß intentionalen Objekte. Was es vielmehr gibt, sind mit Kenn-

⁶ Russell 1919, 169

zeichnungen verbundene singuläre und generelle Termini wie „Pegasus“ und „Einhorn“, die jedoch leer sind. Es gibt nichts in der Welt, absolut nichts, wofür sie stehen oder worauf sie zutreffen.

Ich habe betont, dass für mentale Zustände das Gerichtetsein auf Gegenstände charakteristisch ist. Der Begriff der Intentionalität schließt aber noch ein zweites wesentliches Merkmal ein. Mentale Zustände sind nicht nur auf intentionale Objekte gerichtet. Sie haben auch einen intentionalen oder repräsentationalen Inhalt. Brentano selbst hat nicht zwischen der Beziehung zu einem Inhalt und dem Gerichtetsein auf ein Objekt unterschieden. Es war sein Schüler Kazimierz Twardowski, der diese wichtige Unterscheidung einführte.⁷ Allerdings behauptet Twardowski auch, gegen Bernhard Bolzano, dass jeder mentale Akt, mithin auch eine Halluzination, sowohl einen Inhalt als auch einen Gegenstand hat.⁸ Er vertritt jedoch die Auffassung, dass der Gegenstand nicht zu existieren braucht. Damit wurde Twardowski zum Wegbereiter von Meinongs Gegenstandstheorie mit ihrer scheinbar paradoxen Annahme, dass es Gegenstände gibt, die nicht existieren, „ausserseiende“ Gegenstände, Gegenstände jenseits von Sein und Nichtsein.

Den intentionalen Inhalt möchte ich mit Hilfe des Ausdrucks „Aspektgestalt“, den ich von John Searle übernehme, explizieren.⁹ In einem intentionalen Zustand, werden die Objekte, auf die der Geist gerichtet ist, auf eine bestimmte Weise gegeben, unter einem bestimmten Aspekt. Wenn wir einen Gegenstand sehen, dann sehen wir ihn aus einer bestimmten Perspektive, unter bestimmten Lichtverhältnissen etc. Und ähnlich können wir nicht an einen Gegenstand denken, ohne an ihn unter einem bestimmten Aspekt zu denken. Husserl benutzte den griechischen Ausdruck „noema“ für das, was ich mit Aspektgestalt meine.¹⁰

Dies steht in Zusammenhang mit Gottlob Freges berühmter Unterscheidung zwischen dem Sinn und dem Bezugsobjekt oder Referenten eines Ausdrucks.¹¹ Der Referent eines Ausdrucks ist der Gegenstand, für den er steht, auf den er sich bezieht, und der Sinn ist die „Gegebenheitsweise“ des Gegenstandes. Laut Frege muss jedes Symbol, das einen Referenten hat, auch einen Sinn haben; so etwas wie eine direkte Referenz auf Entitäten in der Welt ist nicht möglich. Zudem macht Frege geltend, dass erstens ver-

⁷ Twardowski 1894

⁸ Twardowski 1894, § 5

⁹ Searle 1992

¹⁰ Vgl. Crane 2001, 18-21

¹¹ Vgl. Frege 1892

schiedene Sinne denselben Referenten bestimmen können und dass es zweitens der Sinn eines Ausdrucks ist, der seinen Referenten bestimmt: Verschiedenheit des Referenten impliziert Verschiedenheit des Sinns.

Diese zweite Annahme teile ich nicht, genauso wenig wie das, was aus ihr in der auf Frege aufbauenden allgemeinen Theorie der Intentionalität wurde, die Annahme nämlich, dass der Inhalt eines mentalen Zustands seinen Gegenstand bestimmt. Obwohl z.B. Husserl in seiner Analyse der Intentionalität der Wahrnehmung ein besonderes Gewicht zugemessen hat, wird gerade am Fall der Wahrnehmung besonders deutlich, dass zwei sinnliche Erfahrungen denselben intentionalen oder qualitativen Inhalt, aber dennoch verschiedene Gegenstände haben können. Folglich kann der Gegenstand einer sinnlichen Erfahrung nicht allein durch ihren intentionalen Inhalt bestimmt sein.¹²

Die Tatsache, dass zwei sinnliche Erfahrungen phänomenal identisch sein können, obwohl sie auf verschiedene Gegenstände gerichtet sind, lässt sich durch die Kontextabhängigkeit der Wahrnehmung erklären, durch den Umstand, dass die sinnlichen Erfahrungen in verschiedenen Situationen vorkommen, in denen die wahrnehmenden Subjekte mit numerisch verschiedenen Gegenständen konfrontiert sind. Angenommen, ich sehe Maria, die unmittelbar vor mir steht. Angenommen überdies, Maria habe eine Zwillingsschwester, Petra, die qualitativ von ihr nicht zu unterscheiden ist. Wenn Petra anstelle von Maria vor mir stünde, dann würde ich Petra sehen und nicht Maria, obwohl der sinnliche Inhalt der Erfahrung, die ich in diesem Falle hätte, identisch wäre mit dem sinnlichen Inhalt der Erfahrung, die ich tatsächlich habe. Wenn wir die qualitativ identischen, aber numerisch verschiedenen Gegenstände in Betracht ziehen, die ihre Existenz einer Serienproduktion verdanken, wie etwa Autos desselben Modells oder Tischtennisbälle, dann wird der Punkt noch klarer, dass die Bestimmung des Gegenstandes einer Wahrnehmung keine Funktion ihrer phänomenalen Struktur sein kann.

Die auf Frege zurückgehende internalistische Tradition hat erkannt, dass verschiedene Erfahrungen unterschiedliche intentionale Inhalte, aber dennoch denselben Gegenstand haben können. Sie hat jedoch dem Umstand nicht Rechnung getragen, dass infolge der verschiedenen Kontexte, in denen sie stattfinden, verschiedene sinnliche Erfahrungen denselben Inhalt, aber verschiedene Gegenstände haben können. Dieser Umstand hat die Konsequenz, dass die Annahme des internalistischen Ansatzes, dass der

¹² Vgl. Schantz 1996, 143-146

innere Inhalt einer Erfahrung den äußeren Gegenstand der Erfahrung auf eine kontextunabhängige Weise bestimmt, nicht richtig sein kann.

Was also bestimmt den Gegenstand einer Wahrnehmung? Denken wir an Maria und Petra. Maria und Petra würden in mir phänomenologisch ununterscheidbare sinnliche Erfahrungen hervorrufen. Dass ich jetzt Maria vor mir sehe und nicht Petra, kann nur im Rekurs auf Marias kausale Rolle in der Auslösung meiner gegenwärtigen visuellen Erfahrungen erklärt werden. Es ist Maria, die jetzt vor mir steht, und es ist Maria, die jetzt mein visuelles System stimuliert. Und dies ist ein triftiges Argument für eine externalistische Position, die besagt, dass der Gegenstand einer Wahrnehmung durch den Kontext, in dem sie stattfindet, durch die relevanten kausalen Beziehungen zwischen dem wahrnehmenden Subjekt und dem Gegenstand, bestimmt wird.

Nichtsdestotrotz stellt Freges Unterscheidung zwischen dem Sinn und dem Referenten eines Ausdrucks eine wichtige Inspirationsquelle für die Entwicklung einer allgemeinen Theorie der Intentionalität dar. So haben einige Autoren, allen voran Gareth Evans, denn auch versucht, Freges Idee der Gegebenheitsweise eines Gegenstandes durch die Idee einer Weise, an einen Gegenstand zu denken, zu erläutern.¹³ Der Sinn eines Ausdrucks ist dieser Sichtweise zufolge eine Weise, an seinen Referenten zu denken, eine kognitive Perspektive auf ihn. Der Referent wird unter einem Aspekt gedacht. Dies zu sagen, heißt nicht zu sagen, dass der Aspekt selbst eigentlich das ist, worauf wir gerichtet sind. Worauf wir gerichtet sind, sind Gegenstände, aber eben unter einem bestimmten Aspekt. Natürlich können wir unsere Aufmerksamkeit auch auf die Aspekte lenken, unter denen uns Gegenstände gegeben sind. Dann werden die Aspekte selbst zu unseren Gegenständen, und auch sie, die Aspekte, weisen Aspektgestalt auf. Kurzum, die Idee der Aspektgestalt ist einfach die Idee, dass es so etwas wie einen Gedanken an einen Gegenstand als solchen, eine nackte Präsentation eines Gegenstandes sozusagen, nicht gibt. Unser mentaler Zugang zur Welt ist notgedrungen einseitig, von einem bestimmten Standpunkt abhängig; er ist kein, um einen Ausdruck von Thomas Nagel zu gebrauchen, „Blick von nirgendwo“ („view from nowhere“).¹⁴

Um die Struktur der Intentionalität angemessen zu beschreiben, müssen wir ferner zwischen dem intentionalen Inhalt und dem psychischen Modus, in dem wir auf diesen Inhalt gerichtet sind, unterscheiden. Diese Unterscheidung ist der aus der Theorie der Sprechakte geläufigen Unterschei-

¹³ Evans 1982, 16

¹⁴ Nagel 1986

dung zwischen propositionalem Inhalt und illokutionärer Kraft analog. Ich mag glauben, dass es heute regnet, wünschen, dass es heute regnet, oder befürchten, dass es heute regnet. Diese mentalen Zustände sind verschieden, weil ihre psychischen Modi verschieden sind, aber sie haben denselben Inhalt, in diesem Fall denselben propositionalen Inhalt. Ich möchte aber unterstreichen, dass meinem Standpunkt zufolge nicht alle mentalen Zustände einen propositionalen Inhalt haben, einen Inhalt, der als wahr oder falsch bewertet werden kann. Anders ausgedrückt, nicht alle mentalen Zustände sind propositionale Einstellungen. Liebe und Hass sind meines Erachtens klare Gegenbeispiele. Liebe ist eine Relation zwischen einer liebenden und einer geliebten Person. Liebe hat offenkundig ein intentionales Objekt und beinhaltet einen psychischen Modus. Aber ihr Inhalt ist nicht propositional. Die vielfältigen Versuche, Aussagen der Form „x liebt y“ durch die Zuschreibung von propositionalen Einstellungen zu analysieren, sind allesamt fehlgeschlagen.

Ich habe gesagt, dass die Objekte intentionaler Zustände nicht zu existieren brauchen. Wenn ich an Zeus denke, dann denke ich strenggenommen an nichts. Im Gegensatz dazu muss der Inhalt eines solchen Zustands immer existieren, auch dann, wenn es nichts in der Welt gibt, das diesen Inhalt erfüllt. Wenn wir das Objekt eines Gedankens als das, woran man denkt, von dem Inhalt eines Gedankens als das, was man denkt, unterscheiden, dann können wir sagen, dass es einen Sinn gibt, in dem wir denken können, ohne an etwas zu denken, dass es aber keinen Sinn gibt, in dem wir denken können, ohne etwas zu denken. Es gibt keinen Sinn, in dem der Inhalt eines Gedankens nichts sein kann.

III

Aufbauend auf meiner Darstellung der Struktur der Intentionalität kann ich nun den Intentionalismus oder Repräsentationalismus verteidigen, die These, dass Intentionalität das Kennzeichen des Mentalen ist. Viele Philosophen behaupten, dass es zwei grundverschiedene Arten mentaler Zustände gibt, die intentionalen und die qualitativen. Empfindungen, wie Schmerzen und Sinneseindrücke, haben eine qualitative oder phänomenale Natur, und qualitative mentale Zustände sind dieser Sichtweise zufolge nicht intentional. Als intentional werden gewöhnlich diejenigen Zustände beschrieben, die, wie Meinungen, Absichten und Wünsche, einen propositionalen Inhalt haben, während den qualitativen Zustände, den subjektiven Erfahrungen, ein solcher Inhalt fehlt. Ich bestreite natürlich nicht, dass einige mentale

Zustände einen propositionalen Inhalt haben und andere nicht. Niemand sollte das bestreiten. Aber daraus folgt nicht, dass der Intentionalismus falsch ist. Dies würde nur dann folgen, wenn intentional zu sein auf das Gleiche hinauskäme wie einen propositionalen Inhalt zu haben. Ich habe jedoch mit Bezug auf die Phänomene der Liebe und des Hasses bereits geltend gemacht, dass dies keineswegs der Fall ist. Nicht jeder intentionale Inhalt ist ein propositionaler Inhalt. Der Intentionalismus darf nicht mit der These verwechselt werden, dass alle mentalen Zustände propositionale Einstellungen sind. Ich werde später noch darlegen, warum meines Erachtens der phänomenale Charakter der sinnlichen Erfahrung ein intentionaler und gleichwohl nichtbegrifflicher Inhalt ist.

Gewöhnlich werden Wahrnehmungen, sinnliche Erfahrungen oder sinnliches Bewusstsein, als Zustände mit einem qualitativen oder phänomenalen Charakter klassifiziert. Wenn wir einen roten Fleck sehen, dann gibt es eine charakteristische Weise, in der der Fleck für uns aussieht; er sieht rot aus oder erscheint rot und unsere visuelle Erfahrung beinhaltet dieses rote Aussehen. Es fühlt sich irgendwie an, etwas zu sehen, zu hören, zu schmecken, zu riechen oder zu berühren. Oft wird in der einschlägigen Literatur auch der Ausdruck „raw feels“ benutzt, um auf qualitative mentale Zustände, auf phänomenales Bewusstsein, Bezug zu nehmen. Allerdings ist auch offenkundig, dass viele perzeptive Erfahrungen einen propositionalen Inhalt haben. Wir sehen, dass die Katze auf dem Sofa sitzt, und wir riechen, dass in diesem Raum geraucht wurde. Einige Wahrnehmungen sind also propositionale Einstellungen, die zudem einen qualitativen Charakter besitzen. Die Unterscheidung zwischen dem Intentionalen und dem Qualitativen kann mithin nicht ausschließend sein, denn einige propositionale Einstellungen haben einen qualitativen Charakter.

Was die Nichtintentionalisten nun jedoch bestreiten, ist, dass der qualitative oder phänomenale Charakter der Erfahrung allein durch den Begriff der Intentionalität analysiert werden kann. Sie räumen zwar ein, dass sinnliche Erfahrungen in einem gewissem Maße intentional sind, kontern aber, dass dies ihre phänomenalen Merkmale mitnichten zu erschöpfen vermag. Denn sinnliche Erfahrungen besitzen auch nichtintentionale, nichtrepräsentationale, intrinsische Eigenschaften; mit einem Wort, sie besitzen auch Qualia, wobei mit „Qualia“ in diesem Sinn nicht die mentalen Zustände selbst, sondern Eigenschaften von mentalen Zuständen, höherstufige Eigenschaften mithin, gemeint sind. Die Nichtintentionalisten, wie etwa Sydney Shoemaker und Chris Peacocke, behaupten, dass keine befriedi-

gende Analyse der sinnlichen Erfahrung gegeben werden kann, die Qualia nicht erwähnt.¹⁵

Während einige Philosophen es für ganz offenkundig halten, dass es Qualia als Eigenschaften der sinnlichen Erfahrung wirklich gibt, ja, sogar glauben, dass Qualia eigentlich das sind, was das Leben lebenswert macht, halten andere es für nicht minder offenkundig, dass es so verstandene Qualia nicht gibt. Diejenigen, die, wie beispielsweise David Armstrong, Gilbert Harman und Michael Tye, die Existenz von Qualia bestreiten, berufen sich auf die sogenannte Transparenz der Erfahrung.¹⁶ Wenn es innere Eigenschaften der visuellen Erfahrung wirklich gibt, dann sollten sie uns durch die Fähigkeit der Introspektion zugänglich sein, denn sicherlich ist die Introspektion diejenige Fähigkeit, mittels deren wir uns der Weisen, in denen die Dinge uns erscheinen, des qualitativen Charakters der Erfahrung, bewusst werden. Die Opponenten von Qualia machen geltend, dass die sinnliche Wahrnehmung, wie wir sie introspektiv erfahren, gänzlich qualitätslos ist. Wenn wir mittels Introspektion versuchen, die Aufmerksamkeit auf innere Eigenschaften der Erfahrung selbst zu lenken, dann können wir gar nicht anders, als gewissermaßen durch sie hindurch Eigenschaften von objektiven physischen Phänomenen zu sehen. Wenn wir eine Erfahrung von etwas Blauem haben, dann sind wir uns nicht einer inneren Eigenschaft der Erfahrung, sondern einer Eigenschaft eines äußeren Gegenstandes bewusst. Phänomenales Bewusstsein ist kein Bewusstsein eines Aspekts der Erfahrung. Meine Erfahrung selbst ist nicht blau. Vielmehr handelt es sich um eine Erfahrung, in der etwas als blau repräsentiert wird. Blau ist ein spezifischer Aspekt des Inhalts oder des Gegenstandes der Erfahrung. Dies scheint G.E. Moore einst gemeint zu haben, als er von einer Blauempfindung sagte, dass sie diaphan ist.¹⁷ Es sind sonach äußere Eigenschaften, die zum phänomenalen Charakter der Erfahrung beitragen. Der phänomenale Charakter einer Erfahrung wird durch ihren repräsentationalen Inhalt bestimmt. Die Transparenz der Erfahrung stützt mithin den Repräsentationalismus und seine zentrale Supervenienzthese, dass Erfahrungen mit gleichem repräsentationalem Inhalt sich auch in ihren phänomenalen Aspekten nicht unterscheiden können.

Welche Argumente können andererseits die Qualia-Realisten für ihre Sichtweise ins Feld führen? Das vielleicht stärkste Argument für die Existenz von visuellen Qualia stützt sich auf die Hypothese eines invertierten

¹⁵ Vgl. Peacocke 1983, Shoemaker 1981, 1990

¹⁶ Vgl. Armstrong 1968, Harman 1990, Tye 1995, 2000

¹⁷ Moore 1903

Spektrums. In diesem Gedankenexperiment sollen wir uns jemanden vorstellen - nennen wir ihn „Invert“ - , dessen Farbspektrum relativ zu der normalen Gemeinschaft, in der er lebt, invertiert ist. Wann immer eine normale Person etwas Rotes sieht, sieht Invert etwas Grünes, wann immer eine normale Person etwas Blaues sieht, sieht Invert etwas Gelbes, und so ähnlich verhält es sich mit den anderen Farben. Und doch stimmt Invert in seinen farblichen Unterscheidungen mit seiner Gemeinschaft überein. Auch er nennt Gras „grün“ und reife Tomaten „rot“ und so weiter, und in seinem nichtsprachlichen Verhalten, in Sortiertests beispielsweise, tritt ebenfalls kein Unterschied zutage. Der Unterschied in der Farbwahrnehmung zwischen Invert und seiner Gemeinschaft ist unentdeckbar.

Die Exponenten von Qualia machen geltend, dass es sowohl eine Ähnlichkeit als auch einen Unterschied zwischen Invert und seiner Gemeinschaft gibt. Die Ähnlichkeit liegt angeblich im intentionalen oder repräsentationalen Inhalt ihrer mentalen Zustände bezüglich Farben. Denn, so sagen sie, Invert glaubt, ganz korrekt und in Einklang mit seiner Gemeinschaft, dass Tomaten rot sind und Gras grün ist. Der intentionale Inhalt der Erfahrung ist dieser Auffassung zufolge identisch mit dem Inhalt der Überzeugung, die durch die Erfahrung hervorgerufen wird. Der Inhalt einer visuellen Erfahrung einer roten Tomate mag sein, dass die Tomate rot ist. Demgegenüber soll der Unterschied zwischen Invert und seiner Gemeinschaft kein intentionaler Unterschied sein, sondern vielmehr ein Unterschied in den visuellen Qualia der Erfahrung. Ned Block verkündet, dass mit Hilfe dieses Gedankenexperiment erklärt werden kann, was mit der Rede von visuellen Qualia eigentlich gemeint ist.¹⁸

Die Hypothese eines invertierten Spektrums wurde häufig als ein Argument gegen den Funktionalismus benutzt. Der Funktionalismus in der Philosophie des Geistes ist die Auffassung, dass ein mentaler Zustand ein funktionaler Zustand ist, ein Zustand, der durch die funktionale oder kausale Rolle, die er spielt, das heißt, durch seine typischen sensorischen Ursachen und seine typischen behavioralen Wirkungen sowie durch seine Beziehungen zu anderen mentalen Zuständen, definiert werden kann. Die Hypothese eines invertierten Spektrums scheint mir gegen den Funktionalismus in der Tat triftig zu sein. Denn Invert und die Mitglieder seiner Gemeinschaft könnten durchaus funktional identisch und dennoch, weil sie invertierte Spektren haben, psychisch verschieden sein.

Ich möchte jedoch nicht den Funktionalismus verteidigen, sondern den Intentionalismus und Repräsentationalismus. Und während sich ein funkti-

¹⁸ Block 1990

onaler Unterschied zwischen Invert und uns schwerlich finden lässt, halte ich die Behauptung, dass es keinen intentionalen Unterschied zwischen Invert und uns gibt, für ziemlich unplausibel. Denn schließlich sehen die Dinge für Invert anders aus als für uns. Dieser Unterschied in den Weisen, in denen die Dinge ihm und uns erscheinen, ist ein intentionaler Unterschied. Warum sollten wir annehmen, dass dies ein Unterschied in den Qualia ist?

Allerdings ist es nicht ganz einfach, die Weise, in der sich Inverts und unsere mentalen Zustände inhaltlich voneinander unterscheiden, sprachlich angemessen auszudrücken. Die Meinungen, die auf der Basis der visuellen Erfahrungen erworben werden, drücken Invert und wir durch dieselben Wörter mit derselben Bedeutung aus. Wir sagen „Tomaten sind rot“ und Invert sagt das Gleiche, und damit drücken sowohl Invert als auch wir die wahre Meinung aus, dass Tomaten rot sind. Dies ist ganz unabhängig davon, welche Ansicht wir hinsichtlich der Semantik von Farbprädikaten vertreten, unabhängig mithin davon, ob wir glauben, dass „rot“ sich auf eine primäre oder eine sekundäre Qualität bezieht.

Gleichwohl repräsentiert Invert die Dinge anders als der Rest seiner Gemeinschaft. Invert scheint keinen anderen Begriff der Röte zu haben als wir, denn auch er glaubt, dass Tomaten rot sind. Die Auffassung, dass er mit „rot“ grün meint, hätte die ziemlich unplausible Konsequenz, dass alle seine Urteile über Farben falsch sind. Also muss der Unterschied zwischen ihm und uns anderswo liegen. Eine korrekte Beschreibung sollte meines Erachtens sagen, dass Inverts Erfahrung Tomaten als grün repräsentiert, während seine Meinung Tomaten als rot repräsentiert.¹⁹ Seine sinnliche Erfahrung und seine Meinung stehen nicht in Einklang miteinander. Invert hat eine wahre Meinung über die Farbe von Tomaten. Aber er hat eine falsche Meinung darüber, wie Tomaten farblich für ihn aussehen. Er glaubt, dass Tomaten rot für ihn aussehen. Darin täuscht er sich: Tomaten sehen nicht rot, sondern grün für ihn aus. Das ist der Inhalt seiner Erfahrung. Der Rest seiner Gemeinschaft hingegen hegt die beiden wahren Meinungen, dass Tomaten rot sind und dass sie rot aussehen. Die Hypothese eines invertierten Spektrums vermag also den Intentionalismus hinsichtlich der visuellen Erfahrung nicht zu widerlegen.

¹⁹ Vgl. Tye 1992

IV

Meinem Standpunkt zufolge ist der sinnliche oder phänomenale Inhalt der Wahrnehmung und Erfahrung nichtbegrifflich. Die perzeptive Erfahrung ist nicht selbst eine Form von Überzeugung oder Urteil ist. Keine Überzeugungen sind für sinnliches Bewusstsein wesentlich. Alles, was für meine Wahrnehmung von irgend etwas notwendig ist, ist, dass es mir phänomenal in einer gewissen Weise erscheint. Und meines Erachtens schließen diese Erscheinungen, diese sinnlichen Repräsentationen, nicht notwendigerweise den Besitz und die Anwendung von Begriffen ein.²⁰ Die sinnliche Erfahrung ist nicht selbst eine Form des Erkennens, Identifizierens oder Klassifizierens der Dinge um uns. Gewiss, man kann nicht erkennen, dass etwas ein Nashorn ist, oder sehen, dass es ein Nashorn ist, ohne die Überzeugung zu bilden, dass es ein Nashorn ist, und wie alle Überzeugungen erfordert dies die Anwendung von Begriffen.

Aber nicht jede Wahrnehmung ist eine Wahrnehmung-*als* oder eine Wahrnehmung-*dass*.²¹ Es scheint offenkundig zu sein, dass wir ein Nashorn sehen können, obgleich wir es nicht als solches erkennen und obgleich wir nicht einmal den Begriff eines Nashorns besitzen. Ein Nashorn zu sehen, beispielsweise, besteht aus gewissen visuellen Erfahrungen, gewissen Weisen, in denen das Nashorn für uns aussieht, und diese Erfahrungen erfordern keine Konzeptualisierung, kein Verständnis, was für ein Ding ein Nashorn eigentlich ist. Ein Mangel an Begriffen macht uns nicht blind für die Entitäten, die wir phänomenal erfahren; es hindert uns nur daran, sie als die Entitäten, die sie tatsächlich sind, zu identifizieren.

Um möglichen Missverständnissen vorzubeugen - ich behaupte nur, dass sinnliche Erfahrungen *begrifflich* von Überzeugungen oder Gedanken unabhängig sind. Ich möchte nicht soweit gehen, zu behaupten, dass Erfahrungen immer *kausal* völlig unabhängig von doxastischen Zuständen oder begrifflichen Fähigkeiten sind. Vielmehr räume ich ein, dass unsere Überzeugungen, Hoffnungen und Erwartungen - in gewissen Fällen und in einem gewissen Grad - die qualitativen Merkmale unserer Erfahrung kausal beeinflussen.

Der entscheidende Punkt ist jedoch, dass es Grenzen für das Maß gibt, in dem der Inhalt propositionaler Einstellungen die phänomenale Struktur der Wahrnehmung beeinflussen kann. Die Müller-Lyer-Täuschung illustriert klar, dass der sinnliche Inhalt der Erfahrung durch das, was wir wissen und

²⁰ Vgl. zu diesem Punkt meine Debatte mit McDowell. Schantz 2001, McDowell 2001

²¹ Vgl. Dretske 1969, Schantz 1990

glauben, nicht vollständig durchdrungen werden kann. Unser Wissen, dass die beiden Linien gleich lang sind, führt nicht dazu, dass sie phänomenal gleich lang für uns aussehen. Wie Jerry Fodor in einem wichtigen Beitrag zur Wahrnehmungspsychologie überzeugend dargelegt hat, ist der Inhalt der Wahrnehmung modular, das heißt, informational von unserem Wissen und unseren Überzeugungen abgekoppelt.²² Was wir über die Dinge glauben, vermag in einem wichtigen Sinn die phänomenalen Erscheinungen, die sie uns präsentieren, nicht zu tangieren. Sinnlicher Gehalt ist, in einem signifikanten Grad, immun gegen höherstufige kognitive Einflüsse. Die Wahrnehmung ist nicht so plastisch, so formbar durch Hintergrundannahmen, wie viele Philosophen uns glauben machen wollen.

V

Sinnliche Erfahrungen, so haben wir gesehen, bereiten dem Intentionalismus keine unüberwindlichen Probleme. Wie aber steht es mit Körperempfindungen wie Schmerz oder Jucken? Viele Philosophen, wie zum Beispiel Colin McGinn und Searle, behaupten, dass Körperempfindungen klare Gegenbeispiele gegen den Intentionalismus darstellen.²³ Schmerzen, so sagen sie, sind rein subjektive Qualitäten, die sich auf nichts in der Welt beziehen und die nichts in der Welt repräsentieren. Ist das wirklich so offenkundig? Eine Reihe von Philosophen, etwa David Armstrong und Michael Tye, vertreten die These, dass Schmerzen Schaden für den Körper oder Störungen im Körper repräsentieren.²⁴ Daran möchte ich anknüpfen und für eine perzeptive Analyse von Körperempfindungen plädieren. Eine Körperempfindung ist meiner Auffassung zufolge eine Form von Wahrnehmung, von sinnlichem Bewusstsein, des eigenen Körpers. Die Psychologen sprechen hier von Propriozeption. Dadurch, dass wir eine Körperempfindung haben, werden wir uns des Zustands unseres Körpers und der Ereignisse, die sich in ihm abspielen, bewusst. Denken wir zunächst an Empfindungen der Wärme und Kälte, durch die wir uns unserer eigenen Körpertemperatur bewusst werden. Manchmal empfinden oder fühlen wir, dass unsere Wangen warm oder unsere Füße kalt sind. Oder denken wir an kinästhetische Empfindungen, die einem Organismus Informationen über die Stellung der Körperteile zueinander sowie über die Lage und Bewegungsrichtung derselben im Raum vermitteln. Dies sind Formen der Wahrnehmung des eige-

²² Vgl. Fodor, 1983, 1984

²³ Vgl. McGinn 1982, 1-15, Searle 1992, 84

²⁴ Vgl. Armstrong 1968, Tye 1995

nen Körpers. Und meine These lautet nun, dass eine Schmerzempfindung ebenfalls eine Wahrnehmung des eigenen Körpers ist.

Für diese Sichtweise spricht vor allem, dass wir, wenn wir einen Schmerz empfinden, ihn in einem Teil unseres Körpers empfinden. Wenn wir die Aufmerksamkeit auf einen Schmerz richten, dann richten wir sie notwendigerweise auf den Teil des Körpers, in dem wir den Schmerz fühlen. Betrachten wir den Schmerz, den eine Person in ihrem Knie empfindet. Dies ist eine Form transitiven Bewusstseins: es ist ein Bewusstsein des Knies. Das intentionale Objekt des Schmerzes ist das Knie, das wirkliche Knie, und kein besonderes mentales Schmerzobjekt, wie gelegentlich behauptet wird. Mentale Objekte sind meines Erachtens mysteriöse Entitäten, Entitäten mit unklaren Identitätskriterien. Um zu erfahren, was das intentionale Objekt eines Schmerzes ist, müssen wir nur fragen „Wo tut es weh?“ oder auch „Was tut weh?“ Und selbst wenn eine Person einen Schmerz dort empfindet, wo es infolge einer Amputation keinen entsprechenden Körperteil mehr gibt – bei dem sogenannten Phantomschmerz –, empfindet sie, dass sich ihr Körper weiter ausdehnt, als es tatsächlich der Fall ist. Sie empfindet den Schmerz nicht außerhalb ihres Körpers. Wir können also die Intentionalität von Körperempfindungen verteidigen, indem wir sie nach dem Modell der Wahrnehmung verstehen. So wie uns die äußere Wahrnehmung Informationen über äußere Gegenstände und Ereignisse verschafft, so verschaffen uns Körperempfindungen Informationen über unseren eigenen Körper.

VI

Zum Schluss möchte ich noch auf eine weitere wichtige Herausforderung des Intentionalismus eingehen. Searle macht geltend, dass gewisse Emotionen und Stimmungen, wie insbesondere ungerichtete Angst, offensichtlich nicht intentional sind.²⁵ Natürlich kann nicht bestritten werden, dass es Fälle gibt, in denen eine Person ein Gefühl der Angst hat, aber nicht in der Lage ist, die Frage zu beantworten, wovor sie Angst hat. Daraus folgt jedoch keineswegs, dass ihre Angst keine Intentionalität besitzt. Es ist durchaus möglich, dass diese Person das Objekt ihrer Angst bloß nicht kennt. Die lange Zeit so einflussreichen cartesianischen Annahmen, dass wir, wenn wir in einem mentalen Zustand einer bestimmten Art sind, auch wissen, dass wir in einem Zustand dieser Art sind, und dass wir unfehlbare Richter über unser mentales Leben sind, das heißt, dass wir, wenn wir

²⁵ Searle 1983, 1-2

glauben, dass wir in einem mentalen Zustand einer bestimmten Art sind, auch tatsächlich in einem Zustand dieser Art sind, wurden mittlerweile als Mythen entlarvt.

