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Noneist Explorations II

The Sylvan Jungle — Volume 3

Springer

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The Sylvan Jungle

This book is part of a collection of four books that present the work of the iconic and iconoclastic Australian philosopher Richard Routley (né Sylvan).

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- Exploring Meinong's Jungle and Beyond
- Noneist Explorations I
- Noneist Explorations II
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Noneist Explorations II

The Sylvan Jungle — Volume 3

with Supplementary Essays

Springer

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Editors' Preface

This volume continues the reprinting of a new edition of Richard Routley's 1980 monograph *Exploring Meinong's Jungle and Beyond: An investigation of noneism and the theory of items*.

As in Volume 2, some of the work reprinted in this third volume contains material co-authored with Val Plumwood (formerly Val Routley), in particular, chapters 8 and 9. For this reason, she is listed as co-author.

We have sought to correct obvious errors, and have updated some references. As noted in the preface to Vol. 1, attempts were made to locate and reproduce the photographs that Sylvan included in the original publication (see the introductory essay by Hyde, Vol. 1), but the passage of time has erased their tracks. We have, however, been able to find further photographs of the same area as that pictured in the original monograph by one of the original photographers, Henry Gold, and with his kind permission reproduce another of his photos, *Antarctic Beech*, in this volume.

For help in the production of this third volume, thanks go to: Louise Sylvan for her permission to reprint Richard's original material; the ever-helpful archivists at the University of Queensland Fryer Library (where Sylvan's extensive archive is housed); and Michael Kebrt and the Word-to-LaTeX crew.

* * * * *

A note on referencing: the original 1980 edition is cited as "$EMJB_1$" (available at: http://hdl.handle.net/11375/14805), and this four-volume reprint is cited as "$EMJB_2$". Page, section and chapter references are to $EMJB_2$.

The Sylvan Jungle Editors:

Maureen Eckert
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Nicholas Griffin
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Introduction

Chris Mortensen

It is fitting that *The Jungle Book* was largely worked out in the jungle. Specifically it was in the rainforest on the coastal scarp of Plumwood Mountain, overlooking Bateman's Bay and the Pacific Ocean east of Braidwood, some 100 km south east of Canberra. Entrance was along a (very) rough bush track of several hundred metres in length. Water was supplied from a creek feeding a kinetic energy device which raised the head of water by a hundred metres or so. Richard and Val were building an octagonal dwelling out of stone from the site. They were generous with their invitations, including postgraduate students, as long as said postgraduates were (1) relevant logicians, and (2) willing to work shifting stone. I recall Steve Giambrone, PhD student and weightlifting champion, flashing his well-developed muscles as he sweated for his supervisor. At this time, Richard and Val were living in a galvanised iron shed with a concrete floor, about 10m square. An antechinus lived in the rafters, and a copperhead snake under the tank stand. The leeches were unrelenting in the damp environment. Lunch was largely home-grown from the site, and if you were thoughtless enough to throw a grape seed onto the ground, Val The Formidable was merciless. Evening would treat visitors to sugar gliders flitting from tree to tree.

Tuesdays would see Richard journey to the Australian National University in Canberra to pick up his mail, see postgraduates, and attend the Logic Group. He packed the ageing Land Rover Defender with a large wicker basket containing home made bread, butter, cheese and a large flagon of red wine. You were welcome to partake in his office. He must have done more there in the way of producing *The Jungle Book* during those attendances, if only because that's where the 1000 pages were typed by one of the Departmental typists, over several years. His output was prodigious; and with his handwriting

arguably the worst in the world, it must have been some kind of Sartrean hell for the typist.

Some attendees at the Logic Group were longer term staff and students, others were short- or middle-term, others just dropped in on occasion. Of the former, there included Bob Meyer, Chris Mortensen, Michael McRobbie, Errol Martin, Dominic Hyde, Steve Giambrone and John Slaney. Among the latter numbered Newton da Costa, Mike Dunn, Graham Priest, Alasdair Urquhart, Peter Schotch, Ray Jennings, Nick Griffin, and on occasion David Lewis and Donald Davidson. Small wonder Len Goddard, himself a regular attendee, commented that "it's raining logicians at the ANU".

It was a brilliant time, with Richard a major feature. Over the years he read bits of *The Jungle Book*, and bits of *Relevant Logics and their Rivals*. While I disagreed with the views in *The Jungle Book*, I recall thinking at the time that his position was "fiendishly plausible". Richard was characteristically stubborn in his views, even among friends. I recall occasions when the whole room was in disagreement with him, while he flatly refused to concede, steadily retreating as he widened the circle of his argument.

Others contributed enthusiastically. Mike Dunn described his algebraic approach. Alasdair Urquhart worked out his undecidability argument during a tug-o-war tussle at the winter solstice fair. Schotch and Jennings did Canadian logic. Newton da Costa treated us to his distinctive Brazilian perspective. Da Costa had come to paraconsistent conclusions earlier than, and independently of, Richard; though unlike Richard at the time, he was no relevantist. He rehearsed his non-triviality proof for naïve set theory; and replicated, in his Brazilian logic, Bob Meyer's non-triviality proof for relevant arithmetic which Bob had worked out at the ANU the year before, Newton commenting "Bobby, your result is so beautiful I could kiss you!". Chris Mortensen got from this the first ideas for a general position of inconsistent mathematics. Mortensen and Graham Priest sat down and tried to draw an inconsistent universal set, while Graham generally pursued his dialetheist muse.

It wouldn't have happened at most other universities, it needed generous research funding provided by the Australian taxpayers. But at the same time, the logicians were unpopular in their location with philosophy in the Research School of Social Science. Perhaps Richard had some responsibility here, given that he suffered fools badly. However, the common argument against logic was that it is not a social science. This was not

J.J.C. Smart's position. Jack Smart was Head of Department and not really a logician, and to the extent that he was, his logic was Quine's and thus classical. But he sympathesized with the use of formal techniques, and he could recognise and admire quality when he saw it. In defence of logic in the broader School, it took the more pragmatic argument that it was not the fault of logic that they had lobbed within social science, and they had a right to pursue their excellence.

Michael McRobbie was a natural leader, and Jack would drop in on him while Michael was still a postgraduate, to ask for advice on departmental matters. When Jack retired, for better or worse the Logic Group eventually moved under McRobbie's leadership over the road to I Block, renamed the Automated Reasoning Project, and took on a computational character. This split from philosophy was welcomed by some, but not Richard who chose to remain with philosophy. As *The Jungle Book* and other pieces testify, Richard never really came to terms with the technology. To a lesser extent the same is true of Bob, though he moved with McRobbie and must be quoted: "Logic and Computer Science scratch many of the same itches". I'm not sure the same can be said for philosophy, that's more like an obsession perhaps.

ORIGINAL MATERIAL

First Edition Front Matter
[Abridged]

Acknowledgements

My main historical debt is of course to the work of Alexius Meinong. But, as will become apparent, I am also indebted to the work of precursors of Meinong, in particular Thomas Reid. I have been much helped by critical expositions of Meinong's work, especially Findlay 1963, and, in making recent redraftings of older material, by Roderick Chisholm's articles. I have been encouraged to elaborate earlier essays and much stimulated by recent attempts to work out a more satisfactory theory of objects than Meinong's mature theory, in particular the (reductionist) theories of Terence Parsons. That I am, or try to be, severely critical of much other work on theories of objects in no way lessens my debt to some of it.

Among my modern creditors I owe most to Val Routley, who jointly authored some of the chapters (chapters 4, 8 and 9 [the latter two reprinted here in Vol. 3 *—Eds.*]) and who contributed much to many sections not explicitly acknowledged as joint. For example, the idea that the Reference Theory underlay alternatives to the theory of objects and generated very many philosophical problems, was the result of joint work and discussion.

I have profited – as acknowledgements at relevant points in the text will to *some* extent reveal – from constructive criticism directed at earlier exposure of this work, in particular extended presentations in seminar series at the University of Illinois, Chicago Circle, in 1969, at the State University of Campinas in 1976, and at the Australian National University in 1978.

* * * * * *

Excerpts from earlier articles on the logic and semantics of nonexistence and intensionality and on universal semantics have been included in the text; these are drawn from the following periodicals: *Notre Dame Journal of Formal Logic* (papers referred to as EI, SE, NE), *Philosophica* (MTD), *Journal of Philosophical Logic* (US), *Communication and Cognition* (Routley[2] 1975), *Inquiry* (Routley 1976), and *Philosophical Studies* (Routley 1974). Permission to reproduce material has been sought from editors of all the journals cited, and I am indebted to most editors for replies granting permission.

Parts of many of the essays [across all four Volumes *—Eds.*] have been read at conferences and seminars in various parts of the world since 1965 and some of the material has as a result (and gratifyingly) worked its way into the literature. It is pleasant to record that much of the material is now regarded as far less crazy and disreputable than it was in the mid-sixties, when it was taken as a sign of early mental deterioration and of philosophical irresponsibility.

* * * * * *

References, notation, etc. Two forms of reference to other work are used. Publications which are referred to frequently are usually assigned special abbreviations (e.g., SE, Slog); otherwise works are cited by giving the author's name and the year of publication. In case an author has published more than one paper in the one year the papers are ordered alphabetically.

The bibliography records only items that are actually cited in the text. Delays in production made feasible – what was always thought desirable (as even the *authors* of Slog have repeatedly found) – the addition of an index: this too was compiled by Jean Norman [and revised and expanded for this edition *—Eds.*].

In quoting other authors the following minor liberties have been taken: notation has been changed to conform with that of the text, and occasionally passages have been rearranged (hopefully without distortion of content). Occasionally too citations have been drawn from unfinished or unpublished work (in particular, Tooley 1978) or even from lecture notes (Kripke 1973): sources of these sorts are recorded in the bibliography, and due allowance should be made.

Standard abbreviations, such as "iff" for "if and only if" and "wrt" for "with respect to", are adopted. The metalanguage is logicians' ordinary English enriched by a few symbols, most notably "$\rightarrow$" read "if ... then ..." or "that ... implies that ...", "&" for

"and", "$\vee$" for "or", "$\sim$" for "not", "P" for "some" and "U" for "every". These abbreviations are not always used however, and often expressions are written out in English.

Cross references are made in obvious ways, e.g. "see 3.3" means "see chapter 3, section 3" and "in §4" means "in section 4 (of the same chapter)". The labelling of theorems and lemmata is also chapter relativised. Notation, bracketing conventions, labelling of systems is as explained in companion volume RLR; but in fact where these things are not familiar from the literature or self-explanatory they are explained as they are introduced.

* * * * * *

Notes for prospective readers. By and large the chapters (and even sections) can be read in any order, e.g. a reader can proceed directly to chapter 3 or to chapter 9, or even to section 12.3. Occasionally some backward reference may be called for (e.g. to explain central principles, such as the Ontological Assumption), but it will never require much backtracking.

In places the text becomes heavily loaded with logical symbolism. The reader should not be intimidated. Everything said can be expressed in English, and commonly is so expressed, and always a recipe is given for unscrambling symbolic notation into English. However the symbolism is intended as an aid to understanding and argument and to exact formulation of the theory, not as an obstacle. Should the reader become bogged down in such logical material or discouraged by it, I suggest it be skipped over or otherwise bypassed.

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Chapter 8

The importance of not existing[1]

An adequate theory of meaning and truth is semantically important. Such a theory necessarily includes in its analysis nonentities, items that do not exist. So what is semantically, and hence logically, important is bound to include nonentities. In virtue of the modifier "semantically", the first premiss is analytic (it is not analytic that what is semantically important is important, but it is) and it is comparatively uncontroversial. By contrast the second premiss of the syllogism, which we want to stick to, is decidedly controversial. So too is the thesis (already advanced and in Chisholm 1973) – which implies the inadequacy of classical logical theories – that there are a great many natural language statements, statements an adequate theory should be able to treat of, which cannot be analysed logically, and semantically, without the equivalent of an appeal to nonentities. Defence of the thesis has been somewhat piecemeal, taking the form that all the theories so far offered which try to dispense with nonentities break down or run into insuperable difficulties, difficulties which are readily surmounted given appropriate talk about nonentities. In what follows we shall outline more general sorts of argument for the thesis, designed to show that no theory which dispenses with nonentities as objects of discourse can do justice to the data.

The thesis of the inadequacy of classical logical theory, basically one of Meinong's theses expanded and dressed up in more modern attire, has not exactly won widespread acclaim, but it has gained some notoriety and has encountered much opposition. Much of what follows is a further attempt to counter some of that opposition; to reinforce the claim that classical theories break down irreparably over the analysis of intensional discourse

[1] This chapter is, in part, a reply to Smart's critique Smart 1977 [reprinted in Vol. 2 —*Eds.*]. But it stands on its own, and may be read independently of Smart's worthwhile critique. All page references are, unless otherwise indicated, to Smart's [reprinted] critique.

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concerning nonentities; to meet the objection that objectual semantics for Meinongian-style theories of objects have themselves serious flaws; to refute the view that Meinongian theories have no philosophical advantages, only drawbacks; and to show, by way of illustration of the importance of nonentities in solving traditional philosophical problems, how the theory of objects, and only such a theory, can resolve many problems, in metaphysics and in epistemology, problems in fact generated by the classical theory.

§1. Further classical attempts to deal with discourse about the non-existent: Davidson's paratactic analysis

Theories of descriptions, the main method of replacing "apparent" talk of nonentities by talk of entities, work, not too unsatisfactorily, for a range of rather simple cases. Examples do not have to be much complicated, however, for failure of the theories to become conspicuous, especially when descriptors are combined with intensional functors.

(α) Meinong believed that the round square is round.

This is true, but Russell's theory of descriptions, still the best of the theories of descriptions for natural language applications, brings it out as false, whatever scoping is assigned to the description; for it is false that there exists a round square and it is false that Meinong believed that there exists a round square. Other theories of descriptions yield either no analysis, e.g. Hilbert's theory, or a mistaken analysis, e.g. one construal of the fashionable theory deriving from Frege, according to which non-denoting descriptions denote the null set or a null entity or some set-theoretical complication thereof (on the other construal such theories yield no analysis). Since the round square does not exist, "the round square" accordingly denotes the null set (or etc.). But it is ludicrous to suggest that Meinong believed that the null set is round: similarly with set-theoretical constructs from the null set.

"Classical logicians do have ways of dealing with" such sentences as (α) – so at least Smart contends (p. 345) – the best being "Davidson's paratactic analysis" which transforms (α) to

(αD) Meinong believed that . The Round square is round,

in which "the second sentence is not asserted, but exhibited so that its *content* can be taken to be what is *referred* to by the demonstrative 'that'" (our italics).

Objection 1. A classical logician cannot deal with the proposed analysandum. Firstly, he has no way of formalising the full stop as it figures in such sentences. The classical assumption has been that a full stop is but, what it looks like in the notation of Peano's *Formulaire* and of *Principia Mathematica*, a conjunction. But the full stop of (αD) cannot be rendered in the normal way, as a conjunction. A conjunction entails both of its conjuncts; but (αD) entails neither. Indeed "Meinong believed that", which is seriously incomplete out of context, and so an odd consequence, would hardly qualify as a classically admissible sentence without some analysis (e.g. Russell's elimination of egocentric particulars).