Dies ist die Basis für meine Antwort auf die Frage, wie der Intentionalismus mit dem von Searle als ungerichtete Angst bezeichneten Phänomen zu Rande kommen kann. Wenn eine Person nicht in der Lage ist, in Worten zu fassen, wovor sie sich ängstigt, so gibt es dennoch eine Weise, in der ihr die Dinge in ihrem Zustand der Angst erscheinen. Wichtig ist hier zunächst der Unterschied zwischen Angst um sich selbst und Angst um eine andere Person. Dies ist ein intentionaler Unterschied, denn im einen Fall sind wir auf uns selbst gerichtet, im anderen Fall auf eine andere Person. Die Fälle, die Searle vorschweben, sind sicherlich diejenigen, in denen jemand Angst um sich selbst hat. Worauf der Verfechter des Intentionalismus das Augenmerk lenken sollte, ist, dass diese Form der Angst darin besteht, dass eine Person gewisse Einstellungen zu sich selbst und zu ihrer Situation in der Welt hat. Sie erlebt die Welt als einen beunruhigenden, bedrohlichen Ort.

Ich knüpfe hier an die Theorie der Emotionen an, die der frühe Sartre, inspiriert von Husserl, durch die Anwendung seiner phänomenologischen Methode entwickelt hat.²⁶ Allerdings ist Sartre in der Philosophie des Geistes ein radikaler Externalist. Im Gegensatz zu Husserl betont er die „Transzendenz“ des Bewusstseins, den Umstand, dass die intentionalen Objekte nicht im Bewusstsein sind. Das Bewusstsein selbst ist leer; es enthält buchstäblich nichts, nicht einmal Repräsentationen seiner intentionalen Objekte. Gegen die verbreitete, etwa von William James vertretene Ansicht, dass Emotionen einen markante psychische und mithin immanente Komponente haben, legt Sartre den Akzent auf die Intentionalität von Emotionen. In Einklang mit seinem Gilbert Ryles Revolte gegen den Cartesianismus antizipierenden Bemühen, uns von dem Mythos des „inneren Lebens“ zu befreien, der Annahme, dass der Geist ein Ding im Kopf oder, wie Ryle etwas später sagen sollte, „ein Gespenst in der Maschine“, ist, streicht Sartre heraus, dass emotionales Bewusstsein ein Bewusstsein der Umwelt ist.

Emotionen „färben“, wie er sagt, die Dinge, die uns persönlich angehen, die Dinge, auf die sich unsere Wünsche, Bedürfnisse und Handlungen beziehen. Es sind Interaktionen mit Dingen in der Umwelt, durch die die Phänomenologie der verschiedenen Emotionen konstituiert wird. Für Sartre sind Emotionen wesentliche Strukturen des Bewusstseins, der menschl-

²⁶ Sartre 1939; vgl. dazu auch die hilfreichen Bemerkungen in McCulloch 1994 und in Crane 1998

chen Realität, die uns helfen, uns in unserer Umwelt zurechtzufinden, mit Konflikten und Spannungen, die sich aus unserer Konfrontation mit den Dingen ergeben, zu leben. Emotionen ändern zwar nicht die Welt an sich, nicht das en-soi, aber sie ändern, so Sartre, „die Richtung unseres Bewusstseins“, unsere Absichten und unser Verhalten, die Welt für uns, das pour-soi. Was die verschiedenen Emotionen voneinander unterscheidet, ist, dass sie uns die Welt auf unterschiedliche Weisen präsentieren - als grausam, schrecklich, finster oder auch als freudvoll.

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RAFAEL DE CLERCQ

**A criterion of diachronic identity
based on Locke's Principle**

The aim of this paper is to derive a perfectly general criterion of identity through time from a suggestion made by Peter F. Strawson almost thirty years ago in an article called 'Entity and Identity' (1976). The reason why the potential of this suggestion has so far remained unrealised is twofold: firstly, the suggestion was never properly developed by Strawson, and secondly, it seemed vulnerable to an objection that he himself raised against it. Consequently, my aim in this paper is to further develop Strawson's suggestion, and to show that the result is not vulnerable to the objection that seemed fatal to its underdeveloped predecessor.

It is important to be clear from the start about what exactly is being sought here. First of all, it is important to be clear about the kind of questions that identity criteria are supposed to answer. A criterion of identity does not attempt to answer the question 'When are two objects identical?' for the answer to that question is trivially 'never'. Nor does it attempt to answer the question 'When is an object identical to itself?' for the answer to that question is trivially 'always'. Rather, the question to which identity criteria seek to provide an answer is 'When do two names refer to the same object?'.¹ Or, if this sounds too much like an issue concerning the semantics of names: 'When is the object referred to by one name the same as the object referred to by another name?'. (By "name" I

¹ See Quine 1960, pp. 116-7 and Quine 1987, pp. 90-91. This view strikes some people as counter-intuitive, because the problem of identity is usually regarded as a purely metaphysical problem. For instance, when we ask, 'Is a ship whose planks are gradually removed and replaced by other planks still the same ship?' then we don't seem to be asking a question about the reference of certain names. However, suppose that our criterion of identity tells us that the resulting ship is indeed identical to the original one. Then what did we discover? That the ship is identical to itself? We don't need a criterion to tell us that. That the ship still exists? That need not be in dispute. But what else could we hope to find out at a purely metaphysical level? My suggestion is to ascend to a semantic level, and to check whether we would have two (or more) presentations of the same ship. See also Section 5.

mean everything that functions logically as a singular term; as we shall see, certain types of definite descriptions are to be included in this category.)

Second, clarity concerning the type of theory that will be developed here may well prove equally important. Theories of diachronic identity usually divide into those that make reference to three-dimensional objects and those that make reference to four-dimensional objects. In this paper reference is made to three-dimensional objects, but the choice should not be taken to be indicative of a metaphysical preference or prejudice. Talk of three-dimensional objects just sounds more natural, and what is more, it is doubtful whether the issue of three- versus four-dimensionality really touches the heart of the matter concerning us here.² The matter of present concern is, roughly, when we are allowed to consider two (time-bound) presentations as presentations of one and the same object. Whatever the answer to that question may be, it does not seem to depend crucially on how objects are ultimately to be conceived of. For instance, if they turn out to be four-dimensional entities then we may have to speak about a relation between temporal parts, but it is doubtful whether this is really more than just an idiomatic requirement. After all, my concern is with the relation rather than with the elements between which it is supposed to hold.³ However, if the reader is not convinced by this line of thought, then he or she may read the remainder of this paper as an overtly three-dimensional approach to object identity.

In Section 1 I will delve deeper into the question of what identity criteria are supposed to be. This will allow me, in Section 2, to highlight some of the deficiencies exemplified by current theories of personal identity. In Section 3, Strawson's suggestion will be introduced and reformulated, and in Section 4 the result will be further developed and defended against a range of possible objections. Section 5 compares diachronic identity with continuity and transworld identity. In addition, an attempt is made to uncover a response-dependent component in the identity relation. Finally, the conclusion sums up the most important results.

1 COMMON GROUND

The search for a criterion has to be distinguished from two other things with which it might easily be confused. First, to search for a criterion is—

² *Pace* the great bulk of the literature on the subject. See, for instance, the discussion between Johnston and Forbes (1987).

³ See Williamson 1990, pp. 138-9 for similar reservations.

in the sense that is relevant here—not to search for a reliable *epistemic procedure*. For instance, once a criterion of diachronic identity has been found it may still be an open question how diachronic identity, or the satisfaction of the criterion, is to be established. While criteria—in the semantic-metaphysical sense intended here—are necessarily criteria for the things in question, the reliability of epistemic procedures is contingent and so variable from one possible world to another. (Consider, for example, the reliability of DNA-traces in a world where people are systematically cloned.) Second, to search for a criterion is not to practice *conceptual analysis*.⁴ The purpose of a criterion is not to analyse a certain concept, but to delineate, or help delineate, its extension. In other words, a criterion is not so much concerned with the concept itself (that is, with meanings) but with what falls under it (that is, with things). As a consequence, it is not among the objectives of this paper to find an analysis of, say, persistence or diachronic identity.

Now that the notion of a criterion has been elucidated, it is time to take a closer look at what criteria *of identity* are supposed to be. The following scheme seems to capture much of what is currently accepted in the literature on this subject:

$$\forall x \forall y (x = y \leftrightarrow \exists K (x =_K y))$$

Less formally: *x* is identical to *y* just in case there is a kind *K* such that *x* and *y* are the same *K*, or what comes to the same, just in case *x* and *y* satisfy the criterion of identity for members of the kind *K*.

The above equation merely represents a broad schema and does not as yet provide a substantial criterion of identity. In order to obtain such a criterion, the following conditions would have to be satisfied. First, the schema would have to be made *precise* by specifying for each kind *K* what the appropriate criterion of identity is. The result would be a conjunction of sentences of the following form (cf. Lowe 1989, p. 6):

$$\forall x \forall y [(K_1x \ \& \ K_1y) \rightarrow (xR_1y \leftrightarrow x = y)]$$

⋮

⁴ At least not in the narrow sense of ‘conceptual analysis’, which I take to be: ‘the decomposition of complex concepts into their simpler constituents’. In a broader sense, searching for a criterion of identity may involve conceptual analysis.

$$\forall x \forall y [(K_n x \ \& \ K_n y) \rightarrow (x R_n y \leftrightarrow x = y)]$$

The conjunction would sum up the different criteria of identity applicable to the members of kinds $K_1 \dots K_n$ respectively.⁵ For instance, one of the conjuncts could be the Axiom of Extensionality:

$$\forall x \forall y [(x \text{ and } y \text{ are sets}) \rightarrow (x \text{ and } y \text{ have the same members} \leftrightarrow x = y)]$$

Second, when made precise, the schema should turn out to be *adequate*: it should provide a reliable criterion of identity for all objects x and y , regardless of the kind to which they belong. Third, when adequate, the schema should be *non-circular*: verifying the right-hand side of the biconditional should not presuppose any (prior) knowledge of what are identical members of the kind K . Fourth, in the meantime, the schema should remain *compatible* with the attribution of reflexivity, symmetry, transitivity, necessity, absoluteness, and discreteness (non-vagueness) to the identity relation.⁶ From this requirement it follows for instance that the relation R should be an equivalence relation.

2 PROBLEMS

There are some relatively uncontroversial examples of criteria that seem to meet all of the aforementioned conditions. The Axiom of Extensionality provides a case in point. However, it is notoriously difficult to come up with a satisfactory criterion of identity for concrete objects (roughly speaking, objects existing in space and time). In particular, it seems extremely difficult to find a criterion of identity through time—a diachronic criterion—for such objects.⁷ The ongoing debate about personal identity may illustrate this point.

⁵ For the sake of simplicity I have ignored the distinction between ‘one-level’ and ‘two-level’ criteria of identity. For more on the nature and importance of this distinction, see the discussion between Lowe and Williamson (1991), as well as Anderson 2001.

⁶ These are all properties of the identity relation according to the orthodox view of identity. Less orthodox views have denied the necessity, absoluteness, and discreteness of the identity relation. For a defense of the orthodox view, see, among others, Wiggins 1980 and Perry 1970.

⁷ Discontent with the major positions was also voiced by Lowe 1988.

Consider, for example, accounts that aim to define a criterion of personal identity in terms of mental continuity.⁸ First, the term ‘mental continuity’ is not precise enough to function as the key-component of a useful account of personal identity. Second, as soon as the term is made more precise, for instance by invoking memory links, the adequacy of the account tends to be undermined. For instance, there appear to be cases of personal identity where the required memory links are absent (cf. the case of the amnesiac). Third, where adequacy is achieved, problems with circularity tend to pop up, for example, in identifying memory links and in isolating person-stages. Fourth, even when all these problems seem to be solved, there usually remains a problem with the logical properties of the identity relation, and especially with transitivity (because of the possibility of fission), necessity (because the same person could have had a different mental life), and discreteness (because mental continuity is not an all or nothing affair).

Although the proponent of the mental continuity theory may be able to meet *each* of these objections, I doubt that he can meet *all* of them. The present state of the discussion surely provides reasons for doubt. Note, however, that alternative theories, reducing personal identity to bodily continuity for instance, are not much better off. Because the difficulties can be shown to arise mainly from the attempt to reduce diachronic identity to some form of continuity, practically all current theories of personal identity may be expected to face difficulties of the sort outlined above. (In Section 4 the relation between diachronic identity and continuity will be further discussed. However, the impasse in which current theories find themselves is here primarily accepted as a datum rather than as a claim to be argued for.)

3 A WAY OUT

In spite of all this, a fully satisfying account of identity through time is not too far away, at least if we accept (a version of) the Lockean principle that two objects of the same kind cannot occupy the same place at the same time.⁹ In particular, the following suggestion, made by P. F. Strawson in

⁸ What follows is merely intended to give a sketchy account of the problems faced by current theories; it is not intended to summarize the discussion as a whole.

⁹ This idea goes back to John Locke, but was reintroduced into the discussion by David Wiggins (1968). The idea will be defended against alleged counterexamples in due course.

1976, could serve as a first hint at what might constitute the identity of concrete objects:

a = b if and only if there is a substantial kind which a is of and which b is of and there is no time at which there is a volume of space occupied by a which is not occupied at that time by b (Strawson 1997 [1976], p. 39).

Since what was once identical will always be identical (because of the necessity of identity), Strawson could also have written:¹⁰

a = b if and only if there is a substantial kind which a is of and which b is of and there is at least one time at which there is a volume of space occupied by both a and b.

The above criterion seems to satisfy all the requirements listed in Section 1. First, it is precise: sameness of kind and sameness of spatio-temporal position are, for all I know, precise and unambiguous notions. (Of course, they could still be made more precise.)¹¹ Second, it is adequate, at least if we adhere to the idea that two things of the same kind cannot spatio-temporally coincide with one another (see *infra*). Third, it is not circular: the right-hand side of the biconditional refers to the sameness of positions or locations, but not to the sameness of concrete objects. Fourth, the logical properties of the identity relation are preserved, mainly because of the recurrence of the identity relation on the right-hand side. Finally, the approach has the extra advantage of being completely general and so not requiring a possibly infinite conjunction of kind-specific identity criteria. More specifically, the criterion is applicable to all concrete objects, or at least to those that occupy space.

Before proceeding, I need to say something in defence of the principle that I am taking as a starting point, that is, the Lockean principle that two things of the same kind cannot coincide with one another. To be sure, defending this principle in a proper way would require a separate paper, but in the absence of a proper defence, and considering what is of relevance to this paper, two things are worth mentioning. First of all, the

¹⁰ Provided that the rationale behind Strawson's proposal was indeed the Lockean principle, namely that two things of the same kind cannot coincide with one another. In other words, what follows in the main text is not just a reformulation of Strawson's suggestion, but also an interpretation.

¹¹ For instance, one could say that two objects occupy the same spatial position at a given time if and only if there is no co-ordinate system that separates them.

cases that are supposed to provide counterexamples to the principle usually involve entities for which there may not exist criteria of diachronic identity. Very often, they are not persisting bodies or substances, but more ethereal entities such as shadows, light rays and clouds. Furthermore, the cited cases do not strike me as very convincing counterexamples to the particular version of Locke's Principle that I wish to endorse here.

As it stands, Locke's Principle is imprecise. For example, it does not specify what is meant by a 'thing' or a 'kind'. For my purposes, it matters little how 'thing' is understood, as long as it is some kind of continuing entity. The interpretation of 'kind' has greater importance. In particular, it is important to know when two things are of the *same* kind. Here is what I propose: two things are of the same kind if, and only if, they share all their (qualitative) essential properties.¹² Perhaps this is not what Locke himself had in mind when he formulated his principle. However, what is important is that the proposed interpretation can be seen as offering a precisification of Locke's original formulation. The question is then whether, so interpreted, Locke's Principle is correct.

Locke's Principle can be correct for at least two reasons, a weaker and a stronger one. It can be correct because, necessarily, coinciding entities belong to different kinds. Or it can be correct because, necessarily, there are no coinciding entities. The latter is of course the stronger reason. If it is correct, then two things can *never* occupy the same place at the same time. Whether they belong to the same kind or to different kinds does not make any difference.

In this paper I remain neutral with respect to the stronger reason. It is the weaker reason that I aim to defend. More specifically, my aim is to defend it against counterexamples allegedly showing that two things of the same kind can coincide.

Counterexample#1. According to G. W. Leibniz (1996, p.230), two shadows coinciding with one another remain nonetheless distinct because they are cast by different objects. (Let us grant, for the sake of argument, that shadows are continuing entities.) This claim faces a dilemma. Either a shadow is necessarily cast by certain object, or it is not. If it is not, then it is not clear why a difference in shadow-casting objects would imply a difference in shadows. And if that is not clear, then it seems possible to say that the two objects, whose shadows were said to coincide, are actually casting one and the same shadow. However, if a shadow *is* necessarily cast by a certain object, then in the case of two coinciding shadows there is an

¹² By a 'qualitative' property I mean a property that can be shared by different objects.

essential feature that distinguishes them from one another. Otherwise said, since the two shadows are cast by different objects, they have different essential attributes and thus belong to different kinds. As a result, they do not constitute a counterexample to the particular version of Locke's Principle adopted in this paper.

Counterexample#2. Christopher Hughes (1997) asks us to imagine a functional ship whose planks are gradually replaced by the planks of a structurally identical ship that is kept in a museum (for historical reasons, for example, because it has once belonged to Theseus). If all the original planks of the functional ship are destroyed, then, according to Hughes, the result of the replacement is two ships coinciding with one another (namely, the functional ship whose planks have been replaced and the museum-ship whose planks have been used for the replacement).

Again, I don't think that we are dealing with a genuine counterexample. On the one hand, it is probably true that museum-ships and other antiquarian objects have (most of) their parts essentially, and that they travel wherever their original parts travel. On the other hand, it is not evident that museum-ships *qua* antiquarian objects are to be regarded as ships. Perhaps they are better regarded as collections of ship-parts, or as ship-parts arranged ship-wise—this would account for the intimate relation they bear to their parts. And if this is how they are to be regarded, then there is no violation of Locke's Principle in the situation described by Hughes. After the replacement of the planks, there would not be two ships coinciding with one another but one ship and one collection of ship-parts. Because a ship and the collection of its parts are not of the same kind, the resulting coincidence is unproblematic from the point of view of someone accepting Locke's Principle (in its precisified form).¹³

Counterexample#3. Kit Fine (2000) asks us to imagine a correspondence between two lovers, Bruce and Bertha. Bruce writes 'I am leaving you' to Bertha, and Bertha replies by writing 'I'm returning your horrible letter' on the backside of Bruce's letter.¹⁴ According to Fine,

¹³ Hughes downplays the importance of the antiquarian side to his story but it is striking that his examples always involve museum-ships, which, unlike ordinary ships, are known to bear an intimate relation to their parts. In a footnote to this text (note 8, p. 60) Hughes denies explicitly that his examples trade on the historical significance of museum-ships. He may be right about this, but I don't think he is able to deny that his argument requires scenarios in which ships are viewed *in the same way as* historically significant objects are viewed (that is, if I'm correct, as collections of parts or as parts arranged in a certain manner.)

¹⁴ Actually, they are supposed to use a lit cigarette to scorch in their message.

there are two letters here, the first having been written before the second one was. But the letters nonetheless share their location, since they are written on the same sheet of paper.

One possible response is to argue that the two letters belong to distinct kinds: Bruce's belongs to the category of avowals or announcements, while Bertha's belongs to the category of replies. In other words, to construct a counterexample it is not sufficient to find coinciding objects belonging to *a* common category, that is, sharing *an* essential attribute (e.g. 'artefact', 'linguistic communication', 'written message', or 'letter'). They should share all their essential attributes. In the case of linguistic communications, this could mean that they should be instances of the same type of illocutionary act, for example, 'avowal', 'declaration', or 'reply'. However, in this respect the two letters differ crucially from one another.

Fine's example can be improved in the light of this response. Suppose, for instance, that Bertha unknowingly writes the same text ('I am leaving you') on the reverse side of Bruce's letter, and that she intends her text to be read as a declaration or avowal. It is still possible to say that there are two letters here, although they surely belong to the same kind now. Or so it seems. For, as in the case of coinciding but distinct shadows, the two letters have different origins. Bertha's letter was written by Bertha, while Bruce's was written by Bruce. This is an essential characteristic that distinguishes them from one another. (Moreover, it is also a qualitative characteristic because it is one that can be shared by different objects; for instance, many letters can have the property of having been written by Bertha.)

4 STRAWSON'S OBJECTION, A REFORMULATION, AND SOME MORE OBJECTIONS

Strawson himself rejected the proposal for the following reason:

It seems that in order to apply [the criterion] we must already be operating a principle of identity: for how else could we be sure that we had the identical individual, *a*, in all those positions in which we are then to ask whether we had, at the same times, the individual, *b*? (p. 39).

Or to put the question in terms more appropriate to the reformulation: how are we going to determine in each case whether *a* and *b* have *once* occupied the same spatial position? After all, we cannot assume that the

individual histories of a and b are given to us entirely. Maybe a is referred to as ‘the thing that had property F at time t_1 ’ and b as ‘the thing that had property G at time t_2 ’. In such a case, we do know something about the pasts of a and b. But on the basis of that knowledge it may not be possible to conclude that a and b have once occupied the same volume of space. It seems that we need something more, and moreover something which can be specified without assuming that we are able to keep track of a and b independently of the criterion.

The objection tends to undermine any attempt to come up with a criterion of diachronic identity for ordinary objects. The reason is this. Whatever the preferred identity criterion R turns out to be, R will be assumed to obtain between a and b just in case they are identical. Now, either R implies the existence, at the same time, of its relata, or it does not. If it does not, then R cannot imply the *identity* of its relata either, which means that R cannot be a criterion of identity. If it does, however, then verifying whether a stands in the relation R to b will inevitably involve verifying whether a *exists also* at the time when b is known to exist, say t_2 . And here, of course, the objection takes over as follows: verifying whether a, known to exist at t_1 , exists also at t_2 involves applying a criterion of (diachronic) identity; hence, we get caught in a vicious circle or an infinite regress. But the objection is wrong: verifying whether a exists at t_2 merely amounts to verifying whether ‘a’ has *some* referent or other at t_2 . It does not amount to verifying whether ‘a’ has *the same* referent as ‘b’ or ‘c’ or any other name. Only in the latter sort of case—where sameness of reference is to be determined—a criterion of identity is needed. (Recall that criteria of identity were supposed to tell us when two names refer to the same object.) So there is no infinite regress, and Strawson’s objection fails.

The criterion outlined above is supposed to be applicable to all spatio-temporal objects, including persons. Therefore, another objection might be that the account is not neutral between mental and bodily continuity views of personal identity, because spatial coincidence can only be understood as a relation between bodies. As a consequence, the criterion would involve a hidden commitment to the view that personal identity consists in bodily continuity. However, this objection overlooks the fact that (the person or human being) a may have different bodies at different times. Otherwise said, all that the above criterion requires is that a’s body coincides spatially with b’s at some time: it does not require that a’s body remains the same or even similar. So, at first sight, the account seems able to accommodate several views of personal identity. (Strictly speaking it is

even compatible with a purely mentalistic conception of persons which holds that persons need not be embodied; after all, on such an account persons would not qualify as spatio-temporal particulars, which means that they would fall outside the intended field of application of the criterion.)

However, it is also possible to reject the account precisely because it is too neutral. For it might be asked how there can be an account of personal identity that does not choose between mental and bodily criteria of identity. Moreover, it might be asked whether such an account could qualify as *precise* in the sense outlined in Section 1. But this objection overlooks the possibility that personal identity may consist neither in mental nor in bodily continuity (or characteristics). This possibility is to be taken seriously because of the problems faced by current theories (cf. Section 3).¹⁵ Moreover, note that a neutral view on these matters is perfectly compatible with the fact that personal identity is actually established on the basis of mental and physical traits. After all, as noted in the beginning of this paper, there is an important difference between a criterion of identity on the one hand, and an epistemic procedure for determining identity on the other hand. (Which is not to deny that the two are related: the reliability of an epistemic procedure depends both on the actual state of the world and on the criterion of identity associated with a particular entity or concept.)

If the distinction between epistemic procedures and criteria of identity is not sufficiently acknowledged, then the criterion outlined in this essay is likely to disappoint. After all, the criterion is not of much practical help in determining whether two singular terms refer to the same object. But then again, this is not what a criterion of identity is supposed to be. The purpose of such a criterion is merely to provide us with an adequate description of the conditions under which two singular terms refer to the same object. And the adequacy of such a description is not measured by how it might improve our practice but by the extent to which it meets certain formal constraints such as precision and non-circularity. In this respect, I think, the proposed criterion is fully adequate.

5 FURTHER THOUGHTS

It may be noteworthy that the idea of continuity is completely lacking from the criterion of identity through time stated above. Although it is true that in order to evaluate whether the criterion is met we have to consider the

¹⁵ See Sider 2001 for similar thoughts.

possibility of an object *a* existing at various times, *a* need not be a continuant (in the sense of a persisting object)! It is sufficient, for the criterion to be met, that *a* exists at time t_1 and at time t_2 , but it need not exist *between* t_1 and t_2 . (Of course, if it does not exist in this interval, then neither does *b*.) In other words, it is possible that the object in question does not have a continuous life span (as most objects do in the actual world) but instead exists at intermittent times. If this is the case, the object may be said to be recurrent rather than persistent.

What this means is that it is possible to have diachronic identity without persistence or continuation; the reverse is obviously not true. Diachronic identity merely requires recurrence, while persistence requires continuous existence. As a result, the problems of persistence (or continuation) and of diachronic identity have to be kept apart, and a criterion of diachronic identity should not involve—however tacitly—the concept of persistence or continuity. This is one respect, I think, in which the criterion described in this paper is superior to the other criteria that can be found in the literature.¹⁶

It may also be noteworthy that the criterion is world-relative in the sense that it can only be operated *within* a possible world. Thus, it cannot serve as a criterion for transworld identity. (I do not think that this is a disadvantage.) This might seem obvious but it is not. For given, first, that the future can be regarded as one among many possible worlds, second, that diachronic identity does not require continuity, and third, that the current formulation of the criterion does not make reference to a particular world, there seems nothing to prevent us from applying the criterion across possible worlds. However, one reason why the criterion should not be applied across possible worlds (that is, with *a* and *b* existing at different worlds) is that this would yield the counterintuitive result that objects *necessarily* have a certain spatio-temporal position

Finally, a noteworthy consequence of the criterion is that the identity relation may have a response-dependent component. A property *P* is said to be response-dependent when (for all *x*) it is possible to know a priori that

¹⁶ For an interesting defense of intermittent existence, see Burke 1980. Unlike Burke (p. 404), I am inclined to accept the conceptual possibility of extreme cases of intermittent existence where an object temporarily pops out of existence *together with its parts*. However, note that the plausibility of the criterion proposed in this paper does not depend on the possibility of such cases.

x is P if and only if for all subjects s: if conditions C obtain, then s judges
that x is P.

where the conditions C are to specified in a substantial way, that is, without relying on independent knowledge of P's extension (i.e. the set of objects instantiating the property).¹⁷ In other words, when a property is response-dependent the extension of the property is what competent subjects judge it to be: their judgements function as a criterion of the instantiation of the property.

Which properties are response-dependent is a controversial matter, depending largely on metaphysical assumptions and on intuitions about conceivability. However that may be, what seems to be a likely candidate for response-dependence is membership of an artefact kind (e.g. being a car, an artwork, or a sewing machine). For it does not seem to be conceivable that we could be systematically mistaken about which objects belong to such kinds. After all, it is we ourselves who invented the kinds.

If this intuition is correct, and if it supports the idea that membership of an artefact kind is a response-dependent property, then there is a response-dependent component in at least some identity relations, namely in those that obtain between artefacts. For, according to the criterion outlined above, two objects a and b are identical only if they share their essential attributes. When a and b are artefacts, it is plausible to assume that among those essential attributes there be will properties corresponding to artefact kinds. And if this is so, then the attribution of identity will sometimes involve the attribution of a response-dependent property.

6 CONCLUSION

The starting point of this paper was a suggestion made by Strawson in 'Entity and Identity'. On the basis of that suggestion a criterion of identity through time was developed which apparently is able meet all the conditions that criteria of identity may be expected to meet: precision, adequacy, non-circularity, and compatibility with certain logical features usually attributed to the identity relation. In addition, the criterion turned out to be perfectly general in being applicable to all spatio-temporal particulars. The final formulation of the criterion was: $a = b$ if and only if (i) a and b share their qualitative essential properties, and (ii) a and b have

¹⁷ The concept of response-dependence I am using here derives from Wright 1994, and more specifically, from his discussion of 'The Euthyphro Contrast'.

occupied the same place at the same time. Three objections were considered and found unconvincing. First, the objection that the criterion creates a regress ad infinitum. Second, the objection that the criterion fails to be neutral in debates about personal identity. Third, the objection that the criterion is too neutral in such debates.

In addition, it was observed that the criterion does not involve the idea of continuation and that it should not be applied across possible worlds. Finally, a possible response-dependent element in the criterion was uncovered.¹⁸

ABSTRACT

The aim of this paper is to derive a perfectly general criterion of identity through time from Locke's Principle, which says that two things of the same kind cannot occupy the same space at the same time. In this way, the paper pursues a suggestion made by Peter F. Strawson almost thirty years ago in an article called 'Entity and Identity'. The reason why the potential of this suggestion has so far remained unrealized is twofold: firstly, the suggestion was never properly developed by Strawson, and secondly, it seemed vulnerable to an objection that he himself raised against it. Consequently, the paper's aim is to further develop Strawson's suggestion, and to show that the result is not vulnerable to the objection that seemed fatal to its underdeveloped predecessor. In addition, the paper aims to defend Locke's Principle against alleged counterexamples such as those produced by Leibniz, Fine and Hughes.

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Outlining a Non-Possible-Worlds-Based Conception of Modality¹

There are different degrees of necessity. The proposition *metal expands when heated* is necessary in the sense that its truth is guaranteed by the laws of physics. Thus it is *nomic* necessary.

In every day speech the word “necessary” sometimes denotes a property weaker than nomic necessity. It is not uncommon to hear statements like: “if Bob lived in Albania for twenty years, then he necessarily speaks at least some Albanian.” Here the word “necessarily” seems to mean “extremely probable”.

In this paper I will be concerned with a kind of necessity that is stronger than even nomic necessity. Nomic necessity is necessity *relative* to the laws of nature that in fact hold. We feel that the natural laws that *do* hold might *not* hold. So nomic necessity is necessity relative to something that is not *itself* necessary. Thus there is a sense in which a proposition that is nomic necessary is not necessary at all.

The essay is concerned with the *strongest* kinds of necessity. $2+2$ *must* equal 4. The necessity here is unconditional. It isn't that *relative* to certain facts about the world, $2+2$ must equal four. There is nothing relative about this kind of necessity; no condition has to be satisfied; it is necessary all by itself, so to speak. It is thus necessary in the strongest possible sense.

In addition to being unconditionally necessary, $2+2=4$ is also a priori. To know it, we merely examine concepts; we don't do empirical work. Kripke discovered that some unconditionally necessary propositions are *not* a priori.² Given that Hesperus *is* Phosphorous, it is impossible, in the strongest sense, that Hesperus should be anything *other* than Phosphorous. For it is unconditionally necessary that each thing is self-identical. But *Hesperus is Phosphorous* is a posteriori: astronomical work was needed to

¹ I would like to thank an anonymous reviewer at *Metaphysica* for his incisive comments both on the historical precedents for my view and also on the logical structure of my argument.

² Kripke 1972.

learn that it is true. So here we have a proposition that is both unconditionally necessary and also a posteriori.

This paper is concerned exclusively with necessity in the strongest sense. We will not discuss the conditional necessity characteristic of propositions like *metals expand when heated*. So henceforth the words “necessity” and “necessarily” will, without exception, denote *only* necessity in the strongest sense.

Philosophers have long debated what it is for a proposition to be necessarily true. One approach is given by the following thesis:

(LC) A proposition is necessarily true iff it is logically (or conceptually) true.

So, for example, the proposition *triangles have three sides* is necessarily true because it is logically or conceptually true (“logico-conceptually” true). It is true wholly in virtue of the concepts composing it and of the way in which these concepts are arranged in that proposition. (Sometimes I will say “analytic” or “true a priori” instead of “logico-conceptually true”.³)

(LC) is now generally rejected. Being logico-conceptually true is sufficient, but not necessary, for being necessarily true. In effect, we’ve already seen why. Any logico-conceptual truth is a priori. But not all necessary truths are a priori. *Water is H₂O* and *gold is the element with atomic number 78* are necessary, but not a priori, and thus not logico-conceptually true.