Perhaps however classical logicians have some other way of coping with such full stop connectives, even if they haven't exactly made the matter public. Really they have no way of coping. Full stop cannot be accommodated in an extensional object language: for it does not permit extensional replacement, i.e. $A \equiv B$ and $C \equiv D$ does not guarantee $A \,.\, C \equiv B \,.\, D$. Try, for example, replacing "The round square is round" by truth-functional equivalents in (αD).

Alternatively observe that a Davidsonian-style analysis can equally be given for a wide range of modal functors, e.g. "It is necessary that $2 + 2 = 4$" becomes "That is necessary . $2 + 2 = 4$"; the result is not extensional any more than the starting point.

Nor can full stop be accommodated metatheoretically in the way that functors such as those of necessity and consistency can to some extent be replicated. For one very evident property of full stop is its iterability. And, moreover, replacement of logical equivalents is no more permissible in (αD) than replacement of truth-functional equivalents.

Objection 2. What is the object *that* locates in (αD)? The obvious answer, which corresponds to the substitutivity conditions in "Meinong believed . . . ", is that the object in question is a proposition or content, namely the proposition that the round square is round. But propositions appeal to classical logicians no more than properties, and are no more amenable to classical analysis. So the obvious answer has once again to be set aside classically. The classically tempting answer, that *that* points out a sentence or inscription,[1] has also to be set aside, as wrong. Meinong didn't believe a sentence. And the substitutivity conditions on sentences are quite different:–

[1] Davidson's theory has certainly been given such a construal by later exponents. For instance, according to Peacocke (Peacocke 1975, p. 126) the first sentence of (αD) contains "a demonstrative

(α) is true iff

(α') Meinong believed the round square to be round, and iff

(α'') Meinong believed roundness is a property of the round square,

biconditionals that would fail under a sentential analysis.[1]

Objection 3. According to the *Oxford English Dictionary* it is "that[2]" the (commonly deletable) conjunction introducing subordinate clauses, that occurs in (α), not "that[1]", the demonstrative adjective and pronoun. It is certainly open to question that "that" functions as a proper demonstrative in (α). For it vanishes entirely under syntactical transformations and under translation. As to the first, consider (α') or the passive transform (which extracts the subject)

(α''') The round square was believed by Meinong to be round.

These do not admit of Davidsonian split. Secondly, Davidson's analysis would fail entirely in Latin where the *that* clause is translated into *oratio obliqua*, along the lines of (α').[2]

Rather the *that* should be coupled with the object of belief, as examples like the following help show:

(β) Meinong believed Reid and what he said and so that the round square is round.

Try a Davidsonian analysis on (β).

---

reference ('that') to an utterance of the second". On this construal Davidson has exploited the fact (of which he was well aware, according to Peacocke) that quotation marks behave in many respects like (certain) demonstratives. The clever replacing of quotation marks of the earlier more primitive positivist analyses, by "that" with a full-stop, both brings the analysis closer to obvious English reconstruals, and thereby appears to reduce counterexamples to the analysis. A serious dilemma remains however. Either the second sentence in (αD) is quoted or it is not. If it is, then the usual translation objections of Church and others apply – unless a new theory of quotation, bound to exceed referential resources, is supplied. If not, then replacement of subjects in the second sentence, and quantification into it, are not blocked, and the traditional problems which the (proper) treatment of belief as a relation cause for referential theories remain. The yet-to-be-satisfactorily-provided account of *same sayings* is an attempt to slip between the horns of this dilemma. But without equivocation it can hardly succeed.

[1] A much more elaborate and general objection to sentential-style analyses of belief claims, including Davidson's, may be found in Thomason (Thomason 1977, see p. 352). However Thomason's argument depends on some large assumptions, as to the correctness of the classical ways of doing things logically, and especially as to the way analogues of the semantical paradoxes are to be logically treated.

[2] The analysis also breaks down on "It is ..." constructions, e.g. "It is said [believed] that A", is not equivalent to "It is said [believed] that . A". "It is said that." is not a sentence, but only the beginning of one.

This is not to deny that etymologically "that[2]" derives from a demonstrative. This was remarked by Meinong in his anticipation, by more than half a century, of the analysis now usually attributed to Davidson:

> So far as is known to me, linguists agree that our connective "that" is basically nothing but a demonstrative pronoun. If one says, for example, "I believe that what is pure harmonically may be impure melodically", then, etymologically, at least, he is saying nothing other than "I believe this: what is pure harmonically may be impure melodically". (UA, p. 48)

Davidson's main contribution appears to have been, to put it quite uncharitably, to replace a colon by, what is less satisfactory, a full stop.

Objection 4. Davidson's analysis appears, at first sight at least, to break down upon compounding. Consider, for example, earlier biconditionals such as "(α) iff (α')", or, for instance,

(γ) Meinong believed that Meinong believed that the round square is round.

It won't do to rephrase it

(γD) Meinong believed that . Meinong believed that . The round square is round,

because the first "that" points to the whole remainder of the sentence. Or consider

(δ) Because Meinong believed that the round square is round he believed both that something is round and of something that it is round.

Such examples strongly resist Davidsonian analysis. However with a little ingenuity, a larger amount of distortion, and a supply of demonstratives ("thet", "thit", "thot", "thut" etc. of the positivists), even examples like (δ) can be full stop accommodated, after a fashion. So emerges another dilemma. For if the theory *does* so admit of extension to compounds, then it would seem to admit much beyond the reach of classical logic, including neutral (non-referential) quantification. Consider a Davidsonian-style paraphrase of

(κ) Meinong believed that the round square is round; hence for some object, namely the round square, Meinong believed of that object that it is round.

The paraphrase runs:

(κD) Meinong believed that . The round square is round. Hence for some object, namely the round square, the following is true. Meinong believed thot . That object is round.

The Davidsonian analysis licenses quantification over impossible objects; and accordingly is classically inadmissible on this ground also.

Objection 5. Either Russell's analysis or a variant thereof continues to apply or it does not. If it does then (αD) is false since Meinong did not believe what the analysis would have him believe. But if it does not, then the intensional indicator must have the curious property of blocking analysis: the same sentence is analysable or not depending on where it appears as a *separate* sentence. And then, furthermore, the method blocks the expected analysis of claims like

(ϵ) The round square does not exist and Meinong did not believe that it did, and

(ϕ) Though the round square does not exist Meinong believed that it was round.

How, in short, is the Davidsonian analysis to be classically combined with a Russellian, or theory of descriptions, resolution of the "riddle of non-being"?

To sum up the objections: while the Davidsonian analysis is open to the Meinongian – and was indeed explicitly proposed by Meinong – it is classically unacceptable.

Is there some *other* way in which classical logicians can analyse examples like (α)? Not so as to do justice to the range of truths natural language can express. Classical logicians have only a very limited number of devices open to them: either (a) they translate (or paraphrase) statements apparently about what does not exist into statements about what does exist or (b) they block analysis, in the apparent style of (αD).[1] Characteristically the paraphrasing of method (a) involves the replacement of names by descriptors and predicates and the elimination of descriptors by quantificational analysis.[2] Connections such as sameness of subject (or object), as with the subject "the round square" in

[1] The third familiar classical method, the platonistic method repeatedly used in classical theories of mathematics, of declaring that all the objects of mathematics, no matter how weird or bizarre, really do exist, hardly bears examination in the case of objects that even more patently do not exist, such as Pegasus and Meinong's round square (even so it is examined in chapter 4 [Vol. 2 —*Eds.*]).

[2] There are other procedures, though they are scarcely "classical", or even properly worked out, Multiple Reference Theory methods. The most suitable are variations on the Fregean method of translation into the language of concepts, all concepts including inconsistent ones being taken (quite erroneously) to exist. For example, "the round square necessarily does not exist" translates into "the concept of the round square is logically empty". (Theories which take only some attributes to exist, e.g. instantiated ones or consistent ones, do not yield full higher order logics, and cannot provide satisfactory translations in the case of objects whose corresponding concepts do not exist.) Since such Fregean methods amount

(ψ) The round square does not exist but Meinong believed that the round square is round,

vanish into sameness of predicates such as "is round" and "is square" under translation. Any such analysis – already in trouble over examples like (ψ) – is bound to fail then when sameness of subject is essential, as in quantificational arguments. More generally, no elimination of type (a) is going to succeed with natural language examples like the following (where "rs" abbreviates "the round square"):–

(μ) If rs does not exist and Meinong believes that rs is round then for some object, namely rs, that object does not exist and Meinong believes that that object is round.

Such English assertions as (μ) are grammatical, they are well-formed, without qualification; they make sense, i.e. they are significant; they are readily intelligible at least at the level of common sense; and they admit of simple formalisation in neutral quantification logic. So what is the case for somehow outlawing assertions like (μ) or blocking their analysis? The case – familiar enough in vague outline, if not in detail (e.g. what is the resulting status of (μ): true, false, nonsignificant, ill-formed?) – is at bottom a thoroughly circular one, namely that (μ) cannot be handled by the epicyclic apparatus of classical logic. The objections, from classically engendered modal paradoxes and the like, are easily enough met in neutral logic, by an elementary distinction between extensional identity and stronger intensional identity relations (for details see chapter 1 [Vol. 1 *—Eds.*]). And surely logical analysis of assertions like (μ) *is* required. For, firstly, (μ) is well-formed. Hence, by the principle of excluded middle, either (μ) or $\sim$(μ). Either option makes for similar difficulties for classical logicians, so trouble is inevitable classically. As (μ) is classically incoherent, it is false (because all well-formed rubbish has to be put in the false bag, under the category reduction of classical logic). Now consider $\sim$(μ), and let

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to translation not into quantification theory but into some higher order predicate logic, they certainly have a better chance of success than Russellian-style methods. Nonetheless, as is argued in detail in 1.7 [Vol. 1 *—Eds.*], they do not succeed. Either, as with Frege's own theory, the translation procedure is not uniform, so the methods founder when different sorts of cases are combined; or else, where the translation procedure is uniform, although there are no truth-value or other failures, the method is entirely unexplanatory. For the success of the uniform method depends on introducing many new technical predicates – parasitic however for preservation of truth-value assignments on the old predicates they are supposed to be eliminating – and when any attempt is made to convey what the new technical predicates are supposed to mean, the explanation is forced back to the meanings of the old, and supposedly eliminated, predicates. In short, the case against uniform concept reduction has much in common with the case against uniform extensional reduction.

us make things a little easier for classical logicians by supposing that the "if ... then" in $\sim(\mu)$ is a material one. Then after classical transformation $\sim(\mu)$ becomes

(ν) Rs does not exist and Meinong believed rs is round, and for each object if Meinong believed it is round then, materially, it exists.

(ν) is of the form (ψ) & (θ), with (θ), since it involves nonexistential quantification, raising the same difficulties classically as before. Since (θ) is false, (ν) is false, and (μ) is true, contradicting (μ)'s falsehood.

The conclusion is firstly that classical logicians are in very real difficulties with assertions like (μ); and, secondly that (μ) exemplifies an extensive class of natural language statements which express truths which are not classically expressible, and which accordingly no classical epicycling through theories of descriptions is going to admit. The argument also reveals that free logical theories of descriptions (e.g. Hintikka 1959, Scott 1967, Lambert and van Fraassen 1972) are bound to be inadequate. For they cannot treat descriptions as full logical subjects, e.g. they cannot particularise (as in (μ)) on descriptions about what does not exist. In cases where descriptions do not refer, free logic theories have either to refuse analysis (as happens in the weak theory of Lambert–van Fraassen), introduce one or more "null" terms in the replacement range of free non-bindable variables (as, e.g., in Scott's theory) or else dissolve such descriptions by predicate-quantifier analysis in classical fashion. In no case do subjects accessible to logical operations remain, and thus none can succeed where, as in English, non-referring descriptive terms combine with logical operations such as quantification. Such assertions as (μ) are however straightforwardly accommodated within the logical framework of the theory of objects.

§2. The transparency of neutral semantics

> The apparent ease with which a Meinongian position handles referentially opaque sentence contexts and classically problematic intensional discourse is *apparent* only (cf. Smart 1977, p. 345).

Really, the objection continues, a Meinongian position has no philosophically satisfactory semantics; for a satisfactory semantics cannot be based on referentially opaque expressions such as "is about" used to apply to nonentities; it

> must use semantic expressions only within transparent contexts. ... in a satisfactory semantics the relevant semantic predicates, such as "satisfies", "is true of", "about", "denotes", must be extensional (belong to transparent contexts) (Smart: abstract to Smart 1977).

Even if this were true, it would not be especially telling on its own, it is far from self-evident that semantics must be so based to be satisfactory. But in fact the case rests on an extraordinarily common three-way confusion between the following notions:

(i) referential transparency [or its opposite (i*) referential opacity],

(ii) extensionality [or (ii*) intensionality], and

(iii) existential loading, i.e. implying existence [or (iii*) not implying existence].

The following passage illustrates the confusion (*ibid.*p. 345):

> It is clear that the Routleys' phrase "'N' is about ..." is an intensional, or what Quine would call a "referentially opaque" context. Similarly the phrase "Richard talks about ..." is referentially opaque. "Richard talks about Pegasus" does not imply that Pegasus exists, in the way that "Richard kicks Pegasus" does. It is this referential opacity or intensionality of "talks about" which gives Meinongian semantics its apparent advantage ... .

It is important to bring out the confusion, because it will then become clear that it is not so clear at all that the phrase "'N' is about ..." is intensional or opaque.

(a) *Existential loading does not imply extensionality.* A simple counterexample to the implicational thesis is "Tom knows that a white rhinoceros exists" which is existentially loaded but not extensional.

(b) *Extensionality does not imply existential loading.* "Pegasus does not exist" is extensional but does not carry existential loading. Similarly for many negated statements: because on the orthodox (Brentano) view it cannot be the case that Richard kicks Pegasus, "It is not the case that Richard kicks Pegasus" is true, but it is an extensional truth which does not imply Pegasus exists.

(c) *Existential loading does not imply referential transparency.* Consider again intensional success functors, e.g. "Tom finally observed that the opera house was finished", "John knew that his father still existed somewhere".

(d) *Referential transparency does not imply existential loading.* Consider again "*a* does not exist", or Wittgenstein's "NN is dead". "... does not exist" is transparent but does not imply existence.

The interconnections of extensionality and transparency are more troublesome. An initial problem in making a comparison is that the modern extensional-intensional distinction – a distinction, which goes right back through medieval philosophy, and was introduced into modern logic by Russell in only *one* of the many interrelated traditional senses – applies directly only to statemental functors: specifically Φ is *extensional* iff for every p and q, if $p \equiv q$ then $\Phi_p \equiv \Phi_q$. By contrast, the transparency-opacity distinction, also introduced by Russell, applies in the first instance to predicates: in the one-place case f is transparent iff for every x and y if $x = y$ then $f(x) \equiv f(y)$. There are of course predicates which apply significantly both to propositional and individual subjects, e.g. "was in fact heard by Charlie", which is intensional but transparent, the modifier "in fact" serving to render the predicate transparent. There are various ways of trying to knit the distinctions together, most of them unsatisfactory, beginning with the Carnap–Quine procedure of taking transparency to *define* extensionality in the predicate case: but the problems of amalgamation[1] are hardly a present concern since critics of the Meinongian venture such as Smart follow Quine in equating *extensional* with *transparent* in the predicate case (e.g. "extensional (belong to transparent contexts)", abstract to Smart 1977; and "intensional, or what Quine would call a 'referentially opaque' context"[2]).