There is another reason to reject (LC). For a proposition to be logico-conceptually true is for its negation to *entail* a contradiction (a proposition of the form [P and not-P]). Obviously the notion of necessity is embedded in the notion of entailment: P entails Q if, roughly, the truth of Q is conceptually necessary given the truth of P. So (LC) gives a circular

³ So, in this paper, I will use the terms “logico-conceptual” and “analytic” and “a priori” more or less interchangeably. Of course, a case can be made that *there are* important distinctions among the meanings of these terms. (For example, “analytic” is typically, though not always, used as a predicate of *sentences*, not propositions.) But none of these will have any relevance in the present inquiry. The only important distinction will be between propositions like *triangles have three sides*, on the one hand, and *water is H₂O*, on the other. The latter is a posteriori: it is *not* such that a grasp of the concepts involved is sufficient to decide its truth or falsity. The former *is* such that a grasp of the concepts involved is enough to determine its truth or falsity. In this paper, I will use different terms to characterize propositions like the former: “analytic”, “logico-conceptually true”, “true a priori”.

ceptually necessary given the truth of P. So (LC) gives a circular analysis of necessity.⁴ In this paper, I will take it for granted that (LC) is false, for the reasons just stated.⁵

A doctrine sometimes known as *possible world semantics* is now widely taken to give the truth about necessity and possibility. Pws is, in its essentials, given by the following contentions:

- (a) A proposition is a function from worlds to truth-values (or is a set of worlds).
- (b) A proposition is necessarily true iff it is true in all possible worlds
- (c) A proposition is possibly true iff it is true in some possible world.

(b) and (c) are relatively clear. But (a) may require clarification. The import of (a) is that *snow is white* can be analyzed in one of two ways. On the one hand, it can be seen as a function that associates the truth-value *true* with worlds where snow is white and associates the truth-value *false* with worlds where snow is not white. On the other hand, it can be seen as the set of worlds where snow is white. The idea is that, if you know for some proposition exactly what circumstances or “worlds” would make it true and exactly what circumstances would make it false, then you know everything there is to know about that proposition. So if you know, for any possible world, what *truth-value* a proposition assigns to that world, then there isn’t anything left for you to know about that proposition. Equivalently, if you know exactly which worlds fall into the set of worlds to which a proposition assigns the truth-value *true*, and which worlds do not, then you know everything there is to know about that proposition. Given this, we might as well just *identify* the proposition with an assignment of truth-values to worlds, or with the set of worlds to which the proposition assigns the truth-value true. (I myself do not think that propositions are to be thought of this way or that this reasoning is good; I am simply stating the theory.)

I have two objectives in this paper. First, I will set forth some reasons to reject pws. Second, I will set forth a positive account of what necessity and possibility consist in.

⁴ Blackburn 1993 (chapter 7) makes this point, attributing it to Quine 1990/1951. Long ago, Pap 1958 (chapter 1) made this point.

⁵ This discovery is due, of course, to Saul Kripke 1972 and also, to some extent, to Hilary Putnam 1975. If I am not mistaken, it was anticipated by Pap 1958 (chapter 11).

By way of anticipation, my positive account of modality will be this. A proposition is necessarily true iff it is made true entirely by facts about the *decomposition of properties*. Consider the proposition *anything over 7ft tall is over 6ft tall*. This is a necessary proposition, if ever there was one. Why is it true? Because for something to be over 7ft tall *is* (inter alia) for it to be over 6ft tall. So the property of being over 7ft tall decomposes into (inter alia) the property of being over 6ft tall.

There are, of course, various problems with this account. It isn't immediately obvious how it applies to truths like *if P, then P or Q* or $2+2=4$. Further, that analysis might seem to be circular (throughout this paper, statements in italics should be taken to be those of an imaginary critic):

Properties are abstract objects and therefore do not in any literal sense "decompose"; a property cannot be decomposed in the sense in which a chair can be decomposed. So when you say that the property of being over 7ft tall "decomposes" into that of being over 6ft tall, the only clear meaning that can be attached to your statement is this – anything over 7ft tall is necessarily over 6ft tall. But then your analysis is circular.

We will later see that these objections turn out to have less force than they seem to at first.

II. First of all, I don't deny that a proposition P is necessarily true iff there is no possible world in which it would be false, and I don't deny the corresponding claim about possibility. There is no doubt that the following biconditional holds: P is necessarily true just in case P holds in every possible world. What I deny is that this statement provides any kind of *analysis* of the notion of necessity. (B) is just an innocuous platitude, which serves as a neutral core around which different, and incompatible, theories of modality may be constructed.

There are a number of problems with pws. As I see it, the most basic problem with pws lies in the fact that it mistakes a *symptom* of necessity for necessity itself.

Consider the proposition *triangles have three sides*. This is a paradigm case of a proposition that would hold "in any world". It is legitimate to ask *why* this proposition holds in any possible world. It is surely not a brute fact that *triangles have three sides* holds in every possible world. It is not as though triangles just happen to have three sides in this world *and* in that world, and so on for non-denumerably other worlds.

Surely *triangles have three sides* holds in all worlds because of something about the structure, the internal architecture, of that proposition – because of something about concepts that compose that proposition and of the way in which they compose it. The fact that this proposition holds in all possible worlds is merely a symptom of this fact about its internal architecture.

This point has epistemological support. Given a necessary proposition, how do we *know* that it is necessary? How do we *know* that *triangles have three sides* is necessary? Obviously we *don't* know this by taking a tour of all the non-denumerably different possible worlds. We know it by inspecting the proposition itself. Whatever it is that makes the proposition be necessary, we can grasp that something in its entirety without leaving this world.

There are more formal reasons for rejecting pws. First of all, as it stands, pws is circular: (c) is obviously circular – it defines possibility in terms of itself. And so, by implication, is (b).

There is an obvious way to make (c) be non-circular. We should replace

(c) A proposition is possible iff it is true in some possible world

with

(c') A proposition is possible iff it is true in some world.

We must drop the “possible” from the *definiens* in (c).

The same point applies to (b). As it stands, (b) is circular, if only implicitly. The proposition

(b) A proposition is necessary iff it is true in all possible worlds

is equivalent to

(b) A proposition is not possibly not true iff it is true in all possible worlds.

Obviously (b) is circular. So we must drop the “possible” from the *definiens* in (b). This leaves us with:

(b') A proposition is not possibly not true if it is true in all worlds

or simply

(b') A proposition is necessary iff it is true in all worlds.

(Everything we henceforth say about (b') applies *mutatis mutandis* to (c'). So to avoid verbosity, I will just talk about (b'), and leave implicit the associated points about (c').)

The question arises: what is meant by the expression “some world” in (b')? Trivially, the word “world” in (b') either denotes something concrete – a space-time manifold comprising causally efficacious objects – or it does not. In other words, (b') can be read “actualistically” or “non-actualistically”. I now wish to show that, on either reading, (b') is untenable.

First let us consider the actualistic reading: a proposition is possible iff it is true in some world, where the term “world” refers to something concrete.

In that case, a well known problem arises. If necessity is identical with truth in all worlds, where “world” denotes something concrete, then how could we possibly *know* that *triangles have three sides* is necessary?⁶

Obviously we cannot take a tour of different worlds. And even if we could, we still could not, on the basis of such a tour, establish that *all triangles have three sides* was necessary.

For the sake of argument, suppose that you could hop from world to world, and that, consequently, you *could* travel to other worlds to see if *triangles have three sides* was true over there. (What I am saying about *triangles have three sides* will apply to any necessary proposition.) Further, suppose for the sake of argument that to establish the necessity of *all triangles have three sides*, you *did* have to go by going to other worlds and see if it held in those worlds.

There are infinitely many – indeed, non-denumerably many – different ways the world might have been. (There are non-denumerably many points in space. A given particle could occupy non-denumerably many points *other* than the one it does in fact occupy. Therefore, there are non-denumerably many ways the world might have been.) So, if there is a world corresponding to each possibility, then there are non-denumerably many worlds. So *if* you

⁶ See Peacocke 1999 (chapter 1).

had to establish the necessity of *all triangles have three sides* by touring different worlds, you'd have to go to non-denumerably many worlds.

But even if (what would be doubly impossible) you visited each of these non-denumerably many worlds, that would *still* not suffice to establish that *triangles have three sides* is necessary. For you'd need some guarantee that you had visited *every* different world; you'd need some guarantee that you had considered a world corresponding to *each* possibility. Even if you had visited every world, unless you *knew* that you had done so, you could not conclude from what you found on your tour that *triangles have three sides* was true in *every* world. And in order to *know* that you'd visited a world corresponding to each possibility, you would *already* have to know what was possible and what wasn't. But if you already knew this, then the tour of the worlds would be superfluous. So you *couldn't* learn that *triangles have three sides* is necessary by taking a tour of worlds unless you *already* had some way of knowing what was possible and what was not. But if you had that knowledge, then you would *already* know that *triangles have three sides* is not possible.

In sum, a tour of possible worlds can tell you only what you already know, at least as far as modal facts are concerned. So we know that *triangles have three sides* is necessary independently of any such tour.

This line of thought surely gives us reason to read (c') non-actualistically. If we treat worlds as concrete objects, in the same category as our own world, then we distort the way in which we know the modal properties of propositions. So to avoid that distortion, we must treat alternative "worlds" as non-concrete objects.

Now if an alternative world is not to be seen as something concrete, then how *is* it to be seen? The obvious answer is this: an alternative world must be seen either as a description of some kind, and thus as a set of propositions, or as a model of some kind.

Let us consider each of these options. First, let us consider the idea that an alternative "world" is a set of propositions. In that case, (a) becomes:

- (a_p) A proposition is a function from sets of propositions to truth-values (or is a set of sets of propositions).
- (a_p) is viciously circular. In any case, (a_p) provides no good analysis of what a proposition is.

What becomes of (b) and (c) if worlds are treated as sets of propositions?
 (b) becomes:

(b_p) A proposition is necessarily true iff it is true in all sets of propositions.

And (c) becomes:

(c_p) A proposition is possibly true iff it is true in some set of propositions.

Let us focus on (c_p) for a moment; what we will say will apply *mutatis mutandis* to (b_p). What would it be for a proposition P to be true “in” some set of propositions? As far as I can tell, the only reasonable answer to this question is this: A proposition P is true “in” some set of propositions [P₁, P₂...P_n] iff, in order for all of P₁, P₂...P_n to be true, P must be true. Basically, a proposition P is true “in” some set of propositions if the truth of P is requisite to the truth of the members of that set.

So the proposition *grass is green* is true “in” the set of propositions [*Socrates is tall, snow is blue, grass is green*] because in order for all the members of that set to be true, it is necessary that *grass is green* be true. And *something is green* is true “in” the set of propositions [*Socrates is tall, snow is blue, grass is green*] because, even though arguably that proposition is not itself a member of that set, its truth is prerequisite to the joint truth of the members of that set.

With this point in place, let us evaluate (c_p). It is immediately obvious that (c_p) provides an analysis of possibility that is simply wrong. For every proposition is such that its truth is requisite to the truth of the members of some set of propositions. Consider the proposition *water is not H₂O*. Let S' be the set [*grass is green, roses are red, water is not H₂O*]. Obviously the truth of *water is not H₂O* is requisite to the truth of the members of S'.

Since (c_p) provides a wrong analysis of possibility, it follows by implication that (b_p) provides a wrong analysis of necessity. This follows because necessity and possibility are interdefinable.

In sum, if alternative worlds are treated as sets of propositions, then pws becomes both circular and false.

What about the idea that alternative worlds are models? Does this enable (c') to capture the nature of necessity? (And does it enable (b') to capture the nature of possibility?) It does not.

To begin with, if alternative worlds are models, then (c') becomes:

(c'_m) A proposition is possibly true iff it is true in some model.

The problem is that there are both possible and impossible models: models which describe possible states of affairs, and models which do not. So there are models in which *water is not H₂O* and *Socrates is not self-identical* are true. So as it stands, (c') is simply false: for *any* proposition is true in some model. *Socrates is not self-identical* is true in a model (albeit an impossible model). But that proposition is not possibly true.

Thus (c'_m) must be restricted; to make it avoid being false, we must convert it to:

(c''_m) A proposition is possibly true iff it is true in some possible model.

But (c''_m) is obviously circular. By implication, (b') becomes comparably circular if we treat worlds as models.

Also, a model just *is* a set of propositions, in the final analysis. So with regard to the points we made in connection with the idea that worlds are sets of propositions, those points also apply to the idea that alternative worlds are models.

III. We've seen reason to reject the possible worlds analysis of necessity. So what is the right analysis? We must remember what Hume said: a necessary relation never holds between two completely distinct things. Necessity is always grounded in identity or inclusion. Given any two distinct things – say, my desk and my computer -- nothing about the one *necessitates* anything about the other. But the story is different where non-disjoint things are concerned. If a *part* of my computer is changed, that *does* necessarily affect the computer as a whole: if the mass of *part* of the computer is diminished, that (*ceteris paribus*) necessarily reduces the mass of the computer as a whole. So it is not unreasonable to look for the grounds of necessity in some kind of identity or inclusion-relation.

The problem is that not just any kind of inclusion relation grounds a necessary truth. Let C be some particular cell that my body happens to include. My body need not contain C; it is a contingent fact that it contains C. Suppose that so and so is in the army. Surely so and so didn't *have* to join the army, i.e. he didn't *have* to be a part of the army. In general, if x is a part of y, where x and y are spatio-temporal objects, that fact may hold contingently. So that relation *by itself* doesn't ground necessity.

This point holds *mutatis mutandis* of events. World War II can be thought of as an extremely long, complex event. But surely not every one of the sub-events composing World War II *had* to be a part of it; surely it is not a necessary fact about World War II that private so and so fired two rounds as opposed to one round in some particular battle. Thus inclusion relations holding among spatio-temporal entities, whether objects or events are often contingent. So *by itself* spatio-temporal inclusion doesn't ground necessary truth.

A more interesting proposal is this: Necessary truths are grounded membership in sets. Let S be the set [a,b,c]. Surely S necessarily contains a; if something fails to contain a, then *ipso facto* it is not S. For what it is to be S just *is* (inter alia) to contain a. Maybe all necessity can be analyzed on this model.

I do not myself think that necessity can always be analyzed in terms of set-inclusion. But before I say why, I'd like to respond to some *erroneous* reasons to dismiss the analysis in question (this will help motivate the positive analysis we will give later on):

Sets often only contingently contain their members. Consider the set of humans. This includes George Bush. But it doesn't necessarily contain him; for he might not have been born. So by itself membership in a set does not ground necessity.

I think that the property of being a human determines *different* sets; when somebody dies, any set previously containing that entity simply *ceases* to exist. So the set of humans – that is, the set containing myself, you, George Bush, and so on – *is* modally frozen; it *does* necessarily contain George Bush. In general, sets *are* modally frozen. And when they appear not to be, that is really because some one property, e.g. the property of being human, generates different sets at different times.

Here is another erroneous reason to reject the analysis under consideration:

There is no way to analyze the necessity of if P, then P or Q or P or not P in terms of inclusion in a set.

This isn't true. *If P, then P or Q* is plausibly seen as saying: *the set of possible truth-makers of P is included in that of [P or Q].* And *[P or not P]*

is plausibly seen as saying *any possible truth-maker falls either in the set of truth-makers of P or in the set of truth-makers of not-P*.

Nonetheless, it is quite clear that necessity cannot typically be seen as holding in virtue of facts about set-membership. There are two reasons. First, any attempt to identify the relevant sets will often make use of the notion of possibility (and therefore of necessity: possibility being definable in terms of necessity). Second – what is related -- in many cases, the sets in question would contain *infinitely* many members. So there would be no way to identify these memberships except in terms of some *rule*. And embedded in the concept of a rule is the concept of necessity. Thus the attempt to reduce necessity to set-membership ends up being circular.

Once again consider the proposition *if P, then P or Q*. As we just noted, this can be seen as holding in virtue of some containment relation among sets: the set of possible truth-makers of P is included in the set of possible truth-makers of [P or Q]. But here we are defining “necessity” in terms of sets of “possible” truth-makers; so we are, by implication, defining “necessary” in terms of itself. Surely, if we are to account for the necessity of *if P then P or Q* in terms of facts about membership in sets of truth-makers, we must talk about *possible* and not merely *actual* truth-makers. If we take *if P, then P or Q* to say something about sets of truth-makers, it must be this: for any propositions P and Q, the set of *possible* truth-makers of P is included in the set of *possible* truth-makers of [P or Q]. Propositions are individuated, not by what their *actual* truth-makers are, but by what their *possible* truth-makers are. “The inventor of bifocals was smart” and “the first-postmaster general was smart” are *made true* by the same thing, viz. that Benjamin Franklin was smart. But they are different propositions, because they have different *possible* truth-makers. (If Newton had invented bifocals, and Gauss had been the first-postmaster general, then those two propositions would have different truth-makers.) *If P, then P or Q* obviously makes a statement about propositions. Propositions, if understood in terms of sets of truth-makers, must be understood in terms of *possible*, and not merely *actual*, truth-makers. Therefore, if we construe *if P, then P or Q* as saying something about sets of truth-makers, we must take it as saying something about sets of *possible*, not merely *actual*, truth-makers. But then, in our attempt to account for the necessary status of *if P, then P or Q*, we end up defining “necessary” in terms of “possible”, and therefore in terms of itself.

Also, there may be infinitely many possible truth-makers of P and of Q. This will be the case for most values of P and Q. There are infinitely many

different possible states of affairs that would make true the proposition *Bob is over 6 ft tall* – Bob could be 6 ft, one inch or 6 ft, 1.1 inches, or 6 ft, 1.11 inches, and so on. I simply don't see how the set of possible truth-makers of *Bob is over 6ft tall* could be identified except through some rule and, therefore, without using the concept of necessity.

To sum up, it won't do to see necessity as *typically* being grounded in facts about set-membership. For often such facts themselves involve the concept of necessity. (I think that *in some cases* necessity reduces to facts about set-membership – in cases where the sets in question are finite. And I think that this fact points the way to a correct understanding of necessity: that is why I have made such heavy weather of it.)

Here are the facts, as I see them. First, necessity must be grounded in some kind inclusion relation (identity being a limiting or degenerate case of inclusion). Second, the right kind of inclusion is not (typically) mereological inclusion in some spatio-temporal object or event. Third, the right kind of inclusion is not (typically) inclusion in a *set*.

There is a fourth point. The concept of necessity is not a disjunctive one. Any correct analysis of necessity must *not* be of the form “a proposition is necessary if it holds *either* in virtue of such and such *or* in virtue of thus and such...” So it would be no analysis of necessity to say: “a proposition is necessary if it is made true *either* by some fact about membership in sets *or* by some fact about the constitution of a physical object *or*...” Some *one* thing must ground necessity in all cases. In the next section, I will try to say what this one thing is.

IV. Now I will outline a positive analysis of necessity. Propositions, even contingent ones, can be seen as holding in virtue of facts about concepts. *John is tall*, though contingent, is equivalent to some fact about concepts: *the concept John is uniquely instantiated and any instance of it is tall*.

Now concepts pick out properties. The concept

(*) *shape whose surface coincides with the class of all points equidistant from a given point in a 3-D space*

is different from the concept

(**) *closed 3-D figure of uniform curvature*.

But these concepts pick out *the same property*: that property had by basketballs, tennis-balls, planets, and so on --- the property of being spherical.⁷ It seems to me, also, that (*) and (**) are necessarily co-extensive *because* they pick out the same property.

Concepts, it seems, can be thought of as modes of presentation of properties. The property of sphericity is presented by (*) and also by (**): (*) and (**) are modes of presentation of that property. There can be no doubt that there are different ways of thinking about properties; and concepts are such ways.

Also, any property can be given by *infinitely* many different concepts. Consider the property of duality (i.e. the property had by a set S such that for some x and some y distinct from x, x and y belong to S and for any z, z belongs to S iff z is identical with x or y). There are infinitely many ways to think about that property ($1+1$, $4\div 2$) Even a property like that of being green can be accessed in infinitely many ways. Let C be some concept of that property, i.e. some way of thinking about that property (surely there

⁷ No doubt, some will say that there is a one-one correspondence between properties and concepts and that, being different concepts, *closed 3-D figure of uniform curvature* and *shape whose surface coincides with the class of all points equidistant from a given point in a 3-d space* pick out different properties, albeit necessarily coextensive ones. I cannot fully address this point of view here. But it seems to me untenable. Incontestably, there is *one* shape associated with those two concepts: it would not be possible to create an object that had the shape picked out by the one concept but didn't have the shape picked out by the other; it would be false – strictly and mathematically false – to say that those two concepts picked out different *shapes*. Now obviously each of those concepts picks out a shape-property: a property that an object has wholly in virtue of having a certain shape. So those concepts pick out the same property, even though those concepts are different from each other.

Exactly analogous remarks show that $4\div 2$, 2, 976 minus 974, and so on, all pick out the same *property*. The concepts $4\div 2$, 2, 976 minus 974, and so on, are all different. Surely “Joe has 976 minus 974 apples” has a different “sense” from “Joe has $4\div 2$ apples”, and that difference in sense is obviously due to the fact that 976 minus 974 corresponds to a different mode of presentation from $4\div 2$. At the same time, all of those concepts pick out the same property -- that property had by a set S such that for some x and some y, x and y belong to S, x is distinct from y, and nothing z belongs to S that isn't identical with either x or y. For there is absolutely no fact that could make true “Joe has 976 minus 974 apples” without also making true (e.g.) “Joe has $24\div 12$ apples” and *vice versa*. It is a strict mathematical fact that the number of apples picked out by 976 minus 974 is the same as that picked out by $24\div 12$. So those concepts pick out the same number-property (in this case a property possessed by the set *apples belonging to Joe*). So the identification of concepts with properties is not tenable, and the view that concepts are modes of presentation of properties is *de rigueur*.

is such a concept). In that case, x is green if x falls under C or x falls under [C or *square circle*] or x falls under [C or *regular seven sided figure*], and so on. To sum up, concepts are ways of thinking about properties, and a given property can be thought about through different concepts.

Given this, consider the statement *triangles are closed figures*. Why is this necessarily true? For something to have the property of being a triangle *is* (inter alia) for it to have the property of being a closed figure. The property of being triangular includes the property of being closed. We might also say that the former “is constituted by” or “decomposes into” the latter property.

Consider the statement *anything over 7ft tall is over 6ft tall*. This is true because for something to be over 7ft tall just *is* (inter alia) for it to be over 6ft tall. The former property includes the latter.

Consider the proposition *water contains hydrogen*. (Unlike *triangles are closed* this is *a posteriori*.) This is necessarily true because for something to be water just *is* (inter alia) for it to contain hydrogen. The property of being water includes the property of containing hydrogen.

I think it is worth investigating the idea that necessarily true statements are all made true by relations of inclusion among properties, taking identity as a degenerate or limiting case of inclusion.

Perhaps the following will give the rudiments of a theoretical basis for this line of thought. As we noted a moment ago, any proposition can be seen as being wholly about *concepts*. This is obviously true of statements like *squares are closed figures* (anything falling under the concept *square* falls under the concept *closed figure*). But it is true even of contingent, object-involving statements like *Bob is wet* (*the concept Bob is uniquely instantiated and anything instantiating that concept instantiates the concept wet*).⁸ So if a statement is true, that is always in virtue of some fact about *concepts*.

Therefore if a statement is *necessary* that is due to some fact about concepts. For *squares are not round* to be necessary is for the proposition *necessarily, squares are not round* to be true. So the necessity of the former is

⁸ To be sure, the property of being instantiated may not be a *necessary* property of the concept *Bob*. Not all properties had by concepts are *necessary*. One might argue that 1000 years from now, the concept *Bob* will no longer be instantiated, just as the concept *Socrates* is not currently instantiated, though it used to be. I myself am open as to whether this is good reasoning or not. In any case, it is clear that concepts can have *some* of their properties only contingently. The concept *electronic device on my desk* has the property of being instantiated by one object – my computer – but obviously it is a *contingent* fact about that concept that it is instantiated by exactly one object.

the truth of the latter. And the latter, like any proposition, holds entirely in virtue of facts about concepts.

Thus it is reasonable to look for the basis of necessity in some kind fact about concepts and their interrelations. The obvious candidate is: Some kind of *entailment* relation must hold. But we now know that to be the wrong answer (*water is H₂O*).

The solution lies in the point about concepts made a moment ago. Concepts are modes of presentation of properties. Even concepts of *objects* – e.g. the concept *Bob* – can be seen as a mode of presentation of a property – the property of being identical with Bob.⁹ So given a necessary proposition P, it is natural to look for the basis of P's being necessary in some kind of fact about the *properties* represented by the concepts constitutive of P: presumably some fact about their interrelations. *Squares are closed figures* is necessarily true because what it is to have the property of being a square is (inter alia) to have the property of being a closed figure; the one property is inclusive of the other. (And *squares are not closed figures* is necessarily false because *squares are closed figures* is necessarily true.) *Water contains hydrogen* is necessarily true because what it is for something to be water *is* (inter alia) for it to contain hydrogen. The same is true *mutatis mutandis* of *water contains oxygen* – and it starts to look as though our analysis of necessity can account for the necessary status of *water is H₂O*.

So it looks promising to try to ground necessity in some fact about *properties*. And it looks as though the relevant fact has to do with the *decomposition* of properties (being square *decomposes* into being closed) or in facts about *inclusion relations* holding among properties (being square *includes* being closed).

There are some objections that could be made to this analysis. Let us now deal with these:

I simply don't see how your analysis could accommodate some very basic necessary truths, like if P, then P or Q and 1+1=2.

According to many, *1+1=2* says that for a collection to contain two objects *is* (inter alia) for it to contain one object x, and *is* (inter alia) for it

⁹ It must be noted that, in logic, the grammatical distinction between noun and verb is of no importance. The proposition *x is identical with Bob* is often construed as having the form *Bob(x)* or *x Bobs*. I think that this is actually a more correct way to understand “entities” like Bob. For what is most basic are *instances* of properties; whatever *objects* there are in the world is fixed by what properties are instantiated.

to contain one object y (other than x), and *is* (finally) for it not to contain any third object. So $1+1=2$ says that the having one property – being a dual set – decomposes into the having of other properties – that of containing an x , and a y different from x , and that of *not* containing a z not identical with either x or y . If this is the right analysis¹⁰ -- and off-hand it is obviously a reasonable one -- then surely $1+1=2$ is no counterexample to our thesis.

Our analysis can also accommodate the necessity of *if P then P or Q*. Let **P** be the property of being such that **P** is true. (So if **P** is *grass is green*, then every object has **P**. For, vacuously, every object is such that grass is green.) Let **Q** be the property of being such **Q** is true. (So if **Q** is the proposition *snow is purple*, then no object has **Q**.) The proposition *if P, then P or Q* is only trivially different from the proposition *for all x, if x has P, then x has P or Q*.

Now the property of having **P** is not something altogether different from the property of having **P or Q**. Having **P** is *a way* (not the only way) of having **P or Q**. For something to have **P is** (inter alia) for it to have **P or Q** – having **P consists in**, among other things, having **P or Q**. So *for all x, x has P, then x has P or Q* is made true some inclusion relation holding among properties.

This can be thought of as follows. Being in Paris is not something *different* from being in France. Being in Paris is a way of being in France. To be in Paris *is* (inter alia) to be in France. So the property of being in Paris *includes* the property of being in France. Similarly, the property of having **P includes** the property of having **P or Q**. To tie this in to our analogy: being in the region of property-space corresponding to **P** is not *different* from being in the region of property-space associated with **P or Q**. Being in the former property-space is *a way* of being in the latter, just as being in Paris is *a way* of being in France. Given that having **P** is a way of having **P or Q**, it seems fair to say that having **P includes** or *involves* having **P or Q**, and thus decomposes into (inter alia) having **P or Q**. Now the truth of *if P then P or Q* can be represented as holding in virtue of the just mentioned facts about **P** and **P or Q**, and thus in virtue of a fact about the decomposition of **P**.

Let us deal with another criticism:

¹⁰ There are different reconstructions of arithmetic – the one given here is basically the Fregean reconstruction. But what we said about that reconstruction would apply *mutatis mutandis* to any other, e.g. the Neumannian one.

Your analysis is circular. To say that the property of being over 7ft tall includes the property of being over 6ft tall is to say (inter alia) that anything over 7ft tall is necessarily over 6ft tall. Your talk of property inclusion is merely obscure talk of necessity. So your analysis is circular.

I do not think this criticism is just. It is easy to make the case that facts about property inclusion are *more basic* than facts about necessity, and that, consequently, talk of necessity reduces to talk of property-inclusion, but not *vice versa*. So talk of property-inclusion *underlies* talk of necessity, and can thus provide a non-circular analysis of necessity.

As we noted earlier, it is surely no *accident* that anything, in any possible circumstance (world), that is over 7ft tall is over 6ft tall. It is not as though, in every possible circumstance, the things that have the first property just happen to have the second. Obviously this fact is grounded in *what it is* to be over 7ft tall. So the necessity is *grounded* in something, and this something is surely a fact about what it is to over 7ft tall. And there doesn't seem to any way of capturing this grounding-relation except by saying that part of being over 7ft tall *is* being over 6ft tall.

To sum up, the circularity-charge would have validity only if the case could be made that talk of necessity somehow provided the foundation for talk of property-inclusion. But this case cannot be made. It is quite clear that the necessity of *anything over 7ft tall is over 6ft tall* is grounded in some fact about the property of being over 7ft tall. And the relevant fact would seem to be that being over 7ft is somehow inclusive of being over 6ft tall.

Surely what it is for something to be red or square couldn't possibly vary from circumstance to circumstance or, if I may so speak, from world to world.¹¹ In other words, what it is for something to be red or square is necessarily the same thing in different circumstances. This necessity is easily *grounded* – is easily traced to something deeper. Properties are not con-

¹¹ I think it is highly *useful* to speak of possible worlds; it is very *useful* to say things like “there is no possible world where squares are round”. But I deny that any *analysis* of possibility/necessity in terms of the notion of a possible world – if only for the reasons pointed out earlier. ‘P necessary iff P is true in some possible world’ is blatantly circular, since “possible” just means “not necessarily not”. And if drop the “possible” from the *definiens*, and commit ourselves to actualism, we run into serious epistemological problems. Not to mention the problem that, if a proposition is true in all possible worlds, that fact is surely *grounded* in some fact about the proposition, which fact ought surely to be considered the essence of necessity: truth in all possible worlds being a mere symptom of necessity.

stituents of circumstances (they are platonic objects). So they don't fall within the clutches of circumstance. Since properties are not *in* circumstances or worlds, it follows (vacuously) that they don't vary *from* circumstance to circumstance. For *x* to vary *from* circumstance to circumstance is just for *x* to meet two conditions: (i) *x* must be *in* different circumstances and (ii) *x* must be different in different circumstances. So the circumstance-invariance of properties reduces to the fact that properties are not *in* circumstances at all.¹²

Thus what is *included in* being square is necessarily the same from circumstance to circumstance. And *this* necessity is easily grounded. Since properties are not to any degree *in* circumstances, they don't vary from circumstance to circumstance; *a fortiori* what is *included in* a property doesn't vary from circumstance to circumstance.

The point is this discourse is to show that our analysis doesn't involve any kind of covert circularity. It is a true fact that properties are *necessarily* the same from circumstance to circumstance, and that, consequently, what is included in properties (and thus in having them) is necessarily the same from circumstance to circumstance. But this necessity is easily reduced to some non-modal or sub-modal fact. So although it is true that our analysis makes use of the fact that properties necessarily don't change from circumstance to circumstance, this does not mean that our analysis is circular; for we have reduced that necessity to a sub-modal fact.

What I've just said may not satisfy everybody:

Admittedly, for something to be over 7ft tall is (inter alia) for it to be over 6ft tall. But that fact is itself to be traced to some necessity, viz. anything over 7ft tall is necessarily over 6ft tall. So inclusion relations among properties are to be explained in terms of necessities, and therefore cannot themselves explain necessities.