It has been urged (especially by Smart) that "a philosophically satisfactory semantics must use semantic expressions only with transparent contexts", though substantial reasons for the thesis remain, as we shall see – like substantial reasons for the Leśniewskian thesis of extensionality – rather opaque. It is a little surprising that the truth of the assumed transparency thesis should be taken to be a major objection to Meinongian semantics. For the basic semantical predicate "'N' is about ...", or a variant thereof such as "'N' names ...", is transparent, and indeed extensional in a good semantical sense, namely its semantical assessment involves no world shift. There seem to be two reasons for the assumption that the basic predicate is opaque. Firstly, there is a confusion of "is about" with "talks about". To say "the winged horse" is about Pe-

[1] These problems are studied, in a somewhat different setting, in Slog, p. 620ff.

[2] Really this is back-to-front; it should be: referentially opaque (in Russell's sense), or what Quine would call "intensional". As to Quine's sense, see FLP.

gasus is not to say "the winged horse" talks about Pegasus. "Talk about" is presumably opaque: *George IV talked about the author of Waverley* does not have the same truth value, in certain famous contexts, as *George IV talked about Scott*. "Is about" is however not opaque: "is about" does not differ from "is in fact about". And generally, whenever $x = y$, if "N" is about x then "N" is about y, for all objects x and y, and so, by restriction, for all entities x and y. This transparency can moreover be proved; for "N" is about x iff $N = x$; hence proof of transparency follows from transitivity of extensional identity. Secondly, transparency has been confused with existential loading. While the predicate "'N' is about ..." is transparent, it is certainly not (in the intended sense) existentially loaded, since, for example, the truth "'Pegasus' is about Pegasus" does not imply that Pegasus exists.

§3. Proposed reductions of nonentities to intensional objects, such as properties and complexes thereof; and some of their inadequacies

> [W]hen the Meinongian *says* that "Pegasus" is about Pegasus, I interpret him as meaning that discourse containing the term "Pegasus" is about something else, namely the property of being a winged horse. ... talking about unicorns is talking about the property of being a one-horned quadruped (Smart 1977, p. 346).

Let a be *any* winged horse. Then on this account "a" is about the property of being a winged horse, whence Pegasus $= a$. So there is at most one winged horse, namely Pegasus: this is evidently false. For consider the same argument in the case of Chiron and other centaurs: we know there were several centaurs. There are two ways out of this sort of difficulty:

(i) Introduce instead properties of particulars, e.g. the property of being Pegasus, or, in Quine's fashion which eliminates "Pegasus" as a singular term altogether, the property of pegasizing.

(ii) Associate with Pegasus a set of properties. This is what Parsons does (in Parsons 1974). Smart conflates (i) and (ii) (e.g. p. 346: "Terence Parsons has worked out this sort of account [viz. (i)] in some detail ...") though they differ, since a set (of several properties) is not a property. Parallel objections do apply however to both proposals: commonly objections to (i) may be transferred to apply against (ii).

It follows from (i) that:

(a) "Pegasus" is about Pegasus iff "Pegasus" is about the property of being Pegasus, i.e. of pegasizing; and thence that

(b) Pegasus = the property of pegasizing, e.g. as follows:

"Pegasus" is about Pegasus iff I(Pegasus) = Pegasus and "Pegasus" is about the property of pegasizing iff I(Pegasus) = the property of pegasizing, whence transitivity of identity yields (b).

Objection 1. (a) and (b) are false. For Pegasus and the property of pegasizing have quite different properties. For example, the property of pegasizing is a property, but Pegasus is not a property; Pegasus is a fabulous winged horse but the property of pegasizing is not a fabulous winged horse; and so on. Thus *in talking about Pegasus one is not talking about a property at all.*

A similar objection would apply against Parsons' modelling *had* he equated Pegasus with a set of properties;[1] but in the modelling Pegasus is only represented by, or correlated with, a set of properties. How objectionable the account is depends on what features transfer across the correlation. As it happens enough damaging features do transfer. For a functional relation is assumed in effect: thus, for instance, Pegasus = $f(\{\text{nuclear } p\text{: } p(\text{Pegasus})\})$, where f is the correlating function. The equation is only good for a limited class of cases, and cannot afford a general reduction – quite apart from its circularity, i.e. the properties of Pegasus are determined as those of Pegasus. For consider a statement such as that Bellerophon wondered whether Pegasus would fall under him in the battle with the Chimaera: Bellerophon was not wondering whether a function (i.e. set-theoretically, a class) of a class of properties would fall under him, and if he had, *per impossible*, been "riding" such an object he would hardly have fared so well in the battle with the Chimaera.

More generally, Parsons' representation (in Parsons 1974) of the nonexistential existentially (in terms of an ontology of properties) is like the representation of the nonextensional extensionally. Both may be unproblematic for *limited* purposes,[2] but *neither*

[1] It does thus apply against Grossmann 1974.

[2] Parsons' is presumably far more limited, the modelling encountering serious difficulties even with relations, cf. his Parsons 1974. The assessment of reductionist theories of nonentities, such as Parsons' theory, is continued in chapter 12.

show eliminability. In the intensional case intensionality is pushed down into (unanalysed) worlds, in the existence case into sets of properties (involving worlds again), which, even if they are claimed to exist classically, do not really exist.

A main motive (Smart's motive) in trying to reinterpret apparently straightforward Meinongian claims, as that "Pegasus" is about Pegasus, falsely in terms of their being about properties or sets thereof is, allegedly, to bring out the hidden ontic commitments of Meinongian positions (p. 346). Thus Smart's crunch: "I say that the Meinongian is committed to an ontology of properties" (p. 348), i.e. he takes properties to exist.

Objection 2. The existentially-loaded equations and modellings of (i) and (ii) thus interpreted assign to nonentities features they do not have, and that Meinong would certainly have rejected, worst, they assign existence. For the predicate "exists" is referentially transparent, i.e.

(c) if $x = y$ then x exists iff y exists. Hence by (b),

(d) Pegasus exists iff the property of pegasizing exists.

But the property of pegasizing exists, according to the critics; hence Pegasus exists. Similarly consider Parsons' modelling, since functions (being classically sets) exist, Pegasus exists. But Pegasus does not exist and never did exist: on this at least Smart and Meinong agree (cf. p. 346: "there is in the universe no Pegasus").

The conclusion again is that neither (i) nor (ii) is adequate – so long as properties are assigned existence. But need they be? The supposition that because they are talked about they must exist (somehow) is just a variant of the Ontological Assumption, and gets rejected for the same reasons. Smart's assumption (p. 348) is that once Meinongian semantics is "repaired" in way (i) or (ii), or similar, it will use predicates such "is about", "denotes" and "satisfies" in a referentially transparent way, and will accordingly imply the existence of the items it is about, namely under the repair, properties or sets thereof. This is fallacious, as we have seen, since transparency does not imply existential loading.

Suppose instead Smart insists (as he certainly seems to, p. 348) that basic semantical predicates must be existentially loaded. This is to concede to himself what is at issue, to strip Meinongians of basic semantical apparatus for their theory. However Smart does produce a reason for his insistence, a reason Smart and empiricists generally take to be of great importance, namely (p. 348)

> The business of semantics is to say how language hooks on to the world, and a referentially opaque [strictly: existentially unloaded] expression doesn't fill this bill.