¹² It may be said that my analysis of necessity makes use of the entailment: *if x isn't in any circumstances, then it cannot be both (i) in different circumstances and (ii) be different in different circumstances*. So, in as much as my analysis uses this entailment, it uses the concept of necessity; for to affirm an entailment is just to affirm a certain kind of necessity. So my analysis is circular.

But this entailment reduces to an inclusion relation – just as my analysis predicts! It reduces to the fact that condition (i) is included in the joint condition [(i) and (ii)]. In other words, it reduces to the fact that satisfaction of [(i) and (ii)] *is* (inter alia) satisfaction of (i.).

This is just the point that I am trying to combat. Facts about inclusion relations among properties do *not* have to be explained in terms of necessities. In fact, they *are* not to be so explained. Such facts are to be “explained” in terms of the banal point that properties are not *in* circumstances at all and therefore don’t vary from circumstance to circumstance.¹³

¹³ The contents of this footnote are similar to those of the last footnote. But it is worth repeating myself to stave off the unjust – but inevitable – accusation that our analysis of necessity is circular.

The argument just given makes use of an entailment, namely:

Properties are not in circumstances; therefore properties don’t vary from circumstance to circumstance.

And in as much as an entailment is a kind of necessity, and in as much as my analysis uses that entailment, my analysis might seem to be guilty of circularity. That is not the case. Our analysis is not circular. The entailment/necessity in question reduces to a case of property inclusion, just as my analysis predicts. For something to vary from circumstance to circumstance just *is* for it (i) to be *in* different circumstances and (ii) for it to be *different* in different circumstances. So the entailment

“properties are not in circumstances”

to

”therefore properties don’t vary *from* circumstance to circumstance”

is identical with the entailment from:

(a) ‘Properties are not (i) in circumstances’

to

(b) Properties are not *both* (i) in circumstances and (ii) different in different circumstance.

And the entailment from (a) to (b) – i.e. the fact that (b) is *conceptually necessary* given (a) – is easily reduced to a deeper fact, one which can be delineated with using the concept of necessity. That deeper fact is that the property of satisfying (i) is *included* in the property of satisfying [(i) and (ii)]. And this is just as my analysis predicts. So there is no covert circularity in our analysis. In fact, when we investigate the allegation of some such circularity, our analysis turns out to be vindicated.

There is an obvious counter-example to your analysis. Suppose that Bob's favorite concept is square. Now the statement

(A) anything that falls under the concept square is a closed figure

is necessarily true. On the other hand, the statement

(B) anything that falls under Bob's favorite concept is a closed figure

is, while true, not necessarily true (for Bob's favorite concept might have been the concept open figure). But the property-relations – the inclusion-relations among properties -- which make (A) true are the same as those which make (B) true. Both are made true by the fact that, included in the property of being a square, is the property of being closed. So with regard to the statement: anything that falls under the concept square falls under the concept closed figure – whatever it is that makes that statement be necessarily true, it is not merely inclusion relations among properties. For the exact same inclusion relations are associated with the contingent proposition: anything that falls under Bob's favorite concept is a closed figure.

This argument involves a fallacy. The property of being a square *does* include the property of being a closed figure. The property of being Bob's favorite concept *does not* include the property of being a closed figure. The property of being Bob's favorite concept is (unlike the concept *square*) something completely different from the concept *closed figure*. There is no inclusion relation there. So my analysis correctly predicts that (B) is contingent.

Now it is true that, in actual fact, the thing which *has* the property of being Bob's favorite concept – this thing being the concept *square* – *is* such that anything falling under it necessarily has four-sides. But that is irrelevant. (B) relates the property of being closed to the property of being Bob's favorite concept, not to the property of being a square. (A) relates the property of being closed to the property of being square. There is an inclusion relation here. So the proposition is necessary (as our analysis predicts). On the other hand, (B) relates the property of being a closed figure to the property of being Bob's favorite property. There is no inclusion relation here. So the proposition is contingent, just as our analysis predicts.

It is true that the property of being a square is identical with Bob's favorite property. But the property of being a square is not identical with the

property of being Bob's favorite property. (B) relates the property of being closed to *the property of being Bob's favorite property*, which is *not* the same thing as the property *square*. And no inclusion relation holds between the property of being closed and the property of being Bob's favorite property. So our analysis predicts that (B) is contingent, and in fact (B) is contingent. (A), on the other hand, relates the property of being closed to the property of being a square. There is an inclusion relation here. So our analysis predicts that (A) is necessary, and (A) is necessary.

These points may help us dispose of another, very similar objection:

Consider the proposition

(*) the first post-master general was identical with the inventor of bifocals.

This is obviously contingently true. But the concepts in that sentence – first post-master general and inventor of bifocals – pick out the same property, the property of being Benjamin Franklin. So those concepts pick out properties that stand in just the kind of relation of inclusion (taking identity as a limiting case of inclusion) that, according to your analysis, grounds necessity. So your analysis predicts that () will be necessary. It isn't. So your analysis is wrong.*

The problem here is obvious. The *property* of being the inventor of bifocals is totally different from the *property* of being the first post-master general. And the expressions "the first post-master general" and "the inventor of bifocals" don't pick out the same *property*: they pick out the same *individual*. They pick out Benjamin Franklin, but not the *property* of being Benjamin Franklin. (*) doesn't say that the property of being Benjamin Franklin is included in, or includes, the property of being Benjamin Franklin. (That would be true enough. But it is not what (*) says.) Since the property of being the first post-master general is totally disjoint from the property of being the inventor of bifocals, our analysis predicts that (*) will be contingent. And that is in fact the case.

(*) is not made true by facts about the decomposition of properties; it is made true by the fact that some one individual had two quite distinct sets of properties. The proposition

(**) *anything that is a square is closed figure*

is necessarily true because, specifically, it is made true by a fact about what is included in having some one property. So it is made true by some fact about the decomposition of some property: to have the property of being square-shaped *is* or *includes* (inter alia) having the property of being a closed figure. Since (**) is made true entirely by some fact about what is included in having a certain property, our analysis predicts that (**) will be necessary; and this prediction is correct.

I would like to end this section by considering one last possible misgiving about our analysis:

*Off-hand, I don't see how your analysis accommodates the necessity of "if Mary is taller than George, then George is less tall than Mary".*¹⁴

Remember what we said earlier. The proposition *x is water* is obviously different from the proposition *x is H₂O*. But we were able to account for the necessity of *water is H₂O* and, therewith, for the necessity of *if x is water, then x is H₂O (and vice versa)*. We said: the property of being water includes the property of being composed of H₂O (and vice versa). What it is for something to be water *is* for it to consist of hydrogen atoms and oxygen atoms arranged in certain ways.

Surely what it is to have the property of being a thing *x* such that *x* is less tall than Mary is not something different from what it is to have the property of being a thing *x* such that Mary is taller than *x*. It is not as though we are dealing with two properties here, any more than we are dealing with two properties in the case of *water* and H₂O. The *concept* of being a thing *x* such that Mary is taller than *x* may be different from the *concept* of being a thing *x* such that *x* is less tall than Mary, just as the *concept water* is different from the *concept H₂O*. But the *property* of being a thing *x* such that Mary is taller than *x* is not different from the *property* of being a thing *x* such that *x* is less tall than Mary, just as the *property* of being water is not different from the *property* of being H₂O. So just as our analysis predicts, the necessity of *if Mary is taller than George, then George is less tall than Mary* is grounded in a property-identity (property-identity being a limiting case of property-inclusion). For, modulo irrelevant facts about verbal packaging, *if Mary is taller than George, then George is less tall than Mary* is surely the same proposition as *if George is a thing x such that Mary is taller than x, then George is a thing x such that x is less tall than*

¹⁴ This point was made to me, virtually verbatim, by an anonymous reviewer at *Metaphysica*.

Mary. And, as we've just seen, the property of being a thing x such that *Mary* is taller than x is identical with (and is thus, in a limiting sense, inclusive of) the property of being a thing x such that x is less tall than *Mary*.

V. I would like to give some historical context to the position advocated here.¹⁵ I'm going to be extremely brief, since much of what I'm about to say has been said more thoroughly elsewhere.¹⁶

I am by no means the first to believe that necessary relations are underwritten by containment- or inclusion-relations. As I mentioned earlier, Hume explicitly said that if x and y are *distinct* – i.e. neither comprises the other and they don't otherwise coincide – then there can be no *necessary* relation between them. Thus, for Hume, any necessary relation between x and y holds in virtue of some containment- or inclusion-relation, identity being a limiting case.

This point is correct as far as it goes. But it is not specific enough to constitute a general analysis of necessity. We've already seen why. How does this point of Hume's explain the necessity of *x is a closed trilateral figure iff x is a figure such that any two of its sides intersect, but not all three of its sides intersect?* The concepts flanking the "iff" are distinct, so it is hard to see how either could really comprise the other. So given *only* Hume's correct point that necessary relations are grounded in relations of non-distinctness, we don't yet have an analysis of necessity.

Actually, Hume does, after a fashion, deal with this last concern. He says that all necessary truths are grounded in "relations of ideas."¹⁷ So $2+2=4$ is necessary because it holds entirely in virtue of facts about the relevant *ideas* – the ideas of two and four, and so on. (It is worth investigating how *this* analysis of necessity relates to the other conception of necessity of Hume's that we just mentioned. For reasons of space, we cannot discuss this here.)

But there are some problems with this analysis of necessity. First of all, by "idea" Hume seems to mean "mental image".¹⁸ Presumably, no fact about mental images could make it true that *p and (q or r) entails (p and q) or (p and r)*. Indeed, not even *recognition* of that truth could consist in a

¹⁵ The valuable point that my analysis was anticipated by Hume, Kant, and Leibniz was made to me by an anonymous reviewer at *Metaphysica*.

¹⁶ See the chapters on Leibniz, Hume, and Kant in Pap (1958) for much more developed versions of many of the points I will make here.

¹⁷ Hume 1955/1748 (40).

¹⁸ See Pap 1958 (75).

play of mental images. No matter what mental images we might impute to a person, that person's *failing* to recognize that that *p and (q or r)* entails (*p and q*) or (*p and r*) seems to be consistent with his having those images.

Of course, the obvious reply to make on Hume's behalf is this:

When Hume says that necessary truths are grounded in "relations of ideas", by "ideas" he means concepts (in the platonic, not the psychological sense). Hume is saying that $2+2=4$ is necessary because the concepts two, four, and so on, by themselves guarantee the truth of that proposition.

This may well be what Hume meant. But in that case his analysis of necessity is counter-exemplified by necessary a posteriori truths like *water is H₂O* and *light consists of wavicles*. Also, even if we leave that aside, Hume's analysis of necessity is still not adequate; for he doesn't adequately answer the question *how* the concepts *four* and *two*, and so on, underwrite the necessity of $2+2=4$ or *triangles have three sides*.

It isn't, as far as I can tell¹⁹, that Hume has *no* answer to that question, but that he has a false one. He seems to say that *triangles have three sides* is necessary because one cannot imagine a triangle without imagining a three-sided figure.²⁰ (Hume thus identifies necessity with the property of being such that its negation is *not* imaginable.²¹ This identification is a consequence of Hume's strict empiricism: all knowledge is embodied in sense-perceptions and in the "faint copies" they leave, these being mental images. So, for Hume, what is conceivable is what is imaginable. Thus, if we identify possibility with conceivability – and everyone prior to Kripke did so – then we identify possibility with imaginability: a disastrous result, but one that an empiricist has a hard time escaping.) So, in effect, one's image of the one thing *includes* one's image of the other. Thus, Hume has once again anticipated our inclusion-analysis of necessity.

One problem with this view is that there is no way to apply to it truths like *there are more reals than rationals* or even *p and (if p, then either not p or (q and w)), then q and w*. What inclusion- or identity-relations among

¹⁹ I insert this "as far as I can tell" because here I am entering subtleties of Hume-interpretation that are a bit beyond my competence. I am going off of what a reading of Hume, unsupplemented by extensive background reading, would suggest.

²⁰ Hume 1955/1748 (27-28).

²¹ Pap 1958 (81).

mental images could account for so much as our *recognition* of these truths, let alone the truths themselves?²²

Like Hume, Leibniz anticipated our analysis of necessity. Actually, Leibniz did this in two ways. First, Leibniz said that all necessary truths reduce to the law of identity (*for any x, x=x*). Thus, Leibniz seems to be saying that any necessary truth is grounded in a relation of *identity*. And this is obviously similar to our view that necessity is always grounded in some kind of relation of coincidence or inclusion.

But *what* must be identical with *what*, according to Leibniz, if we are to have a necessarily true proposition? Leibniz's answer seems to be: propositions that are necessarily true hold in virtue of identities of *concepts*. So *bachelors are unmarried* holds in virtue of a *concept-identity*. The concept *bachelor* is identical with a concept like *unmarried adult male*. Obviously the concept *unmarried* is a component of this concept. So *bachelors are unmarried* is true in virtue of an identity holding between the right-side and some component of the left side.

In connection with this, Leibniz held that to *deny* a necessary truth is tantamount to *denying* the law of identity. To say *bachelors are not unmarried* is tantamount to saying *x is not identical with x*, for some value of x.

There are several problems with this analysis of necessity. We will consider two. First, as Pap pointed out, in order to effect the reduction of a truth of logic to anything that could be considered an identity, logical truths *other* than the principle of identity must be used.²³ To use Pap's example, if you want to *show* that as simple a truth as *if p, then p or q* reduces to an identity of any kind, you need to use principles of logic that you must hold *not* to be identical with the law of identity: "[I]n most cases, the reduction of a necessary truth to an identity, total or partial, presupposes principles of deduction which are themselves necessary truths but cannot themselves be held to be in turn thus reducible."²⁴

Another problem with Leibniz's view has to do, of course, with Kripke's discovery of necessary a posteriori truths. It is very hard to see how any identity of *concepts* underwrites the truth of *heat is molecular motion*. For the concept *heat* is different from the concept *molecular motion*.

Leibniz anticipates our containment-analysis of necessity in another way. Leibniz notoriously held that *Caesar crossed the Rubicon* is neces-

²² See Pap 1958 (75-84) for some related, though not quite coincident points.

²³ Pap 1958 (8-11).

²⁴ Pap 1958 (8).

sary.²⁵ Roughly, the idea seems to be this. Caesar is who he is in virtue of the properties that he has. Crossing the Rubicon is one of those properties. So having the property of crossing the Rubicon is *definitive* of being Caesar and thus of the *concept* of Caesar. To be sure, the truth *Caesar crossed the Rubicon* certainly *appears* to be contingent. (Leibniz grants this.) But, according to Leibniz, that is a kind of epistemic epiphenomenon: we are simply ignorant of some facets of the concept of Caesar, just as we are ignorant of some facets of the concept *real number*.²⁶ If we knew more about the concept *Caesar*, we'd see that, included in it, is the concept *crossed the Rubicon*.

Of course, in actuality, *Caesar crossed Rubicon* is contingent. (We don't really have to time to discuss the errors in Leibniz's argument to the contrary.²⁷) But, for our purposes, what is relevant is the conceit that underlies Leibniz's contention that it is necessary. The idea is that the concept *crossing the Rubicon* is somehow *contained* in the concept *Caesar*. In general, containment relations among *concepts* underwrite necessities. So Leibniz has (once again) anticipated our containment-- or inclusion-- analysis of necessity.

In effect, we've already seen the problem with this particular conception of necessity (not surprisingly, it is one that bedeviled many pre-Kripkean views): it doesn't apply to necessary a posteriori propositions. Leibniz says that the concept *crossed the Rubicon* is contained in the concept *Caesar*. Very well. But the concept *consists of hydrogen molecules (inter alia)* is not surely not contained in the concept *water*, even though the proposition *water consists of hydrogen molecules (inter alia)* is necessary.

²⁵ He seems to have held that all those propositions that we would characterize as contingent are necessary and, indeed, a priori. Leibniz seems to have held that all propositions are of subject-predicate form (this was generally held before Frege). And he also held 'every predicate, necessary or contingent, past, present or future, is contained in the notion of the subject' (Russell 1992/1900: 27); so *every* proposition is *conceptually* true and thus necessarily true. (Russell 1992/1900 (27)).

²⁶ See Russell 1992/1900 (chapter II).

²⁷ For what it's worth, there are, in my view, two fallacies in Leibniz's argument. First, though it is true that Caesar is who he is in virtue of the properties he has, it is *not* true that Caesar is who he is in virtue of *all* the properties he has. Surely only *some* of the properties one has are individuating of that person. (Kripke argues – correctly, in my view – that only facts about one's conditions of origination are individuating of one.) Second, a fact about x may be *individuating* of x without being *definitive* of the *concept* of x. This is really another way of stating Kripke's point that conceivability and possibility don't coincide. The *substance* water is individuated by its chemical structure. But the *concept* of water is not *definable* in chemical terms.

A similar problem faces Kant's analysis of necessity. Kant says that *bachelors are unmarried* is necessary because the concept on the left side of the copula *contains* the concept on the right; and that, in general, necessity stems from *containment* relations holding among concepts.²⁸ So, like Leibniz and Hume, Kant has anticipated our analysis. But the problem with Kant's analysis is clear: the concept *water* doesn't contain the concept *hydrogen* (or *oxygen*), even though water itself contains hydrogen.

Also, as Quine pointed out²⁹, it must be said what is meant by "containment". The following proposition is necessarily true: *x's cardinality is greater than that of the rational numbers* is true only if *x is a class such that there is no bijection between its members and the members of a class C whose members can be put into a bijection with the whole numbers*. But in what sense does the concept *cardinality greater than the cardinality of the rational numbers* contain the concept *class such that there is no bijection between its members and the whole numbers*?

Kant actually said that propositions of mathematics, like the one just given, are *synthetic* because he thought that – apart from totally trivial propositions like $7=7$ – the requisite containment relations among the concepts flanking the "=" are not to be found. But this shows the limitations of trying to understand necessity in terms of containment relations holding among *concepts*. It does not, *pace* Kant, show that mathematical truths are non-analytic.

There are two points of importance here. First, the containment-- or inclusion-analysis has a venerable history: some of the luminaries of our discipline have looked to it to explain necessity. Second, our analysis has some advantages over the analyses put forth by these luminaries. They sought to understand necessity in terms of an inclusion-relation among *concepts*. We know from Kripke that this is not the way to go. Thus we have analyzed necessity *not* as an inclusion-relation among concepts, but as an inclusion-relation among *properties*. Consequently, our analysis does not face the problems that bedevil the analyses of Leibniz, Hume, and Kant.

²⁸ Kant 1965/1787 (48-54).

²⁹ Quine 1990/1951 (26).

ABSTRACT

I argue, on both logical and epistemological grounds, that the possible-worlds analysis of necessity is false. And I provide an alternative analysis: necessarily true propositions are those that hold entirely in virtue of facts about the decomposition of properties. So *anything that weighs more than ten lbs weighs more than nine lbs* is necessarily true because the property of weighing more than ten lbs decomposes into (inter alia) the property of weighing more than nine lbs. I consider cases of necessary truths that seem not to conform to my analysis (e.g. *if P, then if P or Q*) and argue that, properly analyzed, they do conform to it.

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P.X. MONAGHAN

Property Possession, Identity, and the Nature of an Entity

Introduction¹

In this paper I will defend an argument for an account of property possession and identity according to which property possession and identity are one and the same relation. Then I will consider an objection to that account. And out of my response to that objection will emerge the view according to which there is nothing more to any given entity than what is traditionally referred to in ontology as the nature of that entity.

I²

Property possession and identity are fundamental to philosophy. But they are also fundamentally misunderstood.

On the one hand, property possession has been referred to as “the fundamental tie”³ that binds the entity to its property. It is the relation such that, for any entity whatsoever x and any entity whatsoever y , x bears it to y just in case x possesses y as a property. And identity is the relation such that, for any entity whatsoever x and any entity whatsoever y , x bears it to y just in case x is identical to y . In other words, identity is *the* relation any entity whatsoever bears to itself and nothing else.⁴

On the other hand, property possession and identity are also

¹ I would like to thank Phil Hanson and Jackie Wilwerding for discussing these ideas with me.

² In this paper I will require a technical term that can be used to refer to absolutely anything, regardless of its ontological category. For that purpose I will use ‘entity’ and I will use the individual variables ‘ x ’ and ‘ y ’ in like manner to quantify over any entities whatsoever.

³ See Armstrong (1989, pp. 108-110).

⁴ There is a worry that Bradley’s relation regress argument shows that there are no such things as relations at all. I will address this worry below.

fundamentally misunderstood. For whereas it is apparently very widely believed that there is a real distinction to be made between the relation of property possession and the relation of identity, that belief is mistaken.⁵ Instead, there is only a merely conceptual distinction to me made between them. For property possession and identity are in fact numerically one and the same relation.

The purpose of this paper is to defend an argument for an account of property possession and identity according to which the relation of property possession (i.e. the relation such that, for any x and y , x bears it to y just in case x possesses y as a property) *just is* the relation of identity (i.e. the relation such that, for any x and any y , x bears it to y just in case x is identical to y). Now it might also be said that according to this account, there is no relation of property possession other than the relation of identity, and there is no relation of identity other than the relation of property possession. And to be picturesque it might even be said that according to the account, there is no more difference between the relation of property possession and the relation of identity than there is between the Morning Star and the Evening Star. But for the sake of brevity from now on I will simply say instead that according to the account, property possession and identity are one and the same relation.

The plan of the paper is as follows. In the second section I will defend an account of property possession and identity according to which property possession and identity are one and the same relation. Then in the third section I will consider an objection to that account. And out of my response to that objection will emerge the view according to which there is nothing more to any given entity than what is traditionally referred to in ontology as the nature of that entity.

II

In this section I will defend each of the premises of the following argument. Property possession is a relation. If property possession is a relation, however, then either property possession and identity are one and

⁵ So far as I can tell, property possession and identity are widely believed to be numerically two distinct relations because whereas identity is symmetric, transitive and reflexive, it is widely believed that property possession is asymmetric instead. To his credit, Newman is one who makes this belief explicit. See his (2002, p. 24, n. 40). But according to my account, property possession is not asymmetric. Rather, it's symmetric. It just is the symmetric, transitive and reflexive relation of identity.

the same relation, or else property possession is some relation other than identity. If property possession is some relation other than identity, then presumably there is at least one entity that bears the relation of property possession to a second entity to which the first is not identical. But the consequent of this latter claim faces two problems, which I refer to as the problems of relevance and contribution, and which seem to me to be insoluble. Thus it is not the case that there is at least one entity that bears the relation of property possession to a second entity to which the first is not identical. Hence property possession and identity are one and the same relation.

Property possession is a relation. The only objection to this premise of which I am aware is the one according to which Bradley's relational regress argument shows that property possession cannot be a relation. According to Bradley's relational regress argument, if entity x bears relation R to entity y , then relation R' (which may or may not be the same as R) is required to relate x to R , in which case relation R'' (which may or may not be the same as R') is required to relate x to R' , and so on and so forth. And of course the relation extends in the other direction, going from R to y .⁶

It is important to note, however, that the argument does *not* show that x fails to be related by R to y in the end, as some have thought.⁷ Nor does it show that any contradiction is ever reached. All that it shows is that if one commits oneself to the existence of at least one relation -- and it need not be property possession -- then one thereby commits oneself to possibly many relations. But by itself this does not show that one *should not* commit oneself to the existence of relations.

If one wishes to reject the existence of relations, then one cannot justifiably do so on the basis of Bradley's relational regress argument alone. One must also appeal to some additional consideration, such as simplicity, ontological economy, or the like. But I doubt that the value gained in simplicity would be greater than the price paid. After all, relations in general pack tremendous explanatory power. In particular, it becomes very difficult to explain how an entity could possess a property, if one does not at least tacitly postulate the existence of a relation that obtains between them. And not just any relation, for an entity and a property could

⁶ This objection is found in Bradley's *Appearance and Reality* and is discussed by various authors. For example, see Armstrong (1997, p. 114) or Newman (2002, p. 25).

⁷ This seems to be what Newman thinks. See his (2002, p. 26).

still be related to each other in such a way as to be located at opposite ends of the universe as each other, without the one possessing the other. What seems to be required to explain the possession of properties by entities is in fact is the relation of property possession.

Of course, there have been those who have tried to explain how an entity could still possess a property, even if it turns out that property possession is not a relation. Many of these philosophers have looked to Frege's notion of the unsaturatedness of concepts for inspiration. They have claimed that since properties are unsaturated, an entity and its property can combine with each other without the need of any intermediary.⁸ But there is some reason to think that even Frege himself identified property possession as the relation of subsumption.⁹ Moreover, one wonders whether the rather obscure¹⁰ notion of an unsaturated entity is really a preferable alternative to a regress of orderly relations.

Of course, not all philosophers have taken their cue from Frege on this point. In *A World of States of Affairs* David Armstrong proposed a view influenced by the *Tractatus* of Wittgenstein according to which a particular possesses a property just in case there exists such a thing as the state of affairs of that particular's possessing that property.¹¹ On this view, property possession is identified just as the state of affairs in which the particular and its property are "brought together."¹² And so it might be thought that on this view property possession is something other than a relation. But I would argue that it is not. For I would argue that if property possession is a state of affairs, and if this state of affairs brings together a entity and its property, then since anything which brings together an entity with its property functions as a relation, and since anything that functions as a relation is a relation, property possession is therefore a relation, even if it is at the same time a state of affairs.

⁸ For commentary on such a view, see Newman (2002, pp. 20-26).

⁹ See Frege (1891a) in Beaney (1997, p. 173).

¹⁰ To my mind, Frege never really did clarify the notion of unsaturatedness. For there are some passages in which he seems to give a metaphysical analysis of the notion, as in his (1882) in Beaney (1997, p. 81). And there are other passages in which he seems to give a linguistic analysis of the notion, as in his (1891b) in Beaney (1997, p. 139).

¹¹ See his (1997, p. 1).

¹² See his (1997, p. 116).

If property possession is a relation, then either property possession and identity are one and the same relation, or else property possession is some relation other than identity. I take this claim to be uncontroversial, for it is a particular instance of the general claim that, for any relation R, either R is the relation of identity, or else R is not, in which case R is some relation other than identity.

If property possession is some relation other than identity, then presumably there is at least one entity that bears the relation of property possession to a second entity to which the first is not identical. Of course, it does not follow that that if property possession is some relation other than identity, then there is at least one entity that bears the relation of property possession to a second entity to which the first is not identical. For property possession could still be some relation other than identity, if it were the relation with the null extension, or if it were a relation that some but not all entities bear just to themselves. But each of these two options is much less plausible than the one according to which there is at least one entity that bears the relation of property possession to a second entity to which the first is not identical.¹³ And so that is the option upon which I will concentrate in what follows.

But the claim that there is at least one entity x that bears the relation of property possession to a second entity y to which x is not identical faces two problems, which I refer to as the problems of relevance and contribution, and which seem to me to be insoluble. These two problems will be easy to see if we have a good colorful example with which to work (but I assume that the same problems obtain in any less colorful example as well). So let x be any entity that bears the relation of property possession to y, let y be the property of being red, and let us assume that x is therefore red. Now either y bears the relation of property possession to itself (and is therefore red), or else y does not (and is therefore not red).

Let us assume, first, that x is red but that y is not. Now the problem of relevance is easy to see. It is the problem of explaining how the fact that y is not red is at all relevant to the fact that x is red. In other words, it is the problem of explaining how x is red, even though y is not. Of course, one might think that the explanation is obvious. After all, it has been assumed that x bears *none other* than the relation of property possession to y. So it might be suggested that x is red, even though y is not, simply

¹³ They also seem to me to be less plausible than the option according to which property possession and identity are one and the same relation.

because *x* bears the relation of property possession to *y*. But I don't find this suggestion to be an obvious explanation at all. For I ask: will *x* still be red, even if it does not bear that relation to *y*, but instead bears it to some other non-red entity? And if not, why not? In other words, what's so special about the non-red *y*, as opposed to these other non-red entities? Of course, it might be suggested that what's so special about *y* is obvious too. After all, *y* just is the property of being red. But this suggestion brings us to the problem of contribution.

The problem of contribution is easy to see if we consider the converse of the relation of property possession, which *y* bears to *x*. It is the problem of explaining how the non-red *y* *makes* *x* red. In other words, it is the problem of explaining how the non-red *y* can be related to *x* in such a way that *x* comes to be red. It is the problem of explaining how the non-red *y* contributes redness to *x*. And it is a problem that seems wholly mysterious to me. After all, even if one insists that *y* does somehow succeed in contributing redness to *x*, I will simply ask: What then is the relation that obtains between *x* and this redness? Is it the relation of identity? And if not, then how does this redness make *x* *in and of itself* red? We face the problem of contribution all over again.¹⁴

One might attempt to get away from these problems by asserting that *y* does bear the relation of property possession to itself after all, and that *y* is therefore red. But I don't think that one succeeds in escaping from these problems in this way. For even if *x* is red and *y* is red, doesn't it still seem that *x* could still be red, even if *y* ceased to exist, or if nothing else existed that resembled *x* with respect to its redness? Why should we think that the fact that *y* is red is at all relevant to the fact that *x* is red? Don't the two facts just seem to be independent of each other? Thus, the problem of relevance rears its ugly head again. And so does the problem of contribution. How can *y* be related to *x* in such a way that *x* comes to resemble *y* with respect to redness? How does *y* contribute redness to *x*? It seems mysterious that it could.

Of course, one option remaining is simply to embrace the mystery. And perhaps that seems a plausible option, when compared to the account of property possession and identity I accept. But in the following section there will emerge from this account the view that there is nothing more to

¹⁴ The problem of contribution can be raised even if we do not consider the converse relation of property possession. In general it is the problem of explaining how *x* becomes red just by being related to *y*.

any given entity than what is traditionally referred to in ontology as the nature of that entity. And this view is, I submit, a far more plausible alternative than an insoluble mystery.

III

In this section I will consider an objection to the account of property possession and identity for which I argued above. And out of my response to that objection will emerge the view according to which there is nothing more to any given entity than what is traditionally referred to in ontology as the nature of that entity.

One might raise the following objection to my account of property possession and identity. There is at least one entity that bears the relation of property possession to two or more properties. However, if there is at least one entity that bears the relation of property possession to two or more properties, and if the relation of property possession just is the relation of identity, then there is at least one entity that bears the relation of identity to two or more entities. But nothing can bear the relation of identity to two or more entities. Hence it is not the case that the relation of property possession just is the relation of identity.

My response to this objection is that it is based upon a mistaken identity of the relation of property possession. Property possession is not a “one-many” relation that at least one entity can bear to many properties. Rather, property possession is the “one-one” relation of identity. It is the relation that any entity whatsoever bears to itself and nothing else.

Of course, one might judge this response to be simply unacceptable, if one *presupposes* that my account of property possession and identity cannot make room for the existence of qualitatively complex entities, such as tables and chairs, of which we can predicate many different properties, such as the property of being a table, the property of being a table, the property of being wooden, and so on and so forth. Moreover, it is easy to see how room for such entities can be made on an account of property possession as a “one-many” relation that at least one entity bears to many different properties. On such an account, qualitatively complex entities are qualitatively complex precisely because they bear the “one-many” relation of property possession to many different properties. Furthermore, perhaps it is not easy to see at first how room for such entities can be made on my account of property possession and identity as the “one-one” relation that any entity bears just to itself. But I think that such room can be made, if

the traditional notion of the nature of an entity is invoked.¹⁵

What I would like to suggest at this point is that any entity whatsoever bears the relation of property possession to the nature of that entity. The nature of an entity is a property, which that entity possesses, and which is complete in the sense that, for any property whatsoever, that property is a constituent part of that nature just in case that property can be truly predicated of that entity.

It is important to note that my account of the nature of an entity differs in an important respect from the accounts given by other authors. According to some,¹⁶ an entity will bear the relation of property possession to each property that is a constituent part of its nature. But this I deny. I understand the relations that obtain between an entity, its nature and the properties that are constituent parts of that nature to be the relations of extensional mereology.¹⁷ In extensional mereology there is a distinction made between an entity's proper parts and its non-proper part. The proper parts of an entity are the (intuitively speaking, smaller) parts to which it is not identical. And the non-proper part of any entity is the part to which it is identical. The non-proper part of any entity, in other words, just is that entity itself. Now according to my view, for any given entity and any given property, that entity bears the relation of property possession to that property just in case that property is the non-proper part of that entity's nature. So no entity ever bears the relation of property possession to any one of the proper parts of that entity's nature. Thus, it is not necessarily the case that an entity will bear the relation of property possession to all properties that can be truly predicated of it. For, again, it will not bear the relation of property possession to the proper parts of its nature.

At this point, one might raise the following objection to my suggestion that any entity whatsoever bears the relation of property possession to its nature. If any entity whatsoever bears the relation of property possession to its nature, then since the relation of property possession just is the relation of identity, any entity whatsoever will be identical to its nature, in which case it will turn out that there is nothing more to any given entity than the nature of that entity. But it cannot be true

¹⁵ For a discussion of the tradition notion of the nature of an entity, see Gracia (1988, pp. 2-3, 9-10 and 118-121).

¹⁶ See Armstrong (1978, p. 114) or his (1997, p. 125).

¹⁷ For more on extensional mereology, see Simons (2000, especially chapters 1 and 2).

that there is nothing more to any given entity than the nature of that entity, on account of the following traditional argument, which is supposed to show that there is something more to any given entity than its nature.¹⁸ There is at least one property to which two or more entities bear the relation of property possession. But if there is at least one property to which two or more entities bear the relation of property possession, then it is at least in principle possible for there to be two or more entities that possess all of the same properties as each other. Now if it is at least in principle possible for there to be two or more entities that possess all of the same properties as each other, then it is likewise in principle possible for there to be two or more entities that share one and the same nature. And if it is in principle possible for there to be two or more entities that share one and the same nature, then there must be something more to each of those entities than its nature, which individuates them from each other. But if there is something more to each of these entities than its nature, then it is false that there is nothing more to any given entity than its nature.

This objection is also based upon a mistaken identity of the relation of property possession, however. Just as property possession is not a “one-many” relation that at least one entity can bear to two or more properties, it is not a “many-one” relation that two or more entities can bear to one and the same property. Rather, property possession is the “one-one” relation of identity. In further response to this objection, nothing is needed to individuate any two entities from each other than the natures of those entities, i.e. other than those entities themselves. Since the nature of any entity is a mereological entity, any entity *x* and any entity *y* are identical to each other just in case all of the parts of the nature of *x* are parts of the nature of *y*, and vice versa.

Conclusion

In this paper I have defended an argument for an account of property possession and identity according to which property possession and identity are one and the same relation. I also considered an objection to that account. And out of my response to that objection emerged the view that there is nothing more to any given entity than what is traditionally referred to in ontology as the nature of that entity. As I see it, this view constitutes the basis of an ontological system that rivals the traditional

¹⁸ This argument is suggested in Adams (1982, p. 411).

dualistic ontology of objects and properties. And while there remains much to be said to make this ontological system of mine seem more plausible than its competitor, I hope that this paper is seen to be a good start.

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Intentionality is not Representation

Abstract

Descartes initiated representationalism which led into idealism. It was Franz Brentano who overcame idealism by finding an alternative to representationalism (call it “Brentano's Revolution”). Brentano's Slogan could have been: Intentionality is neither mental action, nor mental representation. Unfortunately, his topic of intentionality was introduced into mainstream analytical philosophy in representationalist terms ignoring his revolution completely.

1. Representationalism and Idealism

Representationalism has a bad reputation among contemporary analytical philosophers. Nevertheless, all mainstream analytical philosophers think representational, mostly without noticing it. That is due to two circumstances: firstly, they are linguistic philosophers and language is a representation. Secondly, four hundred years of representationalist and in its wake idealist thinking do not vanish without trace.

The key notion of traditional representationalism is “idea”. Therefore, it is also called “ideaism”. Some speak of “the new way of ideas” relating it to Plato's old way of ideas. It was Descartes who began the new way of ideas. Like Plato's Descartes' ideas are first of all natures of things. Secondly, however, Descartes' ideas are always mental unlike Plato's. The designation “representationalism” derives from the role attributed to ideas of mentally representing things.

Some scholars protest that in Descartes ideas are not representatives of things which serve as surrogates.¹ Rather, ideas present us the object (in the sense of phenomenologists) as being so and so. Thus, it is the way the object is *for us*. That is just the confused concept of appearance of idealism, the heir of representationalism. If one gets to the bottom of appearances, it turns out that they are nothing but representations in the mind.

It is true that Descartes takes ideas to serve as means to get at the

¹ D. Perler: *Repräsentation bei Descartes*. Frankfurt am Main 1996

objects. He is not an idealist. Ideas do not become the proper objects as in idealism. But ideas and the knowledge of ideas are critical for the knowledge of things. Descartes' famous criterion of evidence is applicable to ideas only. Thus ideas inevitable become primary objects even in the cognition of the non-mental and also representatives of those (more distant) objects. The mediation view of cognition characterises representationalism. Cognition is taken always to involve a medium, a representation to which one has to attend. Cognition is thought to be nothing but the representation of the object.

The main difficulty of representationalism concerns the relation between representation and object. Descartes and his disciples consider causation and similarity. With respect to the knowledge of physical objects Descartes rules out similarity because he takes the mental and the physical to be radically different. He assumes a causal transaction between the physical object and certain semi-physical entities in the mind. But the causal chain from object to mind seemed neither to him nor to the Cartesians a satisfactory candidate for the basic cognitive relation. The latter remained a mystery and that created scepticism. Scepticism is a position concerning the realism issue, i.e., the question whether we know the world as it is in itself independently of our cognition. This question has to be answered on the basis of one's categorial analysis of cognition.

The empiricist analysis of Gassendi, Locke and Hume was an attempt to avoid the realism issue and to concentrate on what is given: the ideas in the mind. Locke is always vague on the relationship between ideas and objects. Sometimes he identifies ideas and qualities of physical objects and physical objects with complexes of ideas. That identification which Berkeley and Hume adopt is Kant's starting point. He claims that the physical objects we perceive are mere appearances, i.e., ideas in the mind produced by it and he does not shy away from the contention that that is in accordance with common sense and from calling his view realistic (empirical realism).

Kant pretends to be able to finally lay scepticism (which was, as we have seen, the legacy of representationalism) to rest and prove the existence of the external world by taking space and time as subjective, i.e., as forms of perceptual representation. He upholds that there is something non-mental (the thing in itself), which he assumes to be the cause of sense data in the mind. However, he takes it to be absolutely unknowable. Thus, the physical objects with which we are acquainted by perception are turned into mental objects and the thing-in-itself cannot be conceived of as

physical in any customary sense, if only because it is unknowable.

Kant is not a representationalist any more since he does not consider the non-mental as an object of knowledge and since he transforms the physical objects into mental objects and thus into objects with which are directly acquainted. Thus he holds all knowledge to be direct knowledge. In this way, he escapes from the impasse into which the representationalist theory of knowledge leads. And he is able to claim that a priori knowledge though being self-knowledge of mind is knowledge about the physical objects.

Kant dissolves the realism problem by turning physical into mental objects and non-mental objects into unknowables. He is convinced that he solved the problems of representationalism and overcame scepticism. However, his solution of turning the physical into a mental object and making knowing into a purely mental production with only a loose causal connection to a non-mental „I know not what“(Locke's characterisation of an Aristotelian substance) is absurd.

The connection between mind and physical object on which the empiricists base their analysis is causal. They understand perception as a causation of ideas by objects and their test of validity of an idea is to trace it back causally to perceptual ideas (sensations). However, since we know only the last link of the causal chain, we know nothing about that causation and therefore have no ground for inference to the physical object. Hence, Kant, who draws the final consequences from representationalism does not admit the non-mental as an object of knowledge, although he sticks to it as the first cause of perception. He grounds the validity of knowledge wholly on the process of knowing which he takes to produce its object in the first place.

Being primarily a practical philosopher, Kant has the stomach to swallow such a subjectivist theory of knowledge. But a philosopher who strives for a tenable realism has not. Kant's so-called Copernican revolution which should rather be called Ptolemeian revolution (because it places the subject in the centre) amounts in his eyes to complete failure. Kant's theory of knowledge is clearly subjectivist (he equates objectivity with intersubjectivity), while epistemological realism is objectivist. Considering this opposition and the absurdity of the idealistic transformation of the physical into a mental object, the philosopher who strives to realism and sees that representationalism leaves mind and physical object unconnected or leads into idealism has all reason absolutely to avoid representationalism and to be on his guard against hidden

representationalist premises.

2. Brentano's Revolution

In the 19th century it was Brentano who gave the movement towards objectivity and epistemological realism, away from idealist subjectivism, a decisive momentum. He wanted to make a new start in philosophy, a new start from scratch, i.e., from phenomena not in the Kantian sense of mere appearances, but in the sense in which natural scientists' use the term. First, he focuses his phenomenological research on the classification of phenomena and he finds that there is a basic difference between psychical and physical phenomena. After British empiricists and idealists who dominated philosophy had blurred and dissolved that distinction, that finding was a revolutionary step. As the essential feature of psychical phenomena Brentano notes intentionality, i.e. the directedness to an object. That was not new. It was new that intentionality is closely investigated. Before all, Brentano brings out the difference between the mental act and its object, which is also blurred by empiricism and idealism (in both views knowing and the known are more or less fused which was made easier by the process-product ambiguity of the term "presentation" (*Vorstellung*)). However, Brentano's most important innovation is the discovery of the intentional relation. It makes him focus on the ontology of relations. Brentano's ontology of relations develops with respect to intentionality, especially with respect to the circumstance that mental acts can stand in the intentional relation to non-existent objects or, rather, that the second relatum may be lacking. First, Brentano takes the view that genuine relations require the existence of all their relata and that intentionality is merely similar to a relation in contrast to relations of comparison such as 'louder'. Later, he arrives at the view that relations of comparisons are no genuine relations and that intentionality is a model relation.

Against the idealists Brentano's revolution consisted in his distinction between act and object, against representationalism it was the widening of the range of alternatives with respect to the cognitive connection to the non-mental. The representationalists took in to account only the whole-part relation (in the case of the knowledge of the mental), the similarity and the causal relation, while Brentano discovered a specific relation which holds only between mental act and their objects.

3. Representationalism in Mainstream Analytical Philosophy

One of the main themes of Quine's *Word and Object* is the rejection of ideas and the consequences of such a rejection for epistemology. The consequences are sceptical, as were those of the assumption of ideas. And the reason for this similarity is clearly that Quine continues to think representationalist. Quine's representatives are concepts instead of ideas. He does not use the term "concept" in the traditional sense of definite and clear ideas but means linguistic types by it.

Putnam's influential distinction between internal and metaphysical realism also depends on a linguistic representationalism.² It took a Spanish physicist to make Putnam realise his representationalism.³ In his philosophical zigzag Putnam thought later on to have arrived at a direct realism. But his view reminds strongly of the Kantian view rather than being realist. He wants to guard against a representation as "an interface between ourselves and what we think about" (alias "idea") and rely instead on the activity of representation.⁴ This activity is not like Brentano's mental act with the intentional relation but like Kant's spontaneous act of synthesis or the later Husserl's act of objectification, since Putnam clearly implies that the activity makes an intentional relation superfluous and that it produces the cognitive connection with the object.

Putnam rarely uses the term "intentionality" but Searle made it even the title of a book. He has the merit of introducing the subject of intentionality into mainstream analytical philosophy, which was courageous, indeed. Still he is as far from Brentano and did learn as little from Brentano as Putnam. Searle prefers "mental state" to Brentano's "mental acts" but the term "act" plays a role in Searle's analysis of intentionality. Searle professes that in it he extended his theory of speech acts to mind. This theory continues Austin's approach who investigated "how to do things with words". Hence Searle's concept of acts is that of an action or activity. Brentano contrasted mental acts to actions, especially to the mental activity of the idealist which is taken to produce the objects. As to the connection between mental act/state and object Searle says that the

2 cf. E. Tegtmeier: *Realismus und Pragmatismus. Eine Kritik der Erkenntnistheorie Hilary Putnams*, in: V. Gadenne (ed.) *Kritischer Rationalismus und Pragmatismus*. Amsterdam 1998

3 s. M. Willaschek (ed.) *Realismus*. Paderborn 2000, p. 129

4 s. H. Putnam: *Sense, Nonsense, and the Sense: An Inquiry into the Powers of the Human Mind*. *Journal of Philosophy* 91 (1994) p. 505

former represents the latter “in the same sense of “represent” in which speech acts represent.⁵ He collects what is represented with the notions of objects and states of affairs. And he characterises them with respect to linguistic as well as with respect to mental representation as conditions of satisfaction. That a mental state *m* represents the state of affairs *s* or has *s* as the condition of satisfaction does not imply that *m* acquaints with *s*. Being in a mental state which represents the state of affairs *s* does not imply being acquainted with *s*. Acquaintance with *s* involves knowing whether the state of affairs holds. Not even understanding what a mental state represents or what its conditions of satisfaction are does involve that acquaintance. In Searle intentionality is a representation of the object by a third entity (the content of the mental state) and not as in Brentano an acquaintance with the object. Brentano's intentional relation between act and object is taken to be so close, as to allow the metaphorical phrase of the object “being in” the act. It is presumably because of this close connection that Brentano denies the act has besides its object also a content.

Searle expresses uneasiness with the terms “representation” and “represent” and he claims that he could in principle dispense with them.⁶ Nevertheless, he uses them at crucial points. It seems to me that he is not successful in his attempt to distance himself from representationalism. It is not enough to emphasise that the contents of mental states are not pictures. Descartes or Locke's ideas were neither. Moreover, it is revealing and typically representationalist that Searle requires the mental state to fit or match the world.⁷ We have here similarity playing the role of basic cognitive relation between mind and object. Similarity did play that role also in empiricist representational realism where it offered a categorial analysis of the connection between mind and world.

It is regrettable the opportunity of introducing the subject of intentionality into mainstream analytical philosophy as not seized also to make Brentano's revolution known. Still worse is that mainstream analytical philosophers tend to present Brentano, if the mention he at all, as a representationalist.⁸ If Brentano knew he would turn in his grave. One

5 s. J.R.Searle: *Intentionality*. Cambridge 1983, p.4

6 s. Searle 1983, p.11f.

7 s. Searle 1983, p. 7, 9

8 e.g. A. Beckermann: *Das Problem der Intentionalität – Naturalistische Lösung oder meßtheoretische Auflösung?* *Ethik und Sozialwissenschaften* 3 (1992) S.433f., s. also my criticism on p.497ff.

would like to apply the epigraph of Wittgenstein's *Philosophical Investigations* taken from a play of Nestroy to the achievements of the followers of the later Moore, of the later Wittgenstein and of Carnap: that progress has a tendency to appear greater than it really is.⁹

⁹ In Tegtmeier 1998 I tried to show that Quine and Putnam with all their revolutionary appearance presuppose the orthodoxies of the Vienna Circle.

DAVID GRÜNBERG

Three Basic Ontological Relations Concerning the Physical Realm*

ABSTRACT

The purpose of this paper is to establish a classification of the main ontological categories based on the predication, subsumption, and inherence relation. The classification is inspired by Aristotle's fourfold division of things into objects (primary substances), object kinds (secondary substances), attributes, and attribute kinds. It is argued that first, properties and relations are respectively meanings of monadic and polyadic predicate expressions, and second, (determinate) attributes are recurrent abstract particulars so that they are neither monadic nor polyadic. It follows that attributes constitute a category quite different from that of properties and relations. On the other hand, both object kinds and attribute kinds are considered to be non-semantic universals in contradistinction to properties and relations that are semantic.

1. Introduction

In this paper we shall inquire into the nature of the three basic ontological relations, viz., predication, subsumption, and inherence, and attempt to show the role they play in the classification of the basic categories of universals and particulars as well as of abstract and concrete entities. We restrict our attention to physical reality. Although our primary concern is nature, we are compelled to include mathematical objects which are also required for the scientific description of nature.

Our ontological view is inspired by Aristotle's fourfold division of things¹ based on the relations being-said-of and being-in, which correspond respectively to subsumption and inherence. The four types of things in the division correspond to the categories of objects, object kinds, attributes, and attribute kinds whose relationships to each other are systematically investigated in this paper. Besides these four categories of things, which we take to exist independently of language and mind, we consider also predi-

* I am thankful to John Bolender for helpful comments and suggestions.

¹ See Aristotle, *Categories* 2, 1^a20 – 1^b9.

cates construed as the meanings of predicate expressions. Predicates are not things but rather semantic entities. Monadic predicates are properties, and polyadic ones are relations-in-intension.² Thus we distinguish properties and relations-in-intension from kinds and attributes, these being often conflated.

Consider, for example, the following two sentences expressing subject-predicate (categorical) propositions:

- (1) Socrates³ is pink,
- (2) Socrates is a man.

In contradistinction to the contemporary interpretations of first-order languages (such as W. V. O. Quine's) according to which only the subject term refers to an extralinguistic entity, in traditional logic (especially in Aristotle's) both the subject and the predicate terms of a categorical proposition stand for extralinguistic entities. In second-order and in general higher-order languages, the interpretation of the predicate term agrees with that of traditional logic. In this paper we shall follow the latter standpoint.

Taking into consideration that the predicate term refers to an entity, viz., a property, (1) and (2) can be rewritten respectively as

- (1.1) Socrates has the property of being pink,
- (2.1) Socrates has the property of being a man.

We shall use "being-*F*" or "*F*-ness" ("being-an-*F*" or "*F*-hood"⁴) as short for a phrase of the form "the property of being *F*" ("the property of being an *F*"). Then (1.1) and (2.1) can be reformulated respectively as

² Besides relations-in-intension, we consider also relations-in-extension which are sets of *n*-tuples, and hence abstract objects.

³ Since our concern is the physical realm, the name "Socrates" throughout the paper denotes a body rather than a person having a soul.

⁴ Whereas "*F*" (e.g., "pink" or "man") is a concrete general term, "*F*-ness" or "*F*-hood" ("pinkness" or "manhood") is an abstract singular term. See W. V. O. Quine, *Word and Object* (Cambridge, Mass.: MIT Press and New York: John Wiley, 1960), pp. 118 – 129. In our conception, as will be stated below, such singular terms are names of merely semantic entities, not of genuinely existing things.

(1.2) Being-pink is predicable of Socrates,⁵

(2.2) Being-a-man is predicable of Socrates.

Notice that the latter two are equivalent respectively to

(1.3) Socrates instantiates⁶ being-pink,

(2.3) Socrates instantiates being-a-man.

Clearly (1.2) and (2.2) express a relation between the subject and predicate, viz., the so-called *predication* relation. Analogously (1.3) and (2.3) express an instantiation (exemplification) relation which is the converse of the predication relation.

On the other hand, the predicate term “man” in (2) is correlated with the species or kind Man, i.e., Mankind. Then (2) can rather be construed as meaning

(2.4) Socrates belongs to the kind (species) Man.

Similarly the sentence

(3) A man is a living being

can be construed as

(3.1) The kind Man is a species of the genus Living-being.

We say that according to (2.4) the kind Man subsumes (is said-of) Socrates (who himself is obviously not a kind), and according to (3.1) the kind Living-being subsumes (is said-of) the kind Man. In general, we say that a kind *K* subsumes an entity *x* in case *x* is of the kind *K* or else *x* is a subkind⁷ of *K*. We call the relation between the kind *K* and the entity *x* the *sub-*

⁵ Aristotle himself frequently uses “*A* is predicated of *B*” (or “*A* belongs to *B*”) in the sense of “*B* is *A*”.

⁶ Often “exemplifies” is used instead of “instantiated.” See, for example, G. Bergmann, *Logic and Reality* (Madison: The University of Wisconsin Press, 1964).

⁷ We use “subkind” exclusively in the sense of proper subkind.

sumption relation, and the converse relation between x and K the *bearing relation*.

Let us now turn to the interpretation of (1). In analogy to the interpretation of (2) as (2.4), (1) might be interpreted as

(1.4) Socrates is a pink-colored thing,

or equivalently as

(1.5) Socrates belongs to the kind Pink-thing

where “thing” refers to spatio-temporal concrete things, since only such entities could be colored. Such an interpretation, however, is inadmissible. Indeed, we do not say that Socrates has the property of being pink for the reason that he is a pink thing, but rather the other way around. The class of pink things consists of utterly disparate things so that it is devoid of closed knit structure. Therefore, it is implausible to correlate an alleged kind of pink things with the property of being pink. Hence, the analysis of (1) should not depend on the existence of such a kind.

In our new analysis of (1) we correlate with the predicate being-pink the quality Pink construed as something which is a genuine non-semantic thing, in contradistinction to being-pink which is the meaning of a predicate expression. (1) asserts that Socrates is pink for the reason that he has the quality Pink. But Socrates has the quality Pink in virtue of his having a determinate shade of pink color, call it *Vink*.⁸ The shade of color Vink is said to be a *determinate* under the *determinable* Pink.⁹ Both Vink and

⁸ We borrow the attribute name “Vink” from G. E. L. Owen, “Inherence”, *Phronesis* **10** (1965), p. 98. Notice that “Vink” is a notational abbreviation of the singular description “the shade of pink that is Socrates’ color”, assuming that Socrates has uniformly a single shade of color.

⁹ See W. E. Johnson, *Logic: Part I*, Ch. XI and Ch. XIV, § 8 (New York: Dover Publications, 1964 (1921, 1924)). Notice that the members of a color class *qua* shades of color are absolutely determinate in the sense that they themselves cannot be construed as determinables. Indeed the determinable/determinate distinction is used also in relative sense so that, for example, Red, Orange, Yellow, Green and Violet are relatively determinate under the determinable Color, although each of them is determinable with respect to their constitutive shades of color. The distinction in question is used here exclusively in the absolute sense so that a determinable is construed always as a kind of absolutely determinate attributes. Such a determinable is an attribute kind. We use the term “attribute” as short for “absolutely determinate attribute”.

Pink are correlated to the predicate being-pink. Notice that the distinction between determinates and determinable holds, among others, also for quantities. For example, 2 meter is a determinate under the determinable Length.

Given that a thing possesses a given determinate, we say that the determinate *inheres* in this thing. A thing in which a determinate inheres is an *object*, whereas the inhering determinate an *attribute*. The relation between an attribute and an object in which it inheres is called the *inherence relation*. For example, given that Vink inheres in Socrates (i.e., Socrates' body), Socrates is an object and Vink is an attribute inhering in this object. We call the inverse of inherence the *bearing* relation. Thus, Socrates bears Vink. It is important to remark that the nature of both determinates, i.e., attributes in our sense, and determinables is a matter of dispute. We defend the view that attributes are abstract particulars whereas determinables are kinds whose instances are determinates. In other words, we introduce determinables as *attribute kinds*. For example, the attribute Vink is an abstract particular which is an instance of the attribute kind Pink, and Pink is a kind consisting of determinate shades of color one of which is Vink. Notice that Pink *qua* attribute kind must be distinguished both from the alleged kind Pink-thing and from the property (monadic predicate) being-pink. Furthermore, the attribute kind Pink must also be distinguished from the second-order property being-pink defined as follows: a physical thing has the second-order property of being pink just in case this thing has one of the first-order properties possessing the property of being a shade of pink color. (Being-vink is one of such first-order properties.)

The notion of subsumption is equivalent to Aristotle's notion of being said-of. On the other hand, the notion of inherence is closely related to Aristotle's notion of being present-in in the following way:

A thing x is present-in a thing y just in case x is an object and either y is an attribute which inheres in x , or else y is an attribute kind and there is an attribute z of kind y such that z inheres in x .¹⁰

In the light of the above considerations we finally interpret the sentence (1) as

¹⁰ Cf. M. V. Wedin, *Aristotle's Theory of Substance* (Oxford: Oxford University Press, 2000), p. 73.

(1.6) An attribute of the kind Pink inheres in Socrates,

or equivalently

(1.7) Socrates bears an attribute of the kind Pink.

2. *The Predication Relation*

2.1 *Universals and Particulars*

Aristotle defines a “universal [as] that which is by its nature predicated of a number of things, and [a] particular as that which is not . . .”¹¹ Universals are also defined as entities which have or can have instances (or examples), and these instances are generally called particulars. But the very notion of instance is ambiguous. Indeed, an instance can be defined as an x such that there is an entity F satisfying one or more of the following conditions:

- (i) F is predicated of x ,
- (ii) F subsumes x ,
- (iii) F inheres in x .

In (i) F is a predicate (viz., the meaning of the predicate expression “ F ”), in (ii) a kind, and in (iii) an attribute.

In (i) it is quite usual to call x an instance of the predicate F , but in (ii) also it is a widespread usage to call x an instance of the kind F , provided x itself is not capable of subsuming any entity. On the other hand, in (iii) we think that it is inappropriate to call x an instance of the attribute F for the following two reasons:

The first reason is that attributes are not universals but particulars (in the sense defined below), as will be argued. It might be suggested then that the term “instance” be exclusively reserved for entities to which universals are applied. Therefore, the objects in which an attribute inheres should not be considered as instances of this attribute.

The second reason is that the categories (in Aristotle’s sense) of x and F in (iii) are radically different. Indeed x (say, Socrates) belongs to the category of Substance, whereas F (say, Pink) belongs to an attribute category (the category Quality in the example of the attribute kind Pink). Let us call any predication of the form a is F *homogeneous* in case a and F are

¹¹ Aristotle, *De Interpretatione* 7, 17^a38 - 17^b1.

of the same category, and *heterogeneous* otherwise. Now it is advisable to call *a* an instance of *F* only if the corresponding predication is homogeneous. Since (iii) is always heterogeneous, the objects in which an attribute inheres should not be considered as instances of this attribute. We say instead that these objects are the *bearers* of the attribute.

We thus distinguish between two types of instances, viz., predicate instances and kind instances. Call predicate instances *things*,¹² and kind instances *particulars*. We call, then, the entities whose instances are things, viz., predicates, *semantic universals*, and those whose instances are particulars, viz., kinds, *ontic universals*. Semantic universals are called “semantic” for the reason that their nature and existence depend to a large extent to our conceptual-linguistic framework, whereas ontic universals are supposed to be extralinguistic full-fledged entities.

Notice that the members of a class (unless it constitutes the extension of a kind) are not instances. Therefore, mere classes are particulars rather than universals.

2.2 Predicates

Predication is a relation between the meaning of any linguistic expression in predicate position and a thing. The relation obtains in case the predicate expression truly applies to the thing. This thing is denoted by the subject term of the sentence expressing the predication. By the meaning of a linguistic expression we mean the semantic entity called by Stoic logicians the *lekton*, and by Bochenski the *objective meaning* of that expression.¹³ (We adopt the latter term hereafter.) We shall call the objective meaning of an expression in predicate position, a *predicate*, and that of an expression in subject position, a *subject*. Consequently, the linguistic expressions

¹² In this paper we consider exclusively first-order predicates, i.e., predicates of things. We disregard wholly higher-order predicates, i.e., predicates of predicates. Notice that predicates in our sense (as meaning of predicate expressions) are often called concepts or general ideas.

¹³ See B. Mates, *Stoic Logic* (Berkeley: University of California Press, 1953), Ch. 2, and I. M. Bochenski, “The Problem of Universals” in I. M. Bochenski, A. Church, and N. Goodman (eds.), *The Problem of Universals* (Notre Dame: University of Notre Dame Press, 1956) pp. 36, 42 – 44. G. Frege’s *sense* seems to be a counterpart of the antique notion of *lekton*. See A. Church, “Propositions and Sentences” in *The Problem of Universals*, p. 5. The term “*lekton*” can be translated as “that which is meant” (Mates, *op. cit.*, p.11) or “what is said” (Bochenski, *op. cit.*, p. 36).

denoting these entities will be called predicate expressions (terms) and subject expressions (terms) respectively. As usual, we shall also call the objective meaning of a declarative sentence a *proposition*.¹⁴

In particular, we shall call the objective meaning of a subject-predicate sentence a *subject-predicate proposition*. Such a proposition is a structure consisting of the objective meaning of the subject expression—called the subject of the proposition—and the objective meaning of the predicate expression—called the predicate of the proposition. For example, the subject of the proposition that-Socrates-is-pink consists in the thought (objective idea) of Socrates, and the predicate in the property of being pink.

We see that the subject of this proposition is neither the person Socrates (which is the object corresponding to the subject) nor the particular thinking about Socrates by the user of the sentence expressing the proposition. It can rather be identified with the mediaeval notion of haecceity or R. Carnap's individual concept. As already mentioned, if F is a one-place predicate expression, then being- F (as short for the property of being F) is the corresponding one-place predicate. The truth of a subject-predicate proposition is tantamount to the subsistence of the predication relation between the predicate and the entity denoted by the subject or, conversely, the subsistence of the instantiation relation between the entity in question and the predicate. Notice that what properly denotes (or names) an entity is not really a subject expression, but the objective meaning of that expression, i.e., a subject. Indeed, a subject expression denotes an entity only by virtue of its meaning. On the other hand, a *subject-predicate statement*, i.e., the act of asserting a subject-predicate proposition, establishes a semantic relation between the predicate and the subject of the proposition independently of its truth value. This relation holds just in case the predicate applies (truly or falsely) to the subject as asserted by the statement. Therefore, such a semantic relation can be called an *application* relation.

The identity criterion for objective meanings can be stated as follows. Different linguistic expressions have the same objective meaning if and only if they are synonymous, where linguistic expressions can be construed either as tokens or as types. (The notion of an expression-type is syntactic in the sense that expression-tokens, say, inscriptions, are of the same type in case they have similar shapes.) The notion of synonymy (as emphasized especially by Quine) is inexact or vague. We share, however, D. M. Arm-

¹⁴ See Church, *op. cit.*, 1956, p. 5.

strong's view that synonymy in its ordinary use is perfectly coherent and even indispensable for both practical and theoretical reasons.¹⁵

The identity criterion for objective meanings can be used for the clarification of the ontological status of predicates. The relation of synonymy underlying the identity criterion for objective meanings is obviously an equivalence relation. Therefore, the synonymy relation induces a partition of predicate expressions (including those belonging to different languages) into equivalence classes.¹⁶ Each equivalence class consists of synonymous predicate expressions, whereas predicate expressions belonging to different equivalence classes are never synonymous. The members of each equivalence class are of a particular type, which may be called a *synonymy type*. Hence, the synonymy relation partitions the predicate expressions into classes of different synonymy types. Two predicate expressions are synonymous if and only if they are of the same synonymy type. Therefore, the identity criterion for objective meanings can be reformulated as follows. Different predicate expressions have the same meaning if and only if they are of the same synonymy type. In general, any equivalence class consists of elements of the same type, and the common type of the elements of the equivalence class can be called an *equivalence type*. The equivalence type corresponding to a given equivalence class can be reified as an abstract entity constituting the intension of the equivalence class. The equivalence class is then the extension determined by the equivalence type.

Hence, one can identify the objective meaning of any significant linguistic expression with its (reified) synonymy type on the basis of the following argument. Given that "E" is any linguistic expression type (in the syntactic or morphological sense), 'E' is the synonymy type of "E",¹⁷ M("E") is the objective meaning of "E", and Syn("E₁", "E₂") is short for "E₁" and "E₂" are synonymous,

1. $M("E_1") = M("E_2")$ iff $\text{Syn}("E_1", "E_2")$ (Premiss: identity criterion for objective meanings)

¹⁵ See D. M. Armstrong, *Universals and Scientific Realism, Vol. I* (Cambridge: Cambridge University Press, 1978), p. 8.

¹⁶ As is well known, a partition of any class of entities is an exhaustive division of the members of this class into mutually disjoint subclasses.

¹⁷ We adopt this peculiar use of the double and single quotation-marks from Armstrong, *op. cit.*, p. 7, as suggested by F. Jackson.

2. $\text{Syn}("E_1", "E_2")$ iff 'E₁' and 'E₂'
belong to the same equivalence class
(with respect to the synonymy relation).
3. $\text{Syn}("E_1", "E_2")$ iff 'E₁' = 'E₂' (from 2)
4. $M("E_1") = M("E_2")$ iff 'E₁' = 'E₂' (from 1 and 3)
5. $M("E_1") = 'E_1'$ (plausibly from 4, by Ockham's
razor)

By identifying objective meanings (especially subjects, predicates, and propositions) with synonymy types, they turn into immanent entities which are language-dependent regarding their features. But in so far as synonymy types are reified as abstract entities they exist independently of languages and their users. This is tantamount to saying that different linguistic frameworks may give rise to significantly different kinds of subjects, predicates, and propositions. But all these entities exist (or subsist) eternally, hence survive the removal of their underlying linguistic (or more generally cultural) frameworks. For example, a phenomenistic framework gives rise to predicates concerning perceptual qualities, whereas a physicalistic one to predicates concerning physical quantities.