This is no reason for the restriction. A Meinongian semantics can do all that a classical semantics does, and much more. A single definition makes this plain:

"a" refers to $b =_{\mathrm{Df}}$ "a" is about b and b exists.

Then "refers to" is existentially-loaded and can do the classical work of "hooking language onto the world", i.e. of relating words to entities. In fact, of course, this is only a small part of the business of semantics, which has as its larger task something quite beyond classical resources, namely giving an account of meaning, synonymy, and the like.

The attempt, even by sympathetic critics like Smart, to load Meinongians up with ontological commitments usually indicates a failure to understand the Meinongian position, a failure which arises because they bring with them their own ontological baggage.[1] Just this happens in Smart's critique. For example, he assumes that "less than", which he is prepared to admit as a paradigmatically satisfactory predicate, is existentially-loaded. Yet "less than" relates numbers,[2] as in "the number of entities is less than the number of numbers", objects which do not exist according to the Meinongian. More generally, Smart simply assumes, what the Meinongian would dispute, that abstract items such as sets and numbers all exist. That he has lost sight of the Meinongian position comes out clearly in his claim (p. 348): "One has to be a nominalist to deny that integers exist, and so the 'non-entities' in the model would exist all right".[3] One doesn't *have* to be a nominalist to do this: Meinongians too deny that integers exist and that sets exist (as

[1] Of course, the failure just may indicate something else, e.g. things seriously wrong with *all* Meinongian theories, but this has never been shown, and now seems increasingly unlikely.

[2] *Less than* functions in ways other than as a direct relation of numbers, as e.g. in "What Parsons says is less than the truth", "What exists is less than what can be thought about", "That amount is less than I asked for". "Less than" commonly functions in an existentially-unloaded way, and not merely as relating numbers, e.g. "the amount of bullshit in Heidegger's philosophy does not exceed that in Quine's philosophy" does not entail that amounts of bullshit exist. Nor, for that matter, are all occurrences of relations like Smart's kicks, Brentano's rode, and Wittgenstein's hangs, existentially-loaded. For example, that Bellerophon rode Pegasus does not entail that Pegasus existed.

[3] Smart's suggested arithmetic model, with "the set of prime numbers as the set of actual individuals, and the set of squares of prime numbers as the set of nonentities", is inadequate. For Meinong rightly held that there are more nonentities than entities. Furthermore no arithmetical model is going to be adequate to model all nonentities (even if it can, by a generalised Skolem–Lowenheim theorem, serve to model all usual formal language discourse concerning such objects). For there are more than denumerably many nonentities. If the real numbers themselves won't show this, consider what corresponds, all Wisdomian abracadabras [Wisdom 1952, p. 184 —*Eds.*]. Such a beast, which lives for an infinite time, has on its

Smart had realised on p. 345). This does not entail that they deny that numbers can be less than one another, for example: they simply deny Smart's claim (p. 349) that for x to be less than number y, y must exist. In the end Smart frankly admits that he can't understand "... an interpretation or a model which contains among its elements nonentities themselves" (p. 348). He wants to say that "nonentities would have to exist in order to be constituents of the model" (p. 348). Why? There is nothing unintelligible about sets of nonentities, which is pretty well all the modelling requires. Isn't it clear that the set $e = \{\text{Pegasus, Chiron}\}$ has two elements and so it is not null, i.e. $e \neq \{\ \}$, that e is a proper subset of the class of mythological objects, and so forth? That $e \cup \{\text{the Chimaera}\} = \{\text{Pegasus, Chiron, the Chimaera}\}$, etc.? All this is easily accommodated in the New Math, and could be taught at primary school along with elementary physics dealing with frictionless surfaces, perfectly smooth balls, etc. Such nonentities *do* have important explanatory roles, both in semantics and in applied sciences.[1]

The sort of way in which nonentities can be explanatory will be familiar to anyone who has carefully studies the kinetic theory of gases or black body radiation or who has worked through applied mathematics problems which use models which substantially simplify from the complexities of problems set in the actual world in order to render the problems mathematically tractable. Though familiar, what happens in the final stages of such approximations, when quantitative properties are transferred from nonentities to the real world entities they represent, has of course not been satisfactorily described by classical accounts of explanation. But the important point for our purposes is that such explanations, of the quantitative behaviour of entities in terms of comparable behaviour of nonentities, can occur (even on classical perceptions) because the explanation relation is intensional, and so can relate nonentities to entities. That explanation is intensional can be seen even from rudimentary accounts such as the covering-law theory where a basic relation is an intensional one, namely that of deducibility.[2]

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forehead a space which always shows a digit (from $0, \ldots 9$) and these digits keep changing. By Cantor's diagonal argument, the number of Wisdomian abracadabras is non-denumerable.

[1] Smart wants to deny this; thus, p. 349: "Nonentities can't be *explanatory* in the way in which entities can".

[2] Fuller accounts of explanation and approximations are central to the noneist philosophy of science sketched in chapter 11. The intensionality of explanation is fundamental in explaining how theoretical sciences, which are primarily investigations of certain sorts of nonexistent objects, can account for what actually happens.

§4. Theoretical science without ontological commitments

But science and mathematics *need* a great many entities, entities such as numbers and Newtonian particles whose existence the Meinongian now appears to be denying. The objection embodies yet another version of the Ontological Assumption: that what the true statements of science and mathematics are about must exist. There is no other "need" than that of retaining this eminently rejectable assumption – the rejection of which brings much philosophical relief, since ideal objects present a serious problem for the (realist) philosopher of science. Without the assumption the obvious can be said: namely that such ideal objects do not exist but they can nevertheless fulfil an explanatory role. It is the same with the perfect objects of mathematics, whether science "needs" them or not. Likewise avoided is that anomalous position of empiricists such as Quine who, wishing to minimize their ontological commitments, say that the only sort of reputable mathematics, that we need to believe in, is that required by science.[1] Much of modern mathematics, most of intensional and intuitionistic mathematics, some even of classical mathematics, is bound to be "removed with the rubbish" under Quine's only-what-science-needs test for mathematical decency or respectability.[2] There are some rather obvious difficulties about this new suggestion. Finding out what is needed or essential in complex mathematical arguments is not a straightforward matter or even effectively determinable. Minimisation of assumptions is a very tricky business. Suppose, for example, that the postulates for analysis can be significantly weakened as far as the proof of every result used in physics is concerned. (Take all principles *used* in physics and Craig-axiomatise: the result could well be a weaker theory than classical analysis.) Then in adopting full classical analysis the logician is adopting what is false, since it has false, i.e. physically-unrequired, parts. Truth of the end result will not be affected of course since a route to truth may well circuit through falsehood.

> It would be shocking to say that mathematics is false because mathematics, unlike fiction, is an essential part of science (p. 346).

[1] It may be extensionalists also realised that there can be, and increasingly will be, intensional mathematics, discourse in the former heartland not conforming to extensional standards of intelligibility.

[2] Intuitionistic analysis, for instance, is not used in science; so it presumably gets removed with the rubbish. How much, one wonders, of Quine's *Mathematical Logic* and *Set Theory and Its Logic* escape removal?

It is not difficult to see exactly how much of this claim to agree to: If A is essential for B and B is true, then A is true. Thus the parts of mathematics that are essential for the true parts of science are true. On Smart's view, false parts of science, the wealth of mistaken theories, are not really part of science. And as far as the rest of *mathematics* is concerned it might just as well, from this perspective, be false. And that may be most of mathematics – how much is uncertain, nor can we generally be certain that we are not working, in doing applied mathematics, with what is false. But what we can be confident of is that some parts of mathematics (e.g. the algebras of certain relevant logics or other esoteric algebras) are never used essentially in true science. So some of mathematics is false. But if some of mathematics is false then mathematics as a whole is false. It *is* shocking, but it emerges from the Quine–Smart view:

> We should, following Quine, believe in [just] as many objects as are needed for scientific explanation, including the ones which are postulated by that much of mathematics needed for science (p. 349).