Predicates apply to any (finite) number of things. A predicate applying to nothing is a proposition by itself. Hence propositions can be considered as 0-place predicates. A predicate applying to one thing, i.e., a one-place predicate, is called a *property*, and finally a predicate applying to two or more things are called *relations-in-intension*.¹⁸ Thus we construe propositions, properties, and relations-in-intension as semantic universals. We distinguish between properties and relations-in-intension on the hand, and attributes on the other, since the former ones are semantic universals whereas the latter ones will be shown to be abstract particulars. Each property or relation-in-intension has an extension consisting of the thing or *n*-tuple of things to which they apply. Such extensions are sets which are considered as abstract particulars, called relations-in-extension. (The extension of a property is one-place, and that of relation-in-intension many-place.)

¹⁸ We construe the predication relation as well as the subsumption and the inherence relation as relations-in-intension so that they themselves are predicates. It follows that the predication relation is a second-order predicate between a predicate and a thing. This is the unique usage of higher-order predication throughout the paper.

3. The Subsumption Relation

Let us analyze the notions of *subsumption*, *kind*, and *particular* in more detail. Denoting the subsumption relation by the symbol S , $x S y$ is read as “ x is subsumed by y ” or equivalently “ y subsumes x ”. We assume that the subsumption relation S is (i) irreflexive, (ii) transitive, and that (iii) every S -descending chain is finite. An S -descending chain is a sequence of things such that each non-terminal term of the sequence subsumes the next one. A finite S -descending chain is one which has a terminal term, i.e., one which does not subsume any thing.

We can now introduce the following definitions: Anything which subsumes something is a *kind*, and a thing which does not subsume anything is a *particular*. It follows from assumption (iii) that every kind subsumes some particular. Furthermore, we assume that (iv) every particular is subsumed by a kind. If a kind subsumes another kind, the latter is a *subkind* or *species* of the former called also a *genus*. A particular subsumed by a kind is an *instance* of that kind. This notion of instance is justified by the following considerations. Call a kind of particulars *first-order*, a kind of first-order kinds *second-order*, and so on. Second-order, and in general higher-order, kinds, in contradistinction to first-order ones, are kinds of kinds.¹⁹ We call, then, the kind of the instances of a kind K (which may be of any order) the *reduct* of the original kind K . Clearly the reduct is always first-order, i.e., it is always a kind of particulars. For example, the reduct of a kind of kinds of numbers, say, the kinds of negative integers, positive rational numbers, and purely imaginary numbers, is the first-order kind of all these numbers. (Notice that we consider numbers to be particulars, viz., abstract objects.) In this paper, for the sake of simplicity, and relying on the possibility of using as substitutes for higher-order kinds their reducts, we shall consider only first-order kinds.

We further define the *extension of a kind* as the set of all of its instances. For example, the extension of the kind Man is the set of all men (existing in the past, present, and future). Since every kind has an instance, it follows that the extension of a kind is never empty. Hence kinds are universals in the sense that they have instances (examples).

¹⁹ Notice that the kinds defined above are all ontic universals. But there are also kinds, kinds of kinds, . . . of predicates. For example, the kind consisting of nominal, adjectival, and verbal predicates is a kind of predicates. Such kinds are completely disregarded in this paper.

Having investigated the formal properties of the notions of subsumption, kind, and particular, let us now try to elucidate the ontological nature of these notions. Now a kind can be represented in several different ways, viz., as a class of actual entities or of possible entities, a predicate, and an inhering attribute. We think that none of these alternatives is fully satisfactory. Instead we propose to represent a kind by a structure such that the extension of the kind is the domain or one of the domains of the structure. In the latter case, the extension is called the *principal domain* of the kind. We shall use from now on “domain”, when unqualified, in the sense of principal domain.

The subkinds of a given kind are represented by substructures of the kind. From now on we shall identify, by abuse of language, kinds with their respective structures which represent them.²⁰ The idea of representing kinds by structures is suggested by the fact that mathematical kinds (such as kinds of numbers) are indeed represented by structures. Furthermore, H. Putnam’s conception of the meaning of natural kinds²¹ is an additional justification of such a representation. We consider kinds represented by structures to be genuine non-semantic things denoted by kind-names, which are usually common nouns such as “Man”, “Electron”, etc.

Kinds can be divided into object kinds and attribute kinds. The structure of object kinds involves attribute kinds but not vice versa. The instances of an attribute kind are unified by means of an ordering (grading) relation. For example, physical magnitudes²² such as lengths, waves, temperatures as well as determinate qualitative physical attributes, such as shades of color or tones of sounds are related to each other by an ordering relation. We see that an attribute kind can be represented by a structure

²⁰ Note, however, that the identification is only at the linguistic level. Ontologically they are different entities, since kinds are (ontic) universals whereas structures are ultimately sets (classes) and thus are particulars. Indeed it is clearly inappropriate to call the members of a class its instances or examples.

²¹ See H. Putnam, “The Meaning of ‘Meaning’”, in his *Philosophical Papers, Vol. II* (Cambridge: Cambridge University Press, 1975), pp. 215 – 271.

²² Although it is still widespread in contemporary philosophy of science to reduce magnitudes to real numbers assigned to physical objects, we follow some philosophers, such as D. M. Armstrong and C. Swoyer, who construe magnitudes as quantitative attributes, i.e., attributes to which numbers are assigned. See D. M. Armstrong, *The World of States of Affairs* (Cambridge: Cambridge University Press, 1997), pp. 63 – 65 and C. Swoyer, “The Metaphysics of Measurement”, in J. Forge (ed.), *Measurement, Realism and Objectivity* (Dordrecht: Reidel, 1987), pp. 235 – 290.

with a unique domain consisting of attributes and an ordering relation on this domain. Turning to object kinds, we may distinguish between kinds of abstract and of concrete objects. Abstract object kinds (such as Natural Number, Real Number, etc.) are represented by pure sets. On the other hand, kinds of physical objects (such as River, Cat, Man, etc.) are represented by a structure with a principal domain consisting of a time sequence of actual or possible objects of the given kind, and with several domains of essential and accidental attributes and attribute kinds bearing certain properties and standing into lawlike relations.

To every kind name “K” corresponds the predicate being-a-*K*, e.g., being-a-man and being-an-electron. Kind names are usually common noun expressions. This is always the case for object kinds. But the name of an attribute kind, say “Pink”, is at first sight an adjectival expression. “Pink”, however, may be taken in the nominalized sense as short for the common noun expression “pink-color” or “shade of pink color”. (This is indicated by capitalizing the word “pink”.)

For any kind name “K”, *K* is the *correlate* of the predicate being-a-*K*. Since we construe the kind *K* as a thing, the correlation of such a thing to a predicate being-a-*K* can be called *reification*. Reification is possible only in case the class of instances of the predicate being-a-*K* is the extension of a genuine kind having a well-determined structure for securing the kind’s independent existence from its extension. For example, the predicate being-a-man is correlated with the kind Man since the class of men has a well-determined structure, whereas the predicate being-a-pink-thing is not correlated with any kind. Hence there is reification in the first case but not in the second.²³

Let us now defend our view that kinds (of any type) are not mere classes (which are particulars) but rather universals. Indeed the assumption that they are mere classes leads to insurmountable difficulties. Now if a kind were a class, it would be identical to its extension. For example, one would say that the kind Man is nothing but the class of all actual men. The extension of a kind is identical with the extension of the corresponding kind name. But the extension of the name of a kind of physical objects is not the same in all possible worlds in which the name has a denotation. For example, we can conceive a possible world in which there exist par-

²³ Often any class of objects having a common property is considered to be the extension of a kind. But here we require much more, namely that the class be endowed with a well-determined structure.

ticular men who do not exist in the actual world, or one in which a specimen of gold, say, a golden mountain, which is missing in the actual world. But, as shown rather convincingly by S. Kripke and H. Putnam, kind names are *rigid*, i.e., they denote one and the same kind in all possible worlds in which that kind exists. Since the assumption was that a kind is to be identified with the extension in the actual world of its name, it follows that a kind, at least one of physical objects, does not consist of the class of the things it subsumes.

A second argument in favor of the view that kinds are universals is that the typical universals considered throughout the history of philosophy are kinds such as Man, Horse, Animal, i.e., secondary substances in Aristotle's sense. So it seems unavoidable to take kinds as universals.

4. The Inherence Relation

4.1 Abstract and Concrete Entities

Some entities (such as ordinary objects) occupy a unique region of space-time. The occupied region is the *location* of the entity. We call entities possessing a (unique) location *located entities*, and those devoid of location *unlocated entities*. We define then, *concrete entities* as located, and *abstract entities* as unlocated.

An ordinary physical object has an indefinite number of attributes borne only approximately. But when the object is subject to investigation within a particular branch of science, only a given number of its attributes, viz., those relevant to the investigation, are taken into consideration while the rest are *abstracted*. Also the relevant attributes are supposed to inhere *exactly* in the object (from a theoretical point of view). For this purpose the ordinary object under investigation is *idealized*.²⁴ As an example, consider a small-sized object studied in Classical Particle Mechanics. In that case the object is idealized as a point-particle with a finite mass. But such a thing cannot be a real object. Note that this point-particle bears, besides mass, only mechanical properties such as position, velocity, energy, etc., whereas non-mechanical properties such as electromagnetic ones (say, electric charge) are abstracted. The entity resulting from abstraction and idealization (in the above-mentioned sense) is called a *physical system*.

²⁴ For the notions of abstraction and idealization, see F. Suppe, *The Semantic Conception of Theories and Scientific Realism* (Urbana and Chicago: University of Illinois Press, 1989), pp. 93 – 94.

Physical systems are neither fully concrete nor fully abstract. Since spatio-temporal attributes are borne by these systems they are located, and thus are not fully abstract. On the other hand, being constituted by abstraction and idealization they are surely not fully concrete. For these reasons we propose to call them *semiconcrete-semiabstract*.

On the other hand, all universals (semantic and ontic) are obviously abstract entities, whereas it is a widespread opinion that all particulars are concrete entities, i.e., that they are located. However, we defend the view that there are, besides concrete particulars, abstract ones, namely, inhering particulars (attributes) as well as non-inhering ones (mathematical objects such as numbers and pure sets).

4.2 *Attributes and Attribute Kinds*

Attributes have been classified by Aristotle into nine different categories, viz., quantity, quality, relative, place, time, position, state, action, affection.²⁵ The attributes in these categories are also called accidents. The categories in question concern not only the attributes but also their kinds. In fact, both are called by the same name *symbebekos*. Aristotle, however, strictly distinguishes between the ontological status of attributes and that of attribute kinds. Indeed, as mentioned above, attributes are entities which are present-in, but not said-of, a subject. On the other hand, attribute kinds are those entities which are both present-in and said-of a subject.²⁶ For example, according to Aristotle, given that Socrates is pink, the attribute kind Pink is present-in Socrates and is also said-of the attribute Vink. But in our sense of inherence, it is Vink, and not Pink itself, which inheres in Socrates.

Let us now inquire into the nature of attributes and attribute kinds. We shall first show that attributes are neither predicates nor reducible to predicates, and exist independently of them *qua* non-semantic entities. Attributes in this sense are rejected by nominalists who deny abstract entities.

Attributes and their kinds are usually derived from their correlated predicates by means of an operation of reification. Indeed, we construe attributes as well as their kinds to be full-fledged thing-like entities, whereas predicates are merely semantic entities depending partly on our linguistic and conceptual framework. We propose the following three criteria of rei-

²⁵ *Categories* 1^b27 - 28.

²⁶ *Categories* 1^a30 - 32.

fication of a predicate into an attribute, i.e., of the correlation of an attribute to the given predicate:

- (i) A predicate can be correlated with an attribute only if at least one of its expressions is an adjectival phrase which contains a name of a potential attribute.
- (ii) A predicate satisfying criterion (i) can be correlated with an attribute only if using this potential attribute secures much more scientific and/or practical expediency than abstaining from reifying the predicate by way of paraphrasing each sentence containing (not within a predicate) a name of this attribute into one containing only predicate expressions.
- (iii) The entity correlated with a predicate satisfying criterion (i) and (ii) is an attribute if this entity is an instance of a kind, i.e., an attribute kind.²⁷

Applications of criterion (i): As examples satisfying criterion (i), consider the monadic predicates (properties) being-vink and being-2-m-long and the dyadic predicate being-2-m-distant-from. A predicate expression of being-vink can be nominalized into a name of a potential attribute, viz., “Vink”. The predicate expressions of both being-2-m-long and being-2-m-

²⁷ The criteria (i) – (iii) secure a sparse ontology of attributes and attribute kinds in Armstrong’s sense. However, Armstrong takes attributes as universals rather than abstract particulars. Furthermore, in case a predicate being-*F* corresponds to a universal, he calls the universal by the very expression “being-*F*”. Criterion (ii) is in full agreement with Carnap’s use of expediency of the linguistic frameworks concerning a particular category of entities, and Swoyer’s view that there is no demonstrative argument for the existence of an entity such as property (or attribute for that matter). See R. Carnap, “Empiricism, Semantics, and Ontology”, in *Meaning and Necessity*, 2nd ed., enlarged (Chicago: The University of Chicago Press, 1956), p. 214, and Swoyer, *op. cit.*, p. 236, and n. 3, p. 286.

There are also criteria of reification of predicates into kinds more or less analogous to the criteria (i) – (iii). But we do not deal with them in this paper. We only mention that a predicate such as a being-a-pink-thing (in contradistinction to predicates such as being-a-man, and being-an-electron) should not be reified into a natural kind of physical objects, for the reason that such a kind would not have a well-determined structure, and its use in a discourse would not enhance the explanatory power of that discourse.

distant-from contain as their part the name of a potential attribute, viz., “2 m”. Hence all the three predicates satisfy criterion (i).

Applications of criterion (ii): As examples satisfying criteria (i) and (ii), consider the predicates being-vink, being-vor, and being-vlue (where “Vor” and “Vlue” are respectively names of potential attributes, viz., a shade of orange and a shade of blue. Then, as shown convincingly by A. Pap and F. Jackson, a sentence like

(6) Vink is a color

cannot be paraphrased into “any thing that is vink is colored”, and a sentence like

(7) Vink resembles Vor more than Vlue

cannot be paraphrased into “any thing that is vink resembles a thing that is vor more than it resembles to a thing that is vlue.”²⁸ It follows that in order to explain the meaning of the sentences (6) and (7) we must admit that the names “Vink”, “Vor”, and “Vlue” refer to (potential) attributes that are irreducible to any predicate. Also, to give another example, the predicate being-2-m-long satisfies criterion (ii) (as well as (i)). Indeed, a sentence such as “the length of rod *a* is equal to 2 m” is often reduced in nominalistic measurement theory into “the length-in-meter of rod *a* is equal to 2” which does not contain a name of a potential attribute. However, such a reduction drastically reduces the expediency and explanatory power of the use of the original sentence.

Application of criterion (iii): To illustrate criterion (iii), consider again the predicates being-vink and being-2-m-long. The potential attributes Vink and 2 m belong respectively to (potential) attribute kinds Color and

²⁸ See A. Pap, “Nominalism, Empiricism and Universals - I”, *Philosophical Quarterly* 9 (1959), esp. pp. 334 – 335, and F. Jackson, “Statements about Universals”, *Mind* 86 (1977), pp. 427 – 429. Notice that Pap and Jackson used genuine color terms such as “red”, “orange”, “blue”, but presumably in the sense of certain shades of color rather than color kinds. Armstrong (1978, *op. cit.*, p. 58) acknowledges that concerning some positive arguments for realism, he bases himself “almost entirely” upon these articles of Pap and Jackson.

Length. Color has the structure of a three-dimensional color space,²⁹ and Length that of the ray of positive real numbers.³⁰

It follows that Vink (as well as any shade of color) and 2 m (as well as any determinate length) satisfy the three criteria of reification, and thus are really attributes so that Color and Length are genuine attribute kinds.

Let us now defend the view that attributes are both particulars and abstract. Indeed both qualifications are controversial. Some philosophers, for example, Armstrong, take all attributes to be universal, whereas other ones, such as G. F. Stout, D. C. Williams, C. B. Martin, K. Campbell, take them to be located and thus non-abstract in our sense. We shall first argue that attributes are particulars. We have seen that they are neither predicates nor reducible to them so that they are things. *Qua* things, attributes must be either kinds, i.e., ontic universals or they are, indeed, particulars. Furthermore, attributes are not kinds. Indeed, since we have distinguished attributes and attribute kinds, attributes cannot subsume any entity. (Otherwise they would be kinds.) Hence attributes are particulars (by virtue of our definition of “particular”).

Secondly, we shall argue that attributes are also abstract so that they are in fact abstract particulars³¹ in the sense of being unlocated. Let us start by calling an attribute which inheres, or at least can inhere, in more than one object a *recurrent attribute*. On the other hand, we call an attribute which inheres, as a matter of fact, in exactly one object, and furthermore cannot, as a matter of logic, inhere in more than one object, a *nonrecurrent attribute*. Our problem is to find out whether attributes are recurrent or not. We shall argue first that they are recurrent, and second, by virtue of being recurrent, that they are unlocated, from which it will follow that they are abstract.

²⁹ See R. Carnap, “A Basic System of Inductive Logic, Part 2”, in R. Jeffrey (ed.), *Studies in Probability and Inductive Logic* (Berkeley: University of California Press, 1980), p. 7 ff. Carnap construes in general all attributes as elements of the so-called “attribute-spaces” each endowed with a well-determined structure.

³⁰ See H. Whitney, “The Mathematics of Physical Quantities, Part II”, *The American Mathematical Monthly*, **75** (1968), Ch. I.

³¹ It is important to remark that attributes are not the sole abstract particulars. Indeed mathematical objects, such as numbers and pure sets as well as sets or classes of non-mathematical entities are also abstract particulars. The difference between these two types of abstract particulars is that the former ones (i.e., the attributes which are not objects) inhere, whereas the latter ones (which are objects) do not.

Now, by definition, attributes are entities which can inhere in an object. There is a widespread view, imputed as far back as to Aristotle's *Categories*, that an attribute (accident) is a nonrecurrent entity inhering in a unique object.³² A nonrecurrent attribute has been called in recent analytic ontology a *trope*. We shall call the view that all attributes are tropes the *trope view*. There are two versions of the trope view: substance-attribute theory³³ and bundle theory.³⁴ It is the latter which is adopted by the majority of trope theorists. According to the former any attribute *qua* trope inheres in an object whereas to the latter an object is itself a bundle of tropes. Inherence is a primitive (irreducible) relation in the first version whereas in the second it is reducible to the part-whole relation (i.e., “*x* inheres in *y*” reduces to “*x* is a part of *y*”) rather than to the set-theoretical membership. The reason is that a physical object *qua* trope bundle should be construed as the mereological sum and not the class of its constituent tropes. Indeed, even classes of located things are arguably themselves unlocated, while physical objects are clearly located.

We shall now argue that attributes are always recurrent, which implies that the trope view is untenable. Our argument against the trope view applies to both versions. Since attributes are entities which inhere, or can inhere (in any of the two different senses) in some object, in order to show that they are recurrent, we must dwell on the concept of inherence in more detail. Consider our paradigmatic examples of attributes, viz., shades of color, and physical magnitudes such as determinate lengths, masses, temperatures, etc. Notice that all these attributes, even shades of color construed as absolutely determinate attributes, are exact (non-fuzzy) entities in the sense that they constitute systems having well-determined structures. This is clear for physical magnitudes since there is an isomorphism between the magnitudes of a given kind and some subsystem of real numbers.

³² This interpretation of Aristotle, for example, is shared by J. L. Ackrill, *Aristotle's Categories and De Interpretatione*, trans. with notes and glossary (Oxford: Oxford University Press, 1963), and by Wedin, *ibid.* But this view has been challenged from Owen's interpretation onwards.

³³ See, C. B. Martin, “Substance Substantiated”, *Australasian Journal of Philosophy* **58** (1980), pp. 3 – 10.

³⁴ See G. F. Stout, “Are the Characteristics of Particular Things Universal or Particular?”, *Proceedings of the Aristotelian Society*, supplementary volume **3** (1923), pp. 144 – 22, D. C. Williams, “On the Elements of Being I – II”, *The Review of Metaphysics* **7** (1953), nos. 1 – 2, pp. 3 – 18, and K. Campbell, *Abstract Particulars* (Oxford: Basil Blackwell, 1990). For a recent discussion of the trope view, see also A.-S. Maurin, *If Tropes* (Dordrecht: Kluwer, 2002).

On the other hand, qualities, such as shades of color and tones of sound are considered elements of some exact ordering. For example, the shades of physical color constitute a system isomorphic to a subsystem of natural numbers (being thus a well-determined structure) corresponding to the frequencies of electromagnetic waves. On the other hand, the shades of color in the phenomenological sense constitute a system isomorphic to a three-dimensional color space, which is indeed a well-determined structure.

Attributes can be divided into two types, viz., those belonging to a continuous spectrum and those belonging to a discrete one. We mean by the *spectrum* corresponding to a given attribute the structured domain of the attribute kind to which that attribute belongs. If the structured domain is a continuum, the attributes belonging to the domain are of the first type, and, if it is discrete, of the second type. For example, the attribute Vink belongs to a continuous spectrum, viz., the color-shade spectrum, whereas the attribute Two-legged (which would be correlated with the predicate being-two-legged in case the latter were reified) belongs to a discrete spectrum consisting of the would-be attributes zero-legged, one-legged, two-legged, etc. Now an attribute belonging to a continuous spectrum cannot be exactly attributed to any concrete object. To give an example, no concrete entity can have a mass of exactly 2 kg let alone the square root of 2 kg. Indeed let a be a physical object. Object a consists of microphysical entities, say, its atoms. Let A be the set of all atoms constituting a . But the elements of such a set A are indeterminate; they not only change in time but remain indeterminate at a given time. For if a_i is an atom very close to the boundary of object a , there is no objective answer to the question of whether a_i belongs to object a or to the environment thereof. Furthermore, the atoms at the boundary of a are in perpetual motion, and there is an interchange of atoms between the object a and its environment. But the mass of a is equal to the sum total of the masses of the atoms constituting that object. Since the number of these atoms, as well as their kind, is indeterminate, the mass in kg of a cannot be identical, at any concrete moment of time,³⁵ to a given real number; what at most can be said is that it is within an interval of real numbers around 2. This is tantamount to saying that the mass of object a (at a given time) is *approximately* 2 kg. In general, we are led to construe the relation of inherence between an attribute and a con-

³⁵ Notice that a concrete moment of time is not a point-like instant but has duration however small it may be. It follows that a concrete object can undergo change even at a given concrete moment of time.

crete object as an approximate rather than an exact attribution. Even some attributes belonging to a discrete spectrum, such as Two-legged, in situations like one's having partly lost one of his legs or having a deformed one, may not be exactly attributed to a concrete object.

On the other hand, attributes with a discrete spectrum, at least in normal situations, can be exactly attributed to the objects in which they inhere. Two-legged (normally considered) would be such an example. As another example of an attribute belonging to a discrete spectrum, spin values can be exactly attributed to electrons in which they inhere. In the light of the distinction between approximate and exact attribution, let us examine the question of whether attributes are recurrent or nonrecurrent.

In case inherence is taken in the sense of approximate attribution, it is plausible to say that an attribute can inhere in more than one object, from which it follows that it is recurrent. For example, many physical objects have a mass of approximately 2 kg. Hence, such a mass is a recurrent attribute and thus not a trope. Notice that if an attribute belonging to a continuous spectrum could be exactly attributed to a concrete object, it would still be logically possible—even though exceedingly improbable—that it inheres in more than one object thus rendering it recurrent.

On the other hand, if inherence is taken in the sense of exact attribution, which is generally the case for attributes belonging to a discrete spectrum, the attributes can naturally inhere in more than one object so that they are recurrent. It follows that there are no nonrecurrent attributes, and thus the trope view is untenable.

Granted that attributes are recurrent; can we maintain that they are located in the union of the locations occupied by the objects in which they inhere? The answer is negative for the following reasons: First, it would be counterintuitive to take a union of scattered locations a unique location, and second, there could still be a different location for the attribute in question. Hence, recurrent attributes are unlocated, from which it follows that they are abstract. In this way, our thesis that attributes are abstract particulars is justified. In so far as an attribute is indeed a recurrent unlocated entity, it cannot really be *in* any given object in the sense of being a constituent of the object in which it inheres. Hence we are conduced to a conception of attributes that is more Platonist than Aristotelian. This conception

is strengthened by the fact that one can conceive of attributes, say, shades of colors, which do not inhere in any concrete object.³⁶

Having established that attributes are abstract particulars, let us now inquire into the nature of the inherence relation between attributes and objects. An attribute of a given kind may inhere in an object in different ways. A *way of inherence* involves, among others, place, time, and, if required, a system of coordinates. For example, a shade of color, say, Vink, may inhere in an object at a given time with respect to its whole surface (assumed to be uniformly colored), or to the greatest part of its surface (assumed to be uniformly colored), or only to a given part (assumed to be uniformly colored). Similarly, a determinate length, say, 2 m, may inhere in an object at a given time with respect to its proper length, diameter, width, thickness, depth, etc. And, further, it may inhere in a particle at a given time with respect to its x -, y -, or z -coordinate, or in a system of n particles at a given time with respect to the x -, y -, or z -coordinate of the 1st, 2nd, . . . , or n^{th} particle. The most important characteristic of the inherence relation with respect to a given way is expressed by the following principle, which we shall call *the principle of the unicity of inherence*, and which applies rigorously to physical systems rather than to ordinary physical objects.³⁷

Different attributes of the same kind cannot inhere with respect to the same way in an object.³⁸

We define the *domain of bearers* D of the attributes of kind K with respect to a way of inherence as the set of objects in which an attribute of kind K inheres with respect to the given way. Then it follows from the principle of unicity that any object belonging to the domain D bears, with respect to the given way, exactly one attribute of kind K . Hence, there is a

³⁶ For example, Hume mentions the idea of an unperceived shade of blue in between two perceived ones. See D. Hume, *An Inquiry Concerning Human Understanding* (Indianapolis: The Liberal Arts Press, 1955), pp. 29 – 30. Notice that Hume’s remark expresses nothing but the fact that the ordering of the color spectrum is dense. (A linear ordering relation is *dense* just in case there is member of the field of the ordering between any two members related by this ordering.)

³⁷ In the rest of this section “object” is used in the sense of physical system.

³⁸ The so-called color-exclusion principle to the effect that no object can at the same time be both red and green all over is a corollary of this fundamental principle.

function, call it *inherence function*,³⁹ mapping the domain of bearers D in the domain of kind K such that the value of the function for a given object belonging to D is the attribute of kind K which inheres with respect to the given way in this object. An inherence function whose values are quantitative attributes (such as lengths, masses, etc.) is called a *quantity*, and the attributes constituting the values of the quantity are called *magnitudes*.

Let us now recapitulate and clarify our conception of attribute, emphasizing the distinction between attributes and attribute kinds on the one hand, and between attributes and predicates (i.e., properties and relations) on the other. For this purpose let us analyze the relationships holding among Color, Pink, Vink, and Socrates (as body).

1. Color and Pink are attribute kinds, and thus ontic universals, whereas Vink is an attribute, hence an abstract particular by virtue of the criteria of reification (i) – (iii). Color subsumes Pink and Vink, whereas Vink inheres in Socrates who is a concrete particular.

2. Vink, being a particular, is an instance of both universals Color and Pink, but Socrates, though a particular too, is not an instance of these universals. The reason is that Socrates is not an attribute but rather an object.

3. There are no attributes of attributes. Though a statement like “Pink is a color” is quite usually considered to mean that Color is an attribute of Pink, this is not so in our conception. First, because none of Pink and Color is an attribute, and, second, because Color subsumes Pink and therefore cannot inhere in Pink. Furthermore, one may take the statement “Vink is a color” to mean that Color is an attribute of Vink, but this is not so; first, because, though Vink is an attribute, color is not, and, second, because Color subsumes Vink and thus cannot inhere it. Furthermore, an attribute cannot inhere in any attribute (of the same or of a different kind), because it can inhere only in objects. The apparent attributes of an attribute are rather attribute kinds which subsume the given attribute. For example, the attribute Vink does not inhere in the shade of orange color Vor, or in the length 2 m so that Vink is not an attribute of either. Hence our view that there are no attributes of attributes seems to be justified.

4. Attributes must also be distinguished from the predicates that are correlated with them. Indeed, in contradistinction to predicates, attributes are neither monadic nor polyadic. For example, the attribute Vink is corre-

³⁹ Suppe (*op. cit.*, p. 93) calls the inherence functions “parameters.” Indeed the arguments of the parameters are physical objects and their values are attributes.

Using the notion of inherence function, we can redefine the attribute name “Vink” as “the shade of color at a given time and place in Socrates’ surface.”

lated with a monadic predicate, viz., the property of being-vink (vinkness for short). Furthermore, one and the same attribute (say, 2 m) can be correlated both with a monadic and a polyadic predicate (say, being-2-m-long and being-2-m-distant-from). Now the color of Socrates is the attribute Vink and not the property being-vink, or vinkness. Indeed the sentences “The color of Socrates is being-vink” and “The color of Socrates is vinkness” do not make sense. Similarly, the distance between two particles may be the attribute 2 m, but never the dyadic relation being-2-m-distant-from. In general, the values of an inherence function for given objects are attributes but not properties or relations.

5. *A Classification of Categories*

Our inquiry into the nature of predicates, kinds, and attributes of physical objects results in the following classification of categories, which characterizes the ontology of the physical realm. Note that we replace higher-order kinds by their respective (first-order) reduct.

0. *Entities*

1. Non-predicable entities: *Things*.
2. Predicable entities (semantic universals, abstract): *Predicates* (of any order).
 - 1.1 Non-subsuming things: *Particulars*.
 - 1.2 Subsuming things (ontic universals, abstract): *Kinds*.
 - 2.1 0-place predicates: *Propositions*.
 - 2.2 n -place predicates ($n \geq 1$): *Concepts*
 - 1.11 Non-inhering particulars: *Objects*.
 - 1.12 Inhering things (abstract): *Attributes*.
 - 1.21 Kinds of objects (abstract): *Object kinds*.
 - 1.22 Kinds of attributes: *Attribute kinds*.
 - 2.11 Subject-predicate propositions: *Predications*.
 - 2.12 Propositions with connectives and/or quantifiers: *Complex propositions*.
 - 2.21 One-place predicates: *Properties* (of any order).
 - 2.22 Many-place predicates: *Relations-in-intension* (of any order).
 - 1.111 Located objects: *Physical objects*.
 - 1.112 Unlocated objects: *Abstract objects*.
 - 1.1111 Ordinary (physical) objects: *Concrete entities*.

1.1112 Physical systems: *Semiconcrete-semiabstract entities.*

DISCUSSION

FRASER MACBRIDE

The Theories of Modality A Reply to von Wachter

1. Introduction

Without the use of modal discourse to aid us we should be unable to express many of the most fundamental facts—facts that are fundamental to our understanding of science, mathematics and human agency. But the best efforts of philosophers to come to a convincing account of modal discourse have been bedevilled by a welter of ideological, epistemological and ontological difficulties. For this reason many philosophers have endeavoured to provide a ‘reduction’ of modal discourse.

It is a philosophical problem in itself to establish just what a reduction must achieve in order to be successful (whether in connection with modality, the nature of the mental or some other subject matter). Nevertheless, it is clear that—in some sense or other—a reduction of modality will, if successful, display how facts expressed with the aid of modal vocabulary ultimately depend upon facts that need not be expressed in this way. A variety of contrasting strategies for executing a modal reduction have been proposed. *Conceptual* or *analytical* reductions seek to show that modal concepts may be analysed into concepts that do not rely upon modal vocabulary for their expression. By contrast *ontological* reductions forswear the idea that modal concepts admit of non-modal analyses or translates. They maintain instead that the truth or falsity of modal claims depends—in a manner that may be perspicuously presented to the intellect without benefit of conceptual analyses—upon the states of an underlying reality, a reality that may be described with recourse to modal vocabulary.

These contrasting descriptions of reductive strategies are admittedly crude. But still they provide a framework for understanding a debate that has arisen concerning the proper location of an influential theory of modality advanced by David Armstrong. In *A Combinatorial Theory of Possibility* (1989)—hereafter *CTP*—Armstrong proposed a form of conceptual reductionism. According to this theory the concept of possibility is to be analysed in combinatorial terms—in terms of the concept of a combination of existing particulars and universals. In *A World of States of Affairs* (1997)—hereafter *WSA*—Armstrong developed a different kind of reductionism (which should not be taken to imply that he abandoned the conceptual reductionism earlier proposed). According to this ontological form of reductionism the truth-makers for claims of necessity and possibility are to be found exclusively amongst the class of existing particulars and universals.

The earlier theory was criticised by the present author on grounds of circularity. I argued that the conceptual analysis Armstrong provided is circular because the concepts of particular and universal are themselves modal notions (MacBride 1999). In “The Ontological Turn Misunderstood” Daniel von Wachter dismisses this criticism. Drawing evidence from the text of *WSA* he argues that the reductionism Armstrong advanced is ontological rather conceptual. Since ontological reductions do not aim to provide analyses he concludes that the charge of circularity misses its intended target.

Von Wachter is mistaken in drawing this conclusion. He is mistaken because he has failed to appreciate that Armstrong has offered us two different theories of modality. Whereas the earlier theory is intended to be a conceptual reduction, the later theory is intended to be an ontological reduction. So even if it is the case that the charge of circularity cannot apply to the later theory it does not for this reason fail to apply to the earlier one. But von Wachter is also mistaken for another deeper reason. The inextricable involvement of the concepts of particular and universal with modal notions not only undermines Armstrong’s conceptual reduction. The same involvement undermines just as well the ontological reduction Armstrong proposes.

In order to make good on these claims I will proceed in the following fashion. After expounding the conceptual reduction Armstrong advances I will explain how this theory lapses into circularity. I will then turn to consider the ontological reduction he proposes and explain how this theory too becomes confounded.

2. Conceptual Reduction

In *CTP* Armstrong provides two epistemological arguments to motivate the development of his reductionist theory. The first argument makes appeal to Armstrong's "Naturalism", the doctrine that "nothing at all exists except the single world of space and time" (*CTP*: 3). This doctrine, Armstrong claims, is "epistemically very secure". But if there are *merely possible* states of affairs then they will exist outside the world of space and time. This means that the doctrine that such states of affairs exist must be highly speculative and uncertain. We can have no causal or nomic connection with merely possible states of affairs. Moreover, the postulation of entities that lie beyond our world can hardly be used to explain what happens within it (*CTP*: 7-8).

This first argument seeks to cast doubt upon the existence of merely possible states by questioning our capacity to have knowledge of a modal realm that subsists outside the Natural realm. The second argument questions whether we could even have knowledge of primitive modal compatibilities and incompatibilities inherent in the fabric of the actual Natural world itself:

"The only Naturalist alternative for a theory of possibility seems to be that modality is an irreducible feature of this world – a theory of *de re* compatibilities and incompatibilities. It is worth remarking that the epistemology of this view is very obscure. How can we begin to decide, for instance whether causal connection is a necessary or contingent connection, given this view? Do *de re* necessities affect our mind differently from mere contingencies?" (*CTP*: 102)

Armstrong returns to emphasise this concern in the concluding section of *CTP*:

"I do not like the idea that modality is a fundamental unanalysable feature of actuality. In particular, I see great epistemological problems for a Naturalist in explaining the process by which we come to know of the existence of such features of actuality (*CTP*: 140-1)

Armstrong seeks to avoid the epistemological difficulties and perplexities that attend the admission of merely possible states of affairs or *de re* compatibilities and incompatibilities amongst actually existing things by providing a conceptual or analytic reduction of modality:

“The Combinatorial theory now to be argued for purports to give an *analysis* of modality in combinatorial terms... It traces the very idea of possibility to the idea of the combinations – *all* the combinations – of given actual elements” (*CTP*: 34-37).

Armstrong’s analysis proceeds in two stages. First necessary and sufficient conditions are supplied for the truth of possibility statements:

“What a statement states is a possibility if and only if there exists a possible world in which that statement is true” (*CTP*: 100).

In this way possibility claims are translated into extensionally equivalent existential claims about possible worlds. Next, existential claims about possible worlds are analysed in combinatorial terms “where possible worlds are combinations or re-combinations of the world”.

The reduction that Armstrong offers us—in *CTP*—purports to trace out an analytic connection between the concept of possibility and the concept of combination. It is because Armstrong intends to provide thereby a *conceptual* reduction that he considers it a potential flaw of his theory that it should turn out to be *circular*:

“my hope is that the Combinatorial theory has given us a reductive analysis of possibility and necessity... It may be, however, that the analysis is covertly circular and that the theory itself makes use of the very notion of modality that it is intended to analyse” (*CTP*: 139).

Armstrong goes on to reflect that if the combinatorial analysis of possibility statements is circular this need not prevent its being placed at the service of a more modest account. Such an account would seek to exhibit “in a perspicuous manner the *structure* of modality”, the combinatorial structure (*CTP*: 139-40; c.f. 34). But Armstrong is clear. This more modest account of possibility that fails to effect a non-circular reduction is *not* his own. It is a fall back position that he would adopt only if it turned out that the conceptual reduction he proposes were to fall prey to circularity.

How might Armstrong’s analysis fail in this regard? According to this analysis, the notion of a possible atomic state of affairs is “introduced semantically, by means of the notion of an atomic *statement*” (*CTP*: 45). Consider the statement “*a* is *G*”. If it is false it fails to correspond to an atomic state of affairs. But even if it is false “*a* is *G*” corresponds to the “*form*” of an atomic state of affairs, picking out a particular *a* and falsely

predicating a monadic universal G of a . So even though what it says is false, “ a is G ” expresses a possibility, the possibility that a is instantiated by G . Reflecting in this way Armstrong bases his reduction upon the ontological assumption that the Natural world consists of a stock of fundamental elements (simple individuals, properties and relations):

“It is at the heart of the matter that *any* statement involving these elements, and which respects the form of states of affairs (has the form ‘ Fa ’, ‘ Rab ’, ‘ $Sabc$ ’) states a possibility. So the possible atomic states of affairs are *all* the combinations.... In this way, the notion of possibility is given an analysis, an analysis which uses the universal quantifier” (*CTP*: 47).

This analysis will fail if it turns out that *not* all combinations of particulars and universals that respect the form of states of affairs are possible. In *WSA* Armstrong takes a retrospective look back at this earlier analysis. He remarks:

“The idea for possibility, then, is that all the combinations of simple particulars, properties and relations that respect the form of atomic states of affairs constitute the possibilities for first-order states of affairs. Notice that I am not saying ‘all the possible combinations’, which would be trivial, but ‘all the combinations’. The hypothesis is that these combinations are all of them possibilities” (*WSA*: 160).

Of course, it is a matter for investigation—not stipulation—whether the stock of existing particulars, properties and relations admit of promiscuous recombination. Armstrong therefore sets out to determine whether this is so. Negative universals or negative states of affairs, if there are any, constitute one potential source of counter-example to this claim. If promiscuous recombination is permitted then these universals or states of affairs may be combined to yield a possible world in which both a is F and $\sim(a$ is $F)$. But there is no such possible world—combinations of this kind are impossible. It appears therefore that the combinatorial analysis of possibility fails because *not* all combinations are possible after all. To avoid this difficulty Armstrong considers the following way out:

“If, however, we try to deal with the problem by introducing an extra constraint forbidding contradictory conjunctions in the one world, then we are using in our statement of constraints that very notion of modality which it was our hope to analyse. For contradictory states of affairs would be ones for which one state of affairs *must* obtain, and the other fail to obtain” (*CTP*: 48).

We can now see how circularity may arise in Armstrong's analysis. His analysis will turn out to be circular if appeal must be made to modal constraints to circumscribe the range of combinations to which possibilities are reduced (see also *CTP*: 79-80).

3. *Could Armstrong have been a Universal?*

The difficulties that Armstrong emphasises in connection with negative states of affairs flow from a general dilemma that confronts his analysis. Either (i) the analysis will fail to be extensionally adequate because it deems combinations to be possible that are in fact impossible (a is F & $\sim(a$ is F)). Or (ii) the analysis is circular because it employs modal constraints to ensure an extensionally correct circumscription of the combinations that are possible ($\sim\Diamond((a$ is $F) \& \sim(a$ is $F))$). In the particular case of negative states of affairs Armstrong seeks to avoid this dilemma by denying that there are any kind of negative entities. But it does not follow that the dilemma can generally be avoided. Or so I argued in "Could Armstrong have been a Universal?"

In that paper I considered a variety of different ways in which this dilemma might be critical for Armstrong's view. Let me briefly indicate two of them. First ask yourself the question: could Armstrong have been a universal? According to Armstrong's analysis, possibilities correspond to combinations of particulars and universals that respect the form of atomic states of affairs. So to answer the question raised we must determine whether the possibility of Armstrong being a universal corresponds to such a combination.¹

Before proceeding to settle this issue let us pause to consider what it means to be a universal or a particular. Focusing attention upon Armstrong's favoured ontology, particulars and universals are distinguished by the different ways in which they contribute to the states of affairs of which they are constituents. The *Principle of Instantial Invariance* dictates the stereotypical manner in which universals contribute to states of affairs: universals are either monadic or dyadic or ... n -adic (*CTP*: 40).² It follows from this principle that a universal F will either

¹ For the sake of exposition assume that Armstrong is an atomic particular (rather than say a molecular state of affairs).

² Since I believe that there are good reasons to affirm the existence of multigrade universals—universals that lack a definite adicity—I do not hold to this principle. I

combine with one other constituent to make a state of affairs (if F is monadic), or combine with two other constituents (if F is dyadic)... or combine with n other constituents (if F is n -adic). Particulars, by contrast are not bound by any such principle; they are instantial freewheelers. They may occur in states of affairs that contain any number of constituents.

What does this tell us about the kinds of combinations in which Armstrong must feature to model the possibility of his being a universal? They must be combinations in which he answers to the *Principle of Instantial Invariance* whilst being accompanied by a range of particulars (that fail to answer to this principle). Now if we are permitted to consider *all* the combinations of the existing stock of fundamental elements then there will indeed be such combinations. Do these combinations respect the form of states of affairs? It would appear so. Suppose Armstrong features as a monadic universal combined with one other particular (say Socrates). Then this combination respects the form of a monadic state of affairs. It follows—by Armstrong’s analysis—that Armstrong could have been a universal. For the combination of existing elements that models his being a universal respects the form of states of affairs.

But could Armstrong have been a universal? If he could not, then Armstrong analysis must either (i) fail to be extensionally adequate deeming a modal statement to be true when it is false or (ii) appeal to further constraints to circumscribe the combinations that are genuinely possible for Armstrong. In the latter case, it appears that Armstrong must appeal to the constraint that particulars (Armstrong included) are *necessarily* particulars, thereby making use of a modal concept embedded in a context that his analysis is unable to reduce. Either way Armstrong’s analysis is confounded.

In “Could Armstrong have been a Universal?” I argued that there are two ways in which Armstrong may come to terms with this dilemma. Either he may embrace the second horn of the dilemma and admit that some deep ontological principles are modally irreducible. But in that case it becomes unclear whether any genuine theoretical motive remains for attempting to reduce principles that whilst less ontologically significant are no more modal. Or alternatively he may embrace the first horn and admit that he could have been a universal. But in that case, Armstrong must abandon the insight—that runs continuously through his metaphysical writings—that particulars and universals are the fundamental constituents

employ this principle here simply because it is one upon which Armstrong has relied since his earliest writings on universals.

of reality. Instead, the notions of *particular* and *universal* must be consigned to the level of functional roles, roles that the fundamental elements occupy differently at different possible worlds (Armstrong a particular at one world and a universal at another).

In the foregoing discussion I have simply taken Armstrong's notion "form of a state of affairs" for granted. In Armstrong's reduction the notion of form is used to circumscribe the class of *possible* combinations from the broader class of *mere* (arbitrary) combinations—some members of which fail to respect the form of states of affairs. The second difficulty for Armstrong's view that I will touch upon here concerns the question whether this notion is ultimately modal in character. If it is, then Armstrong's account will be circular and his reduction will fail.

The problem that Armstrong encounters is exacerbated by the fact that he tells us virtually nothing about the notion of form. The only insight he (implicitly) offers makes appeal to the *Principle of Instantial Invariance*: a combination will respect the form of a state of affairs if it combines a monadic universal with a single particular, a dyadic universal with two particulars... an n -adic universal with n particulars (*CTP*: 45, 47). Because Armstrong understands the notion of form in this way he effectively employs the valencies (adicities) of universals to determine which combinations are possible—according to this determination, the combinations are possible that respect the adicities of existing universals. But now Armstrong faces an instance of the general dilemma already discussed. If universals do not have their actual adicities necessarily then these combinations will fail to circumscribe the class of possible combinations—the determination will fail to include possible combinations in which existing universals have different adicities. In that case, Armstrong's reduction will fail to be extensionally adequate. But if Armstrong's reduction achieves extensional adequacy by appealing to the necessary characteristics of existing universals—the adicities they enjoy necessarily—his account will be circular.

That Armstrong's reduction should be subject to this uncomfortable dilemma should come as no surprise.³ Armstrong characterises his own

³ That the concepts of particular or universal are modal has long been maintained by Herbert Hochberg. Consider, for example, his remark: "One concerned with 'independence' might point out that in yet another sense no component of an atomic fact is 'independent'. For by [the Principle of Exemplification] particulars require properties and vice versa. No particular is presented 'bare' and no quality is presented

account as a version of logical atomism, one inspired by the metaphysical system Wittgenstein presented in the *Tractatus* (*CTP*: 37). But if we look back to that way in which Wittgenstein introduced the notion of form—the form of simple objects whether particulars or universals—we see that Wittgenstein’s logical atomism is modal through and through:

2.0123 If I know an object I also know all its possible occurrences in states of affairs. (Every one of these possibilities must be part of the nature of the object.)

2.0124 If all objects are given, then at the same time all *possible* states of affairs are also given.

2.0141 The possibility of its occurring in states of affairs is the form of an object.

4. *Von Wachter’s criticisms*

Von Wachter says that I have proceeded too hastily in my examination of Armstrong’s theory. He denies that Armstrong ever attempted to provide a reductive account of modality whose success would depend upon avoiding the pitfalls of extensionality failure and modal circularity. According to von Wachter “it is clear in everything that Armstrong writes that he thinks there are ... true irreducibly modal statements.” Armstrong is able to admit to the existence of such statements because, he claims, Armstrong only ever avowed a “deflationary” form of reductionism, a form of reductionism that seeks to avoid commitment to merely possible states of affairs but not circular analyses.

Armstrong’s repeated pronouncements to the contrary give the lie to von Wachter’s criticisms (“The notion of possibility is analysed, reduced I think it can be said, to the combination of elements” *CTP*: 48 and all the rest already cited). It should be evident to the reader that Armstrong did—in *CTP*—endeavour to provide a reductive (non-circular) analysis of modal statements. Armstrong was motivated to do so because he intended his account not only to avoid a commitment to merely possible states of affairs but also to avoid a commitment to primitive *de re* compatibilities and incompatibilities in the natural realm. It should also be evident to the reader that the dilemma I have posed for Armstrong’s account—to avoid,

unexemplified” (see his 1961, p. 235). Hochberg subsequently makes use of this point in criticism of Armstrong’s combinatorial account (see his 2001, pp. 162-3).

on the one hand, failures of extensional adequacy and, on the other, modal circularity—is no more than a generalisation of a particular dilemma that Armstrong posed to himself—to avoid, on the one hand, false claims about contradictory combinations and surreptitious modal constraints on the other. In both particular and the general cases the dilemma is pertinent just because Armstrong wished to avoid irreducibly modal statements by providing a reductive analysis.

Von Wachter raises a further criticism of the account of Armstrong that I have given. In “Could Armstrong have been a Universal?” I claimed that if Armstrong’s reduction is to succeed then it should provide for a systematic translation from a language that contains modal vocabulary to one that contains none. Such a translation should map each sentence of the modal language onto an extensionally equivalent sentence of the non-modal language. In this way the reduction, if successful, will provide non-modal truth-conditions for the sentences of a modal language. Von Wachter objects to this procedure on the grounds that Armstrong has no interest in truth-conditions, with what von Wachter calls “meaning entities”. Armstrong’s project, von Wachter claims, is to describe the “ontic structure of this world”, not the structure of a language or a range of meaning entities used to describe it. But this objection fails because it over-interprets the notion of truth-condition involved in the envisaged translation.

The notion of a truth condition may be interpreted in a variety of different ways. It may be interpreted as falling upon the sense side of Frege’s distinction between sense and reference, a notion intended to capture the fine-grained meanings of the sentences for which truth conditions are supplied. But the notion of a truth-condition may also be interpreted in a far more minimal sense: to provide truth-conditions in this sense simply means providing necessary and sufficient conditions for the truth of the sentences in question. Minimally interpreted the provision of a reductive truth-condition for a modal sentence S amounts to no more than the specification of a non-modal sentence S^* where S^* is extensionally equivalent to S ($S \leftrightarrow S^*$). The provision of truth-conditions in this minimal sense broaches no concern with “meaning entities”, just ties of extensional equivalence between sentences.

Von Wachter also denies that Armstrong need have any truck with issues of translation, his project being concerned with ontological structure. But this denial rests upon a failure to appreciate that—in *CTP*—Armstrong is concerned to give a *conceptual* reduction of modality.

For if Armstrong were to succeed in setting such a reduction in place then—guided by the analysis of modal concepts given—it would be possible to translate all modal sentences into extensionally equivalent sentences that contain no modal vocabulary. It follows that if Armstrong’s reduction fails to provide us with the wherewithal to translate modal discourse in this way then that is a sure fire sign that his conceptual reduction also fails.

Von Wachter criticises my account of Armstrong from a more general perspective. He says that Armstrong is an “M-philosopher” whose concern is with truth-makers, the fundamental constituents of reality responsible for the truth and falsity of the sentences we utter. By contrast I, I am told, am an “S-philosopher”, someone with an interest only in language—only in semantics and truth conditions. Seen from this perspective, von Wachter continues, my criticisms of Armstrong obviously miss their mark, resting upon the mistaken assumption that Armstrong is an S-philosopher like me.

But it is obvious that both positions—the positions of S- and M-philosophers—are unhelpful caricatures. On the one hand, language is itself a feature of the world, not something outside of it, a subject matter with its own distinctive but unduly neglected ontology. Moreover, our conception of what the world we inhabit is like significantly constrains our choice of which semantics are eligible for a language used to describe that world. So for these, and other reasons still, no S-philosopher can ultimately insulate him or herself from ontological concerns. On the other hand, we cannot determine what the truth makers for a class of sentences must be unless we are equipped to determine what these sentences really *say*. If we do not have a proper grasp of what these sentences say then we can hardly be in a position to grasp what makes them true. To establish what these sentences really say we must look to their inferential relations with other sentences, the ontological commitments they make, the way in which the expressions that make up these sentences hook onto the world. In short: to establish what the truth-makers of our sentences are we must concern ourselves to a significant degree with semantics.

Armstrong himself is well aware of all this. After noting the difficulties that the existence of negative states of affairs or universals poses to the combinatorial analysis of possibility Armstrong remarks:

“This, of course, faces us with a further task: that of providing a semantics for ‘ $\sim(a \text{ is } F)$ ’. How does this contingent statement hook onto the world? It is rather

easy to see how ‘ $(a \text{ is } F) \vee (a \text{ is } G)$ ’ hooks on. The truth-conditions are perspicuous. Not so with negation” (*CTP*: 48-9)

Armstrong then proceeds to investigate the *semantics* of negation (*CTP*: 92-7). For only so, Armstrong realises, will it be possible to establish whether negative states of affairs or universals are required as truth-makers (or constituents of truth-makers) for sentences that contain the negation sign. It should therefore come as no surprise that in his most recent work Armstrong describes the truth-maker relation as “in a broad sense, a semantic relation” (see his 2004: 37). Clearly, if I am an S-philosopher then Armstrong is too. But it would be better to say that neither Armstrong nor I are S- or M-philosophers. The distinction that von Wachter draws between these positions is far too crude to usefully further debate.

5. *Ontological Reductionism*

How could this be? How could there be such confusion surrounding what Armstrong is really about? Confusion has arisen because Armstrong has presented not just one but two theories of modality. This does not mean that Armstrong is confused, only that if we are to understand him we must unravel the different threads from which his view is woven.

We have seen Armstrong offer a conceptual reduction in *CTP*. In *WSA* Armstrong does not abandon this theory—he still holds on to the hope that his combinatorial analysis will succeed in reducing modality.⁴ But Armstrong also proposes an ontological reduction of modality. Unlike a conceptual reduction, an ontological reduction does not aim to translate modal claims into non-modal claims. Instead it attempts to display how the truth or falsity of modal statements depends upon the configurations of an underlying ontology. Armstrong’s basic idea is that the class of simple elements (particulars and universals) should serve as truth-makers for modal truths. So, for example, the mereological sum of the particulars a and b and the relation R ($a+R+b$) serves by Armstrong’s reckoning as truth-maker for the statement that $\Diamond aRb$. In other words, if $a+R+b$ exists then “ $\Diamond aRb$ ” must be true.

⁴ See *WSA*: 147, 154, 160-1 and 268. Armstrong does make some changes to his earlier theory—he gives up the appeal to possible worlds conceived as fictions and upgrades alien universals from merely conceptual to genuinely metaphysical possibilities (*WSA*: 166-7, 172). But these differences are not significant for present purposes.

In what sense is a theory of this kind reductionist? It may not be designed to translate modal claims into claims of some other sorts but Armstrong still intends this theory to avoid a commitment to merely possible states of affairs. This Armstrong achieves by restricting the class of truth-makers for modal statements to the plurality of actually existing elements. But Armstrong also wishes his theory to achieve something else. He wishes his new theory to display in a “perspicuous manner” how the necessary modal truths—the exclusions and incompatibilities—arise from the underlying combinations of simples included in his ontology (*WSA*: 147). This perspicuous display is to be provided by appealing to the internal relations of identity and difference that obtain between the constituents of the truth-makers:

“The truthmaker or truthmakers for a particular modal truth will make that truth true in virtue of nothing more than the relations of *identity* (strict identity) and *difference* holding between the constituents of the truthmaker” (*WSA*: 150).

How is such a theory supposed to function? Where necessary truths are at issue the theory appeals to the (strict) identities—often partial—that obtain between the particulars and universals involved (*X* is partially identical to *Y* just in case *X* shares a part with *Y*). To fix ideas consider one of the simplest patterns of necessitation for which Armstrong’s theory accounts—the pattern in which the instantiation of a conjunctive universal (*P* & *Q*) necessitates the instantiation of its conjuncts (*P*, *Q*). According to Armstrong, the instantiation of the conjunction necessitates the instantiation of its conjuncts because the former is a complex universal that contains the latter as proper parts (*WSA*: 51-2). Because *P* and *Q* both are proper parts of *P*&*Q* whatever instantiates *P*&*Q* *eo ipso* instantiates *P* and instantiates *Q*. In this way the partial identity of conjunctive universals and their conjuncts provides a basic model of the way in which the necessary connections between universals may be seen to perspicuously flow from the internal relations—in this case the relation of partial identity—that obtains amongst them.

To account for more complicated patterns of necessitation Armstrong extends this basic model by appealing to more complicated arrangements of overlapping particulars and universals. Consider the necessary truth that nothing can be 5 kg and 1 kg in mass. According to Armstrong, this necessary truth is grounded in the partial identities that obtain between (i) the *five kilogram* universal and the *one kilogram* universal and (ii) the

particulars that instantiate these universals. According to his account, the latter universal overlaps the former universal in such a way that anything *P* that instantiates the *five kilogram* universal has a proper part *P-* that instantiates the *one kilogram* universal (*WSA*: 54, 144-5). It follows—Armstrong maintains—that no particular can simultaneously instantiate both universals at once. For then a particular would—*per impossible*—be identical to one of its proper parts ($P = P-$).⁵

Whatever other criticisms may be made this strategy for providing a perspicuous account of necessary truths has an inbuilt limitation. It will not apply to truths that describe necessary connections between distinct but nevertheless *simple* particulars or universals. This is because the account presupposes that there are relations of partial identity, relations the obtaining of which requires the presence of a complex element which other simpler elements overlap. But if the necessary truths in question concern only simple elements then relations of partial identity cannot obtain.

Armstrong attempts to overcome this limitation by denying that there are necessary truths involving simple but distinct elements for his theory to accommodate. Once again Armstrong endeavours to discredit in advance any account that allows for such connections by pointing out the mysterious epistemology of irreducible *de re* incompatibilities (“It would certainly be difficult to integrate this account into cognitive psychology”). But Armstrong also alludes to what he takes to be far “more serious difficulties”:

“The simplicity of the universals involved creates a problem. What foundation can there be in these simple entities for the entailments and exclusions? It would seem that these relationships must forever be opaque to the intellect, inexplicable in the same way that ultimate contingent truths are opaque. They are truly brute necessities” (*WSA*: 157).

Voicing his philosophical predilections as a latter day Hume Armstrong so dismisses the idea of necessary entailments and exclusions amongst simple elements. He affirms instead:

“a natural thought, at least within the Humean tradition of thinking about possibility that the existence of one of these thin particulars never entails and never excludes any other. What about the simple properties and simple

⁵ It seems to me that this argument does not succeed even on its own terms. See MacBride 1999: 483-4 for a sceptical response to Armstrong’s diagnostic treatment of modal exclusions.

relations? They too will be wholly different from each other. The simplest hypothesis about them... is the parallel idea that, first, every simple property is compossible with every other, and second, that all simple properties are compossible also, so that any n -place relation may hold or fail to hold between any n particulars” (*WSA*: 155).

But does Armstrong really have the right to reject necessary connections between distinct but simple existences? Does his “natural thought” that the simple elements are everywhere compossible really cohere with the intellectual ideals that the Humean tradition endeavours to preserve?

The correct answer to both of these questions seems to be: no. And here is the reason why. Even the simple elements of Armstrong’s ontology are necessarily connected. Let it be granted that, as Armstrong states,

(1) any n -place relation may hold or fail to hold between any n particulars.

When considered in isolation this principle may make it appear that n -place relations are everywhere compossible. But if we cast our view more widely we will see that the *capacity* of any n -place relation to combine with any n particulars is matched by a corresponding *incapacity* to combine with any different number of particulars. For, as the *Principle of Instantial Invariance* dictates,

(2) no n -place relation can hold between any k particulars (where $k \neq n$).

By contrast to (1), (2) makes evident that there are necessary connections present that prevent the simple but distinct elements of Armstrong’s ontology promiscuously combining. Since the elements involved are simple (2) indicates a commitment upon Armstrong’s part to an irreducible *de re* incompatibility amongst existing particulars and universals.

(2) is not the only principle that indicates a commitment of this kind. For Armstrong also endorses the principles that no particular can instantiate another, no universal can exist uninstantiated, and so on. These are general or framework principles that exclude the possibility that simple but distinct particulars and universals combine in certain ways.⁶ Hume’s scepticism concerning necessary connections between distinct existences

⁶ For other examples ‘framework’ principles governing the elements of Armstrong’s ontology that generate necessary connections see MacBride 1999: 485-93.

led him to endorse a metaphysic of elements that are “entirely loose and separate”. We now see that Armstrong’s commitment to framework principles governing the behaviour of simple elements with distinctive modes of combination—distinctive of n -place relations, distinctive of particulars, and so on—prevent him from endorsing a metaphysic of this kind, one free of necessary connections between distinct existences.

5. *Conclusion*

What does this show? It shows that Armstrong not only fails to provide a conceptual reduction of modality but that he also fails to provide an ontological reduction. A theory is reductionist in this latter sense (recall) if it displays in a “perspicuous manner” how the necessary modal truths—the exclusions and incompatibilities—arise from the underlying combinations of simples. But because the elements that framework principles govern are simple the strategy that Armstrong develops for displaying how exclusions and incompatibilities arise cannot apply to them. The fundamental modal truths expressed by framework principles are left “brute”, “opaque to the intellect”.

How best to respond to this situation? Hume was able to advance a thoroughgoing rejection of necessary connections because he was a nominalist—his ontology ultimately consisted of just one category of simple particulars. The difficulties that arise for Armstrong result (in part) from his rejection of nominalism in favour of realism, an ontology consisting of two different categories—the particulars and the universals—the elements of which behave in irreducibly distinct ways. One response to these difficulties would be to reject realism in favour of nominalism. Another response would be to follow Ramsey’s lead and undertake a radical overhaul of realism (see his 1925). To do so would be to deny that the categorical differences are what they seem, and to abandon as unfounded the conviction that particulars and universals behave in the irreducibly distinct ways tradition supposes.

However, it is difficult to avoid the impression that neither of these alternatives really takes us to the root of the difficulties that reductionism encounters. For these difficulties are also generated by the assumption the necessary connections are—unless reduced—opaque to the intellect. This raises the question whether by taking this assumption for granted we impose far too high a threshold upon the requirements for genuine understanding. Hume imposed such a high threshold because, famously, he was in the grip of an empiricist theory of understanding. But this theory

has been found wanting in so many regards and few, if any, of us are now empiricists in Hume's sense. It is correspondingly doubtful whether fundamental modal truths—even those that express necessary connections between distinct existences—should be subjected to reduction in order to legitimate our intellectual grasp of them.⁷

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Same but Different*

Talk of “tropes” dates back to D. C. Williams’s (1953) articles on the elements of being, although theories similar to the one proposed by him certainly existed long before that.¹ Williams’s tropes were no instant success however, and a debate of today’s kind and calibre would have to wait until the publication of the first contemporary book entirely devoted to trope theory (Keith Campbell’s *Abstract Particulars* (1990)). Since then, however, discussion has been lively with the number of trope proponents increasing. Those who have joined in the effort to bring the theory to its most developed expression include, among others, John Bacon, Peter Simons, Kevin Mulligan, Käthe Trettin, and myself.²

Although the formulation of positive accounts of, and arguments *for*, trope theory took quite some time to emerge after Williams’s first mention of “tropes”, arguments *against* the theory surfaced much sooner. Herbert Hochberg, in particular, soon seized upon the theory and, although he did not appreciate it, found it worthy of serious scrutiny.³ In a recent article (“Relations, Properties and Particulars” (2004a)) Hochberg once again challenges trope theory with his keen and thought-provoking critique.⁴ This time his particular target is my own view on tropes and on how a theory of tropes ought to be developed as described in *If Tropes* (2002).

In his article he treats almost every aspect of the book in depth and detail and some of his objections I now believe to be accurate.⁵ Sometimes Hochberg’s critique even manages to point “beyond” my text, as, for instance, when he identifies problems facing trope theory not noticed by myself (and, at least as far as I know, largely unnoticed in general). Hochberg

¹ Early proponents of such a theory that included trope-like entities are, e.g.: (Stout, 1921; Segelberg, 1999, and; Husserl, 1970). Aristotle and Ockham also count among the theory’s very first proponents.

² See, e.g.: (Bacon, 1995; Simons, 1994 and 2000; Mulligan, 1998; Trettin, 2004a, 2004b; and Maurin, 2002). The list could be made much longer.

³ Hochberg’s trope-critical publications include (1965; 1988; 1992; 2002 and 2004a).

⁴ All page references in the text will refer to this article.

⁵ As, for example, when he points out that my treatment of truth-maker theory (which forms part of my theoretical framework) leaves something to be desired.

asks (p. 37): If universals are taken to be nothing but classes of exactly similar tropes, then *why* is there not also such a unity of any *subset* of tropes that are exactly similar (adding countless universals to each similarity set)? The trope theorist must, he continues, answer this question in one of two possible ways: she must stipulate, either that there cannot be such subset-unities (and then she must add this as one more axiom to her trope theory); or she must admit that, for every subset there is indeed a distinct universal. The first option, says Hochberg, suffers from its *ad hoc* nature,⁶ the second, he adds, from being indefensibly “ontologically promiscuous”. I have not seen this point made before, but it is certainly a point worth making. I doubt if it presents the trope theorist with a serious problem however. For, why should the promiscuity entailed by accepting the second alternative deter us here? Hochberg seems to think that it is counter-intuitive for, as he points out (p. 37), “oddly enough, you then have more universals than you have particular tropes.” Given the “watered-down” nature universals are accorded by the trope theorist, I fail to see what is so odd about that.