"Believe in" means here "believe to exist", and we should believe to exist what true mathematical and scientific statements are about. Nothing else exists, so statements purporting to be about such are (unless analysed) false; and this includes statements of parts of mathematics not essentially used in science. Mathematics is, in (large) part, mythematics, and many mathematicians should be in the Department of Myth which is what the Department of Math becomes on Quinean perceptions (cf. Quine on Math as myth; FLP, p. 18).

The Quine–Smart dictum and its shocking consequences are easily avoided on a noneist theory. For the dictum takes it for granted that what objects occur essentially in genuine explanations of scientific truths exist. This assumption is, again, but an extended application of the Ontological Assumption, and likewise false. Ideal objects which do not exist may very well figure in rather satisfactory explanations of scientific truths. So may neutral mathematics which carries no commitment to the existence of mathematical universals. In a similar way the shocking consequence of bringing mathematics as a whole out as false is readily avoided: it is almost[1] enough to say that mathematics has been mistakenly formalised classically, notably in terms of existentially-loaded quantifiers.

[1] Really a more complicated story needs to be told: for a beginning on this see chapter 11.

§5. The metalogical trap, and who gets trapped

Can a Meinongian be trapped into using a classical meta$^{(n)}$-language somewhere up the language hierarchy (Smart hopes so, p. 349)? The short answer is, No – unless the Meinongian is stupid and makes mistakes. A longer answer is bound to distinguish sorts of Meinongians, in particular consistent Meinongians from paraconsistent Meinongians. A consistent Meinongian can include all classical theory within his theory, a paraconsistent Meinongian cannot (cf. RLR). A consistent Meinongian need never restrict himself to a classical meta$^{(n)}$-language, for he can always include such a language in a wider framework with more comprehensive quantifiers: if he found a need to say something classical, he could say it in his own language using existentially (and identity) restricted quantifiers. A paraconsistent Meinongian may appear to be in more trouble, since he cannot accept all classical reasoning, and yet may appear to need it, or to illegitimately use it, at certain points in his arguments. He can, however, typically escape criticism of this sort by claiming that he is relying at such steps on an over-arching consistency assumption, which is classically presupposed anyway (see RLR, 3.3). A paraconsistent Meinongian will of course aim to dispense with the usual object language/meta-language distinction, and certainly with hierarchies of languages: a simple inclusion and overlap picture is used instead, and some languages, e.g. English, will furnish their own metalanguages.

These points begin to bring it out that what is going to cause trouble for Meinongians is not language at all, but logical issues such as classes of arguments admitted under given conditions. Meinongians are indeed at a considerable advantage with respect to classical theorists because they can take over, without all the problems that arise for classical theorists, much of English as their ultimate metalanguage: the nonclassical quantifiers of English are no problem, but an asset.

Smart's trap, it thus turns out, is really a trap for the classical logician. For insofar as *he* uses English or some other natural language in his meta$^{(n)}$-language he may well be exceeding classical resources. An example is Smart's projected treatment of fiction in terms of pretence (p. 346): for "it is pretended that" is an iterable and quantifiable-into highly intensional functor whose proper semantical analysis lies, like that of belief, beyond classical resources.

The many serious difficulties would be more apparent had classical logicians made some proper attempt to explicate some of the notions they have tried to hide away unana-

lysed in the classical metalogical attic; e.g. the business of accounting for the occurrence of iterated intensional functors such as those of entailment and probability, and of quantification binding variables covered by such functors (these problems for classical theory are considered in some detail in the final section of Routley 1974a).

§6. Alleged grounds for preferring a classical theory

Unlike many critics of Meinongian enterprises, Smart admits that there is no decisive criterion for choosing the sort of theory he champions over a Meinongian theory,[1] but at the same time he claims preference for his own theory, first, on the basis of the restriction of any philosophically satisfactory semantics to relations like *kicking* (pp. 348-9) and, second, because his theory involves hard work and honest toil as opposed to Meinongian theft, i.e. obtaining solutions to problems too easily (e.g. p. 345). The first ground fails to provide a theory-independent ground for choosing between the theories, that is, a criterion which both parties could accept in principle, since a Meinongian would not accept that such existentially-loaded extensional relations as $kicking^{\mathrm{E}}$ are satisfactory paradigms for basic semantical relations, and would in fact regard unloaded intensional relations as *thinking* and *being thought about* as in no way inferior and not in need of reduction. In short, the use of such a criterion is question-begging from a Meinongian point of view. Nor can the choice be made in favour of the existential-extensional-relations-only position on the basis of simplicity and economy, since while it may be true that such a position puts less in, it also correspondingly gets less out. So economising on ingredients gives an inferior outcome with much less scope of application in the formalisation of discourse. Compare a one-powdered-egg cake with the much richer result of beating up a three-fresh-egg cake: choice is hardly to be made in terms of simplicity and economy where results are so different (cf. the more detailed argument of Brady and Routley 1973).

The second ground – acclaimed honest toil – amounts to preferring a theory which has difficulty accounting for some of the data in a straightforward fashion, and which must rely on reinterpreting it or recasting it in a way at variance with its apparent content (and even truth), to one which can provide a straightforward account without distortion

[1] The concession is by no means as generous as it may at first appear. For Smart sees Meinongianism as wrong but irrefutable in the same sort of way as dualism and libertarianism. For Smart's conception of philosophy as depending in part on merely plausible considerations, because of the (alleged) inconclusiveness of philosophical argument, see Smart 1963, e.g. p. 13.

of such basic data as that it is possible to make a variety of true statements which are ostensibly about items which do not exist. It is certainly true that the more devious theory may involve more hard work, but that hardly shows its superiority, any more than the fact that it is hard work to try to make something with inferior and badly maintained tools (e.g. a hopelessly blunt saw) shows that this is a superior way of going about making something to using appropriate and well-maintained tools which produce a better result with more ease.

In fact the preference for the more "hard-working" approach in such a case is not only perverse, but involves methodological unsoundness. Suppose for example that we consider two theories about the movement of physical bodies. One succeeds in explaining the data about the movement of such bodies people ostensibly observe in a straightforward way, the other fails for a certain class of such data, predicting that bodies in certain circumstances will fall down when in fact they appear to observers to move upwards. The second theory however adopts stratagems for discounting such apparent observations, introducing a further complicating secondary theory which explains such apparent observations as illusions, or in the way perhaps that the Ptolemaic theory of planetary motion attempted to explain deviation from the predicted circular motions of the planets by introducing epicycles. The latter theory of course would be harder work, but there are surely good methodological grounds for preferring the more *straightforward* theory, which can easily account for the apparent data in a simple way without having to resort to measures for explaining it away or denying that people see what they think they see. In the same vein modern empiricist theories, such as the Quine–Russell theory and its variants, try to persuade people that much basic data about what they ostensibly *say*, and say truly, about the intensional or non-existent should be ignored or discounted as "obscure" or "unclear", as don't-cares or can't-be-bothereds, or else seen as some kind of pathetic pre-analytic illusion, for example as "systematically misleading expressions", and recast in a rather non-obvious way which fits the theory but not the facts. There are good methodological reasons then for preferring a direct analysis of statements apparently about nonentities, given that such analyses are in other respects adequate.

There is then "no disturbing impasse here which needs to be resolved" (p. 350). There is a clear choice between the different types of theories. The choice is made, once the data is determined, primarily in terms of adequacy to account straightforwardly for the data; and the rival empiricist theories are simply inadequate to cope with this data.