Apart from identifying and discussing *new* problems, Hochberg’s rich text also brings up old ones. Problems, which he rightly points out, have not yet received the treatment they deserve and so remain serious threats to the development of a theory of tropes. To this category of problems belongs the issue of space and time. Fitting space and time into your metaphysical framework is certainly problematic no matter *what* the framework, but there is some reason to believe that space and time might prove especially problematic if the framework is one of tropes.⁷ However, some of the critique offered by Hochberg is mistaken and it is to the discussion of where and why these mistakes occur that this article is devoted. This will require us to look deeper into the nature of the trope – a complicated yet central issue for the proper development of the theory. First, though, a few comments on an issue that is very close to *my* heart but not perhaps central to trope theory in general.

⁶ As well as from further burdening the theory with new axioms.

⁷ Hochberg mentions some of the problems he believes will face a trope-theoretical treatment of space and time in: (Hochberg, 2004), pp. 41-42. I mention some in: (Maurin, 2002), pp. 175f. I have, to date, no solutions to offer, nor have I any comprehensive understanding of exactly what form these problems will take or where they will occur. All I have is, as indicated, the conviction that space and time *must* at some point be trope-theoretically treated and that such treatment might (or, I think, *will*) prove very problematic.

Misused assumptions

According to Hochberg, I *misuse my assumptions*. For, he claims, throughout the book important issues are with their help “prejudged” in ways that to begin with disqualify even the most pertinent and important critique. These are serious charges indeed. Charges, I will now argue, that rest partly on misunderstanding and partly on deep substantive disagreement. I will return to the disagreement below and focus here on why I think Hochberg’s charges are (partly) the result of misunderstanding.

To understand the role played by my assumptions one must first appreciate that the investigation conducted in *If Tropes* is hypothetical. That is, it aims to develop as far as possible a theory for tropes. It does *not* aim to defend the existence of tropes, *nor* does it aim to argue for trope theory against its rivals. This is why the book is called *if tropes*. Although seemingly puzzled, Trettin actually captures the mood in which the book is written very well when she points out that:⁸

Somehow one gets the impression that Maurin has, so to speak, a rather aloof affair with tropes. She doesn’t love them wholeheartedly. On the other hand, she takes great care in defending her theoretical construction.

True, although I may not love tropes wholeheartedly I certainly find them worthy of a fair hearing. Trope theory *will* have its cost (as my hypothetical investigation soon reveals). To some it will be too high. To others, such as myself, whether or not the cost is acceptable will depend on what the cost and/or benefit of rival theories is, because, as always in metaphysics, cost must be balanced against profit. With this in mind, it is nevertheless futile, I believe, to make any kind of cost/benefit analysis until it has been shown that the theory *can* be developed (under its own assumptions) in the first place. It is such a first development, rather than a full-on endorsement, that is attempted in *If Tropes*.

If the project’s hypothetical character is not appreciated, misinterpretation will be the unavoidable consequence. Such misinterpretation is, to some extent, represented in Hochberg’s text, and can (again, partly) account for his charging me with misuse of assumptions. One example of how misunderstanding the general purpose of investigation will affect argument is Hochberg’s treatment of my discussion of the distinction between (what Campbell once dubbed) the A-

⁸ (Trettin, 2004a), pp. 152-153.

tween (what Campbell once dubbed) the A- and B-questions.⁹ Hochberg objects to my claim that since all the classical theories of properties answer these questions *in the same way*, they have also, and illegitimately, assumed (consciously or unconsciously) that the questions *must* be identically answered.¹⁰ This assumption seriously prejudices the issue against trope theory. The reason: trope theory, unlike all other property theories, is such that the A- and the B-question will receive *different* answers. A trope is a particular quality; this means that nothing other than the existence of *it* (not the “similarity circle” to which it belongs) is required to account for the nature of a particular object (or, basically, a trope), i.e. to answer the A-question. To the question of what makes it true that a particular trope is, say, red, we can never obtain a more informative answer than one asserting: “*it is red because it is red, or because it is what it is*”.¹¹

For an adequate answer to the question of what makes two objects (or, ultimately, two tropes) *the same* – to answer the B-question – on the other hand, requires more. Answering the B-question will also require an account of what it is that makes the objects (or, basically, the tropes) “the same”, and to do this similarity may very well have to be invoked.¹² Trope theory, consequently, must distinguish not only between the A- and B-questions, but also between their *answers*.

It is important to note that, apart from making it possible for trope theory to avoid critique traditionally directed against nominalism in general, the fact that trope proponents must hold that the A- and B-questions should receive different answers is by no means to their advantage.¹³ On the contrary, classical theories of properties, that can answer two questions

⁹ The A-question: What makes it true that *a* is F? The B-question: What makes it true that *a* and *b* are the same F? (Campbell, 1990), p. 29.

¹⁰ That is, all the classical property-accounts answer *both* the A- and B-question by postulating one and the same entity (property or logical construction) suitably related (by, e.g. instantiation or membership) to the concrete particulars both having *and* sharing a property. “Classical theories of properties” are here taken to include the whole range of alternatives; e.g. Universal realism (Platonism and Aristotelianism), as well as Concept-, Class- and Resemblance Nominalism.

¹¹ (Maurin, 2004), p. 64.

¹² Giving rise to all sorts of problems and discussions, none of which I will take up here, but see my: (Maurin, 2004), chapter 5 in particular.

¹³ (Armstrong, 1978), pp. 28-43 seems to think that most of his arguments against classical nominalism are also arguments against trope theory. Given that the trope theorist distinguishes between her answers to the A- and B-questions, this is not true (Maurin, 2004), pp. 68-77.

for the price of one, appear both simpler and theoretically more economical (not to mention respectful of linguistic form). The point of emphasising that the two questions are in fact distinct is not, then, to argue that trope theory's structural difference from rival theories makes it in any way the superior theory. Still, this seems to be how Hochberg, wrongly, interprets it. He points out that (p. 31):

The questions go together [for universal realism] because one naturally develops arguments for universals by starting with two things of the same kind. /--- / If one looks at the history, perhaps from a different perspective than Maurin's, one finds her attempt – which follows a common strategy in philosophical disputes – to show that the realist isn't clear about the difference between different questions – is misguided.

It is true, naturally, that if you hold, e.g. a universal realism then, although the A- and the B-question will be offered the same answer, this does not entail that they are not recognised as essentially distinct. Yet as well as recognising that the questions are distinct, one ought to recognise that so are possibly their answers. It is unwillingness to recognise *this*, which characterises much critique directed against trope theory. Critique that is therefore wrongfully based on the assumption that trope theory, *as* other theories of properties, must provide identical answers to the A- and the B-question. An example of critique of this kind is in fact offered by Hochberg just a few pages further on, where he continues (pp. 35-36):

...the focusing on the A and B questions being different is misleading. For, if one is serious about the problem of universals, one faces the B question as soon as one answers the A question. That is why we cannot forget that Russell assumed the tropist's answer to the A question – that qualities were particulars – in order to argue against the tropist's view by then raising the B question.

Hochberg's general charge of my misusing my assumptions is to a great extent based in his particular dissatisfaction with some of the assumptions used. This is obvious when he objects that (p. 18):

Of course one must start somewhere and cannot offer arguments for everything. The questions that arise are about where we start and how we employ the postulates we start from. Furthermore, to postulate or assume something does not license merely repeating the assumption in response to an objection – especially an objection that claims that while one postulates that tropes are “simple” entities they are employed in ways that indicate they are not really simple.

Hochberg is not the only one suspicion of how I make use of the particular “assumption” that tropes are simple entities. In a recent review, Trettin argues:¹⁴

The pronounced hypothetical or even constructivist framework seems to be more problematic, because it can have an immunising function concerning critique: At times Maurin just reminds possible critics of their ‘obligation’ to respect the assumptions of her theory. Of course, some assumptions have to be laid down to start any theory, but these should be good enough to be respected by all without comment. If some of those belong to the core of controversial debates, it simply is not a good enough assumption or axiom of one’s theory, *as is the case with whether tropes are simple or complex*.

Apart from the fact that I believe that *no* assumption can “be good enough to be respected by all without comment”, the above objections indicate my failure to communicate the following: the simplicity of the trope is *not* assumed – it *is* argued for. The existence of *tropes* is assumed and I must admit that I do *say* that, thereby, the existence of something that is *abstract, particular* and *simple* is assumed. The reason for this, however, is that (in a sense to be explained): to hold that tropes exist *must be* to hold that something that is abstract, particular *and* simple exists. For trope theory would not constitute an original theory, a novel alternative to pre-existing views on properties, if tropes were not simple entities. This is why: to an entity characterised as being both abstract and particular two options are open: it is either complex or it is simple. The relevant question here is what the alternative according to which the “abstract particular” is complex entails in terms of ontology. According to Chris Daly, to be a complex “abstract particular” is to be (or is at least compatible with being) a *substrate instantiating a universal* (or, as Armstrong would call such an entity, a *state of affairs*).¹⁵ States of affairs, I agree, may very well be characterised as *abstract particulars* – especially considering what Armstrong has had to say about the “victory of particularity”.¹⁶ Nevertheless, if being a complex “abstract particular” amounts to being a substrate instantiating a universal then, also, tropes cannot be complex. For, obviously, to hold that there are substrates instantiating universals is not, first, to hold that “tropehood” is a fundamental category. Rather, it is to hold that there are *two*

¹⁴ (Trettin, 2004a), p. 152, my italics.

¹⁵ (Daly, 1997), pp. 141 f. Daly also argues that any argument for simple tropes will be an argument for complex tropes so that there will exist no rational reason for holding that there are simple tropes. I argue against this in: (Maurin, 2004), pp. 12-14.

¹⁶ (Armstrong, 1978), p. 115.

fundamental categories (substrates and universals), which join to constitute a further category (of states of affairs). Second, theories of universals, theories of substrates and theories of states of affairs already exist as well developed theories. What would be gained by now referring to these theories as “trope theories”? Obviously nothing. Is there any other way in which to ontologically characterise a complex abstract particular that avoids these consequences? Yes, one such alternative would be to hold that tropes are complex in the sense that they consist of more than one simple abstract particular. But this merely postpones characterising the trope as a simple entity – for, ultimately, the nature of these complex tropes will boil down to the nature of their ultimate constituent simple tropes. A third, and I believe final, alternative is this: the trope is complex in that it consists of a substrate instantiating a particular quality. Now, *this* does seem to present a novel theory of what we might call “complex tropes”. Disregarding here the familiar problems associated with the “nature” of substrates, this alternative, it seems to me, still does not get rid of simplicity. For, what is the nature of the particular quality instantiated in the substrate? It must be qualitative (or abstract) in order to be able to “nature” the substrate. It must be particular, or we are back with Daly’s alternative. It must be simple, or we will end up in endless regress. Simple tropes have sneaked in the back door! A trope, therefore, if it exists, exists as a simple entity.

To Hochberg, though, the trope’s tripartite nature is a mystery comparable perhaps to that of the holy trinity. Consequently, much of his critical efforts have been aimed at disproving the possibility of thus characterising it. I am very well aware of, and take seriously, the doubts and objections occasioned by the special nature of the trope. Yet I hold that these are not conclusive objections. Rather – and here Hochberg might want to claim that I once again misuse my assumptions – I claim that these objections arguably beg the question against trope theory by departing from, and treating as obvious, principles the acceptance of which prematurely disqualify even the possibility of tropes. Here, consequently, Hochberg’s reasons for charging me with misusing my assumptions are based on beliefs with which I strongly disagree, rather than in mere misunderstanding. In the following sections, I will explain how and why.

What is so problematic about the special nature of tropes? Simply put; tropes, on my account, are (and *must be*) simple – yet, according to Hochberg, they are (and *must be*) employed in ways which require them to be complex. This is *not* the linguistic problem identified by Trettin:¹⁷

¹⁷ (Trettin, 2004a), pp. 155-156.

But are tropes really ‘simple’? Isn’t the tripartite characterisation of tropes as ‘simple’, ‘particular’ and ‘qualitative’ – already to be found not only in Maurin, but in many others – a puzzling indication of non-simplicity? Unfortunately, trope theorists have done a lot to give the impression that tropes are more than just one quality, especially by talking about ‘tropes and their natures’ or about the trope’s particularity on the one hand, and its quality, on the other. No wonder that critics take this loose talk as evidence for their objections.

No wonder, *I* say, that such linguistic confusions arise. For “loose talk”, when it comes to tropes and trope theory, is *unavoidable*; given the nature of tropes it is impossible for trope talk to “respect” linguistic form.¹⁸ If the problem discussed by Hochberg were only one of confusing linguistic usage with ontological character then there would be no problem left once these confusions were discovered and disentangled. Unfortunately, it is much more serious than that. Hochberg’s problem should also be distinguished from another “problem”, identified by Eric Funkhouser in a recent review. He asks:¹⁹

...she [Maurin] claims that tropes are qualitatively simple/.../But this fails to convince. Why *can’t* tropes have qualitative parts – e.g. color-tropes have hue-parts, saturation-parts, and brightness-parts?/.../And if no parts are ‘proper parts’ of other tropes, how are we to understand mereological sums of tropes?

The questions posed by Funkhouser are, I believe, clearly misguided. First, because if tropes are qualitatively complex in the sense imagined by Funkhouser they must, as I argue above, be regarded as complexes of *more fundamental tropes*. Of course, complexes of this kind we may call *tropes* – but they are tropes only in a secondary sense. I therefore prefer to call them *complexes of tropes* (or *compresent tropes*) although I do not think much hinges on our choice of terms here. Second, even if “no parts are ‘proper parts’ of other tropes”, mereological sums of tropes will pose no special problem. Mereological sums of tropes are just that: mereological sums of tropes. Again, one might choose to call also mereological sums of tropes

¹⁸ For another example of how trope theory necessarily “disrespects” linguistic form, consider: “*a* is F” which, according to the theory, is made true by the existence, “in” *a* of *particular* trope f_1 . Some think that this is a high price to pay for trope theory, but I actually consider it, not so much a cost as in fact (at least to some extent) a benefit. See my (2004), chapter 4 (on how I regard the relation between linguistic and ontological form).

¹⁹ (Funkhouser, 2004).

“tropes” but this is merely a question of terminology. No matter what we call Funkhouser’s complex tropes, we will still have to admit the existence of the kind of simple tropes that presumably give rise to the problem we may now refer to as the “problem of unholy trinity”.

The unholy trinity of tropes

So why does Hochberg think that simple tropes *must* be treated as if complex? A first answer is this: If tropes are abstract, particular *and* simple then two exactly similar tropes are numerically distinct and qualitatively the same, yet neither distinction nor sameness is separately grounded *in* the tropes. Hochberg finds nothing odd in general about a variety of basic facts being true of one simple entity; it is with this particular combination he struggles. He says (pp. 23-24):

In short, though I willingly grant the assumption that diverse tropes are simply different – what I fail to see is how diverse tropes are of the same kind if they are said to “be their natures.”

That tropes should be such that they can be “just different” yet “just the same” is, according to Donald Brownstein (another early critic of tropes) “the central mystery and dogma” of trope theory.²⁰ Before explaining how and why this appears mysterious, as well as how and why I think appearances may here be deceiving, I want to consider two ways in which, perhaps contrary to first impression, the “mystery” *cannot* be dissolved.

First (and, given my previous claims, naturally) you will not be able to avoid mysterious trinities by retracting the claim that tropes are simple entities; trope theory *must* include simplicity among the trope’s characterising traits.²¹ Furthermore, you will not be able to dissolve the mystery by holding that the sameness of tropes must not be grounded in some particular “constituent” *in* them in order to acquire a ground separate from that of their distinction, since the sameness of tropes may be distinctly grounded

²⁰ (Brownstein, 1973), p. 47.

²¹ However, looking at standard introductions to trope theory this might look like a promising alternative – such introductions often stress that trope theory is original in as much as it introduces an entity that combines *particularity* with *abstractness* in a manner never previously thought of. It is by combining characteristics that have normally been considered apart that the theory is said to solve or avoid many long-standing problems in the property-philosophical debate (such as the introduction of “mysterious” universals or “blobby” concrete particulars). Simplicity is almost never discussed in these circumstances.

in some *relation* holding between tropes that are the same. It cannot be dissolved in this way for there is ample reason to hold that the sameness of tropes cannot thus reside “outside” of tropes that are the same. I have discussed these reasons in detail elsewhere, and space does not permit me to repeat myself here.²² There is space enough, however, to state without argument why sameness must be grounded *in* tropes that are the same. Sameness (or, perhaps better, resemblance) is an internal relation, i.e. a relation the existence of which follows necessarily given the nature of the entities related. Since tropes are *simple* entities, furthermore, their resemblance will follow necessarily merely given their existence (tropes, remember, *are* their nature rather than have a nature). Resemblance may be understood in one of two ways: either as a pseudo-addition or as a genuine relation-trope. Understood as a pseudo-addition, resemblance is seen as a “free lunch”, i.e. it is considered as something we need not add to our ontological inventory list.²³ If resemblance is a pseudo-addition, consequently, the sameness of tropes (as well as their distinction) remains grounded *in* the related tropes. Understood as a trope, resemblance will generate infinite and, many say, *vicious* regress. Contrary to popular opinion, I do not think that the resemblance regress facing trope theory is necessarily vicious, but whether or not it is makes no difference here. For whether or not the resemblance of two tropes entails the existence of a resemblance-trope (or even an infinity of resemblance-tropes), their resemblance will be ultimately determined by their nature (i.e. their existence). Resemblance, once again, will be grounded *in* the tropes and the problem of “unholy trinity” can be formulated after all.

The problem can now be formulated as a kind of *reductio*, as follows:

(Exactly similar) tropes exist.

That is, something that is particular, abstract *and* simple exists.

Therefore, exactly similar tropes are (must be) such that similarity and distinction, respectively, lack separate grounds.

But this is *not* possible.

(Exactly similar) tropes do not (indeed cannot) exist.

²² For a detailed argument, see my: (2004), chapter 5.

²³ Hochberg points out that there is something strange about non-existent pseudo-additions. If exact resemblance is a pseudo-addition, he queries (p. 35) “what is it that is composed of exactly similar tropes – nothing?” Basically, I believe that how one regards free lunches in ontology will boil down to how strong one’s sparse ideals are and, more importantly, what one’s views on truth-making are.

An argument of this kind, I claim, will always rest on holding as necessarily true some general principle. Historically we find at least two principles that in this way prohibit the existence of tropes: “Leibniz’s principle” which holds that “*Indiscernibility implies identity*” and “Bradley’s principle” according to which “*Distinction implies difference*”.²⁴ If these principles are true, trope theory must be false, for each principle *requires* the existence of separate grounds *in* the tropes for their distinction as well as for their unity. Both of these principles are, however, plausibly disputable in at least two ways: the trope proponent may inquire, first, on what grounds the principles are said to be *necessary*, or she can, second, argue that the most plausible interpretation of the principles is, contrary to first appearances, one that is *compatible* with the existence of tropes.

The first option involves demonstrating that the principles are necessary because they are a necessary consequence of the truth of certain substantial theses concerning the nature of individuals and the nature of properties – theses that are contrary to those on which a theory of tropes rests. Here the theses of interest are: (i) properties are universal, and; (ii) individuals are bundles of properties. For, as noticed by Armstrong, it is only if individuals are bundles of universals that “Leibniz’s (as well as Bradley’s) principle” is a necessary truth.²⁵ However, Armstrong continues, “on no interpretation does it appear to be a necessary truth”. Armstrong, who is convinced of the truth of (i), therefore goes on to deny (ii). The trope theorist, on the other hand, will have to deny (i), but can accept (ii) (although she does not have to). It may be objected that it is not the principles that presuppose the truth of these theses but rather the other way around (i.e. it is the nature of individuals and properties that is a consequence of the truth of the principles). If so, this would have the unhappy consequence of making properties necessarily universal and individuals necessarily bundles – a consequence few metaphysicians would want to accept. Moreover, if not these ontological theses, then *what* supports the necessary truth of the principles? Unless some independent support can be identified, the only alternative left seems to be to hold that the principles are self-evidently true,

²⁴ (Leibniz, 1956) § 26f. (Bradley, 1922), pp. 662-667. Bradley’s and Leibniz’s principles are equivalent although Leibniz seems to have intended his principle to be interpreted as an ontological principle while Bradley intended his as epistemological. I have no real quarrel with the epistemological version of the principle; it is its ontological reading that is relevant here.

²⁵ (Armstrong, 1978), p. 91.

which they are obviously not. If they were, we would be unable so easily to imagine the existence of exactly resembling tropes.

The second option was to argue that the most plausible interpretation of the principles is one that is *compatible* with the existence of tropes. The interpretation in question should here be one that includes not only “internal” but also “external” characteristics among the kinds of quality which, if “the same” entail identity.²⁶ Once again, the *reductio* will thereby fail and it seems as if neither principle can be used as the basis for an argument against the possible existence of exactly resembling yet distinct tropes.

There is, however, a third principle that is not as easily dismissed. This principle plays a vital part in what Hochberg refers to as a “formidable” argument against trope theory (p. 39).^{27, 28}

Let a basic proposition be one that is either atomic or the negation of an atomic proposition. Then consider tropes *t* and *t** where “*t* is different from *t**” and “*t* is exactly similar to *t**” are both true. Assume you take either “diversity” or “identity” as primitive. Then both propositions are basic propositions. But they are logically independent. Hence they cannot have the same truth makers. Yet, for a trope theory of the type Maurin espouses, they do and must have the same truth makers. Thus the theory fails.

²⁶ Adopting this alternative would unfortunately force the trope theorist to accept as necessarily true that, although for the most part distinct tropes may occupy the same space-time region, this is not true for exactly similar tropes. Hochberg points out, in discussing this “axiom”; “It would of course be redundant to have two red tropes com-present, but why is it not possible?” I agree that it is unhappy to have to add this as an axiom to the theory – for that reason I prefer the first option discussed above.

²⁷ Other versions of the argument appear also in (Hochberg, 1988 and 2001). (Campbell, 1990), pp. 68-70 refers to and attempts to answer a similar version of the argument which he attributes to (Moreland, 1985). An argument based on, yet slightly different from, Hochberg’s has recently been presented by Armstrong (forthcoming).

²⁸ A few comments on how Hochberg chooses to express his argument: First, Hochberg expresses the propositions in terms of “difference” and “similarity”. This is unhappy; I would prefer using “distinction” rather than “difference” to express the first proposition (“difference” is too qualitative to express what it is meant to express). Second, I fail to understand what is meant by pointing out that, if we (p. 39) “take either “diversity” or “identity” as primitive. Then both propositions are basic propositions.” I agree that the propositions are both *basic*. But am I to take Hochberg’s comment to mean that they are basic because one is atomic and the other is its negation? If so, no wonder they cannot have the same truth makers. I take both propositions to be basic (in Hochberg’s sense) because they are both *atomic* – not because one is atomic and the other is its negation. However, pointing this out does not affect the strength of the argument.

Again, Hochberg claims, refusing to provide separate grounds for distinction and sameness respectively gives rise to problems. The trope theorist *must* say that what makes true “t is different from t*” and “t is exactly similar to t*” is the same thing: tropes t and t*. This is problematic, as it seems to imply that the trope theorist must violate the following principle:

“Hochbergs Principle”: Logically independent basic propositions must have distinct truth makers.

As stated, this principle looks more than reasonable, and so Hochberg has set the trope theorist a serious challenge indeed. A challenge that I believe can be met although at considerable cost to trope theory.

Hochberg rightly points out that at least some of the things I have had to say about his argument in the past have been misguided. At one point, for instance, I say:²⁹

Notice also that even on the alternative according to which logically independent propositions *can* have the same truth-makers it is essentially a verbal question whether we wish to continue treating them as logically independent. If ‘being logically independent’ means ‘having distinct truth-makers’ then surely they are not logically independent.

But, says Hochberg, to hold that “it is a verbal question as to whether the sentences are logically independent” because “it is a matter of deciding whether ‘being logically independent’ means ‘having different truth-makers’” is simply false. I agree – this is truly not a *verbal* question and so my earlier treatment of Hochberg’s argument has, at least in this sense, failed to appreciate exactly how substantial the argument in fact is. The “rub” is, of course, “Hochberg’s principle”. Must the trope theorist give up this principle altogether? If yes, with what justification? If no, how exactly does she propose to keep it?

Mulligan, Simons and Smith seem to be giving up the principle altogether when they claim that:³⁰

We conceive it as in principle possible that one and the same truth-maker may make true sentences with different meanings: this happens anyway if we take non-atomic sentences into account, and *no arguments occur to us which suggest that this cannot happen for atomic sentences as well.*

Hochberg is violently opposed to this suggestion for, as he exclaims (p. 39):

²⁹ (Maurin, 2002), p. 115.

³⁰ (Mulligan, Simons and Smith, 1984), p. 296 (my italics).

In fact it is demonstrably false on a standard use of “logically.” Given basic two propositions having the same truth makers, it is not logically possible for one to be true and the other false.

Therefore, he continues, “ t is different from t^* ” and “ t is exactly similar to t^* ” are not logically independent. Given the intuitiveness of “Hochberg’s principle”, the burden of proof is now on the trope theorist, and it is not enough to say that the principle should be rejected since “no argument occurs to us” for why it should not. More is definitely needed. The best explanation of why trope theory may, with justification, reject “Hochberg’s principle” in general and still embrace a modified version of it has been provided by Fraser MacBride in a different context. MacBride hits Hochberg with something I am sure he knows will hurt – he hits him with Russell.³¹

Russell famously exhorted us to maintain a ‘robust sense of reality’ when engaged in ontological enquiry. This attitude is evidenced here when Russell insists that it is the same “external fact” that makes “ A is before B ” and “ B is after A ” true /.../ [This] suggests that Russell – far from being guided by Hochberg’s principle that logically independent statements require distinct truth-makers – in fact rejects this conception. For the statement that “ B is after A ” no more logically follows from “ A is before B ” (without the aid of an additional meaning postulate) than “ $S(b,a)$ ” logically follows from “ $S(a,b)$ ”.

The fact that Russell here refers to a “robust sense of reality” does, I think, clearly indicate the direction in which a solution to the problem should be sought. For basically, I suggest, whether or not one believes that there is some way in which trope theory can be consistently formulated will depend on one’s fundamental views on how the logical form of language relates to the ontological form of the world. MacBride clearly illustrates this in his discussion of the notion of logical independence employed in “Hochberg’s principle”. For, he argues, Hochberg seems to conceive of this notion in a purely *formal* sense. In a *material* sense “ $S(a,b)$ ” and “ $S(b,a)$ ” are *not* logically independent. For, MacBride notes:³²

...it is not possible for “ $S(a,b)$ ” to be true and “ $S(b,a)$ ” false, nor for “ $S(a,b)$ ” to be false and “ $S(b,a)$ ” true.

Formally “ $S(a,b)$ ” and “ $S(b,a)$ ” are logically independent: to formally deduce “ $S(a,b)$ ” from “ $S(b,a)$ ” the further conditional premise “ $(\forall x)(\forall y)(S(x,y) \supset S(y,x))$ ” is also required. Materially, on the other hand,

³¹ (MacBride, 2004), p. 189.

³² Ibid.

they are *not*: it is *not* possible for it to be true that *a* is before *b* while, simultaneously it is false that *b* is after *a*. The burden of proof has now shifted to Hochberg. It is he who now needs to justify the assumption that it is statements that are logically independent in the *formal* rather than material sense that require distinct truth makers. This now seems to be the *less* plausible view, given that:³³

...whereas the former notion concerns the kinds of transition that may be effected between sentences by the substitution of expressions, the latter notion appeals to what is possible quite independently of language.

Translated into the currently relevant context, “*t* is different from *t**” and “*t* is exactly similar to *t**” are formally independent: for, as for before and after, to formally deduce “*t* is different from *t**” from “*t* is exactly similar to *t**” would require the further conditional premise “ $((\forall x)(\forall y)(“x$ is exactly similar to $y”) \supset “x$ is different from $y”))$. Materially, on the other hand, the propositions are arguably not independent. According to trope theory, logical and ontological form must therefore here come apart. As MacBride adds:³⁴

Insofar as truth-makers are conceived as inhabitants of the world, as creatures that exist independently of language, it is far from evident that logically independent statements in the formal sense are compelled to correspond to distinct truth-makers.

Hochberg, in his answer to MacBride, has interestingly little to say on this matter (fundamental as it would seem that it is). Hochberg says:³⁵

MacBride challenges a principle that I employ – holding that logically independent basic sentences require diverse grounds (or makers) of truth /.../ I simply note that the connection between a basic sentence and its truth ground is established by a Carnap-style semantic rule. It is thus logical or formal in that sense /.../ If two logically independent basic sentences have the same truth ground then we allow one to be true and the other false while the truth ground that makes both true obtains or exists. The formal-material distinction does not change that, given that Carnap-style rules are involved.

What Hochberg says here makes it apparent that the problem is indeed, as suspected by both MacBride and myself, one of how one should regard the relation between the logical form of language and the ontological form of the world. Exactly how much does logical form reveal (how much must it

³³ Ibid., pp. 189-190.

³⁴ Ibid., p. 190.

³⁵ (Hochberg, 2004b), p. 206.

reveal) about the ontological form of the world? Hochberg's willingness to use what he calls "Carnap-style semantic rules" to draw ontological conclusions tells me that he thinks the answer is "very much indeed". I must admit however, that my understanding of Hochberg's statement is seriously impeded by my failing to understand the exact nature of the rule to which he here refers. Particularities to one side, however: suppose Hochberg is right. That is, suppose that formally independent propositions *must* have distinct truth makers and that, given the involvement of Carnap-style rules, the formal-material distinction will do nothing to change that. This is *not* to say that; logically independent propositions must have distinct truth makers *tout court*. It is to say that; *given* that you believe that what can or cannot make true certain propositions must be established by a "Carnap-style semantic rule", logically independent propositions must have distinct truth makers. Accepting the conclusion of Hochberg's argument, that is, not only implies accepting "Hochberg's principle" but also some very fundamental theses about what, how and why things can be said about the world based on our knowledge of language and linguistic form. There may be very good reasons to accept these theses, still the theses are undeniably much more controversial and open to debate than was the principle with which we began.

Hochberg's argument, we can now see, is truly "formidable" because it manages with great precision to pinpoint something of utmost importance. If you wish to argue that the world is a world of tropes, you must also accept as true a number of fundamental and highly substantial theses in metaphysical methodology. Put very generally, you must, to stay true to trope theory, become a rather quite radical "revisionary" metaphysician. To Hochberg, and many with him, this in itself might be enough to earn the argument the status of a *reductio*. To my mind, however, such a conclusion would require substantial additional argumentation. What is so inherently absurd about a revisionary approach to metaphysics? Nothing, I would say. The revisionary approach in fact strikes me as the most reasonable one. Embracing it is, however, not without complication. It requires the setting up of clear boundaries for what can and cannot be said or argued – no metaphysician wants to be charged with making up incredible, although admittedly consistent, fairytales! The tools required for setting up such a "not-too-speculative" revisionary metaphysics might already exist. There is some reason to believe that modern truth-maker theory and a keen appreciation of and respect for some of the boundaries set up by our best sciences could be some such tools. Much, very much, remains to be done

though, and work in metaphysical methodology of this kind promises both reward and frustration. Whether joining the revisionary camp is a punishment or a blessing therefore remains to be seen. Important here is that this is not an open choice to the trope theorist. Trope theory, therefore, is theoretically burdened to say the least, and anyone wishing to join its ranks should be aware of this.

End

Here I have only been able to discuss a very small portion of all the interesting and problematic issues brought up by Hochberg and others. The subject of infinite regress – an issue integral to trope theory – in particular, has generated a host of comments that deserve in-depth treatment. Trettin's comments on my proposed solution to the Bradley regress deserves special mention here.³⁶ Time and space force me to deal with these matters elsewhere.

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³⁶ (Trettin, 2004b)

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