Their inability to do so provides independent methodological grounds for preferring a Meinongian theory to every one of them (whether of the Russell, Quine, Davidson or whatever, variety).

It is helpful in sketching out this case to distinguish between hard and soft data (cf. Parsons 1975). Hard (or determinate) data must be accounted for by any theory accounted adequate and is independent of theory,[1] while soft (or less determinate) data is not independent of theory, will be construed in different ways by different theories. Differences on soft data do not count against a theory or provide grounds for conclusively rejecting one in favour of the other. Failure to account adequately for the hard data though does provide conclusive reasons for rejecting a theory, or for preferring one which accounts better. (The strategy of Feyerabendian relativism of course is to try and represent all data concerning a theory as if it were soft or theory-relative – the argument for this almost invariably being the resoundingly invalid one that *some* of it is soft. The examples offered only tell against a rigid empiricism according to which all data is hard. But it is not an all-or-nothing matter: some data is hard and some is not.)

Logical theories are not exempt from having to measure up to hard data standards, and the sort of data which adequate theories must be able to take account of is usually provided by the statements which can be made in natural language with a certain truth value, meaning, point and force, and so on. At least some such data is hard (e.g. that it is sometimes true to say "I am thinking about Pegasus") even if there are other, perhaps quite extensive areas, which need not be invariant under analysis. The hard data includes not merely statements, of various types with determined truth values, but the admissibility of various operations, such as the extraction of subjects, passive transformation of sentences, etc. A logical or semantical theory which does not do justice to the hard data provided by natural language, which brings out statements which ought to be true as false, or which destroys or changes their meaning, point, or force in a significant way, is just as inadequate as a physical theory which cannot account for observable facts about the world, which implies that a body will move up when it moves down. Of course just as in other areas, a popular ploy used by those who wish to retain a theory which looks like foundering on the rocks of hard data, is to attempt to represent the particular hard data in question as soft, or perhaps to suggest that there is no distinction anywhere between the hard and soft, or in some other way to persuade us that we should ignore, overlook

[1] Hard data is a constraint on optimisation in choice of best theory (cf. RLR, chapter 15).

or discount such inconvenient facts. These theory-saving tricks are as prevalent in logical and semantical theory as in other areas.

Thus it is not just that any theory which depends upon construing statements ostensibly about nonentities in a devious and indirect fashion as being about something other than what they appear to be about, e.g. as about everything which exists, must be regarded as inferior on methodological grounds, or because it is unnecessarily complicated and indirect; it is also that no such theory can provide an adequate account of an important class of statements whose truth and point is a matter of hard data. Consider statements of the form "*a* does not exist *but* I ϕ *it* (him, her)" where ϕ is an intensional relation, perhaps a propositional attitude or a perceptual relation, e.g. "Pegasus does not exist but I can think (am thinking) about him". It seems a matter of hard fact that such statements are sometimes true, and that the whole point of the contrasts such statements make depends upon attributing two contrasting properties to one and the same item, Pegasus. That the point of the statement is to contrast two properties of the one item is indicated by the use of the word "but" in English, and that these contrasted properties are seen as applying to the one item, is indicated by the use of the agreeing pronoun, "him". But this means that no theory which relies on either an indirect construal of the first nonexistence claim (so that Pegasus is no longer the subject) or upon preventing analysis of the second intensional statement so that it attributes a property to Pegasus, (or both, as indirect theories usually now do) can possibly be adequate to capture the meaning and point of this type of statement. Accordingly no such indirect analysis can be adequate for the class of hard facts as presented in natural language statements.

Indirect analyses in fact face a dilemma over such statements, for a standard Russellian analysis applies existential and extensional analysis inside the intensional context, leading to such obvious misconstruals of our statement as "Everything which exists is not Pegasus but I can think that it is not the case that every thing which exists is not Pegasus (i.e. that Pegasus exists)", which is not even adequate to preserve truth. The currently popular Quinean and (slightly more liberal) Davidsonian alternative to this, that of refusing to allow analysis inside the intensional contexts, is perhaps able to maintain the truth of such claims, but at the expense of destroying the point and force of such statements through treating the second part of the statement "I am thinking about Pegasus" as an unanalysable whole having no connection whatever with the first part. Such a "solution", moreover, creates difficulties even for claims concerning entities, as, for example, in "The

girl was crossing the road but the driver failed to notice her". When analysis inside intensional contexts is blocked and extraction of intensionally located subjects is refused, much of the point of such statements is lost, and any prospect of such statements[1] fulfilling their normal roles is sacrificed. How could such an unanalysable intensional statement, in which not only the contrast but the *connection* between the two parts is lost, fill any sort of explanatory role? How for example could it explain why the driver ran over the girl? It might just as well be "The girl was crossing the road and the driver thought it was a nice day". Many important features of intensional discourse disappear on the no-analysis view. If no analysis, then no connection: the connection comes from having the *same subject* in both parts. No connection, no contrast, no causal link – all these defects are due to referential inability to treat the subject of an intensional statement as what it appears to be and to apply logical analysis within the intensional context. To suggest that such an analysis-blocking approach is adequate for ordinary discourse is like claiming that an adequate inventory of the world can be made from photographs taken from many miles up; the results may be useful for limited purposes, but they can give no idea of the real nature of much of the world and its contents, of the richness, variety and importance of its less grossly obvious features.

At the same time a series of bogus philosophical problems is generated by indirect theories which translate out or refuse access to the objects of intensional discourse, i.e. which treat the ordinarily apparent subjects as not subjects at all, e.g. the so-called "problems" of quantifying in, of opaque contexts, of mass terms, and in a slightly different setting, of transworld identity. Most of the problems are only problems for particular theories; they are not problems at all outside the confines of the theory, e.g. in the case in hand, a referential theory. The "problems" cease to be problems on alternative theories which admit direct analysis such as Meinongian theories.

In summary, theories that rely on such indirect analysis of ordinary intensional discourse must either provide the wrong truth values or else destroy the point and meaning of the statement through refusing a logical analysis which it is essential to make. Either way such an approach runs up against hard data, for the fact that "Pegasus does not exist but I can think about him" can be true, and that it derives its point from attributing two contrasting properties to a single item, seems a completely firm piece of data.

[1] As we have already seen in some cases, e.g. quantification and opacity.

Both the indirect analysis of non-existence claims and the associated method of disallowing analysis within intensional contexts rely upon setting aside or refusing consideration of a large and important class of hard data statements. The theories are essentially inadequate outside a very limited range of extensional existentially-committed contexts, and are inadequate to provide for the logical treatment of a very large part of natural language. Unless supplemented they lead to a vast impoverishment of expression.

Instead of recognising the limitations of such theories, however, adherents attempt to write off that class of statements or facts with which the theory cannot cope or for which it brings out the wrong results – in effect employing the theory itself as a criterion of what is "admissible" or can "rationally" be said, or of what really counts as worth bothering about. This is a prime piece of theory saving, and amounts to placing the maintenance of empiricist dogmas (for example that all relations should be like "kicks^{E}") ahead of the hard data presented by what can truly and pointfully be said in natural language. Such illiberal empiricist theories, which typically congratulate themselves on the scientific nature, economy and hard-headedness of their approach, in fact turn out then to rely on the worst sort of methodological hocus pocus, on theory saving, on ignoring inconvenient bodies of hard data, on introducing subsidiary complicating theories (new epicycles), which attempt to account in an unsatisfactory way for a small part of the mass of unaccounted-for data – data which the allegedly unscientific rivals, such as Meinongian theories, can accommodate with comparative ease.

There are, in short, weighty reasons, both data-based and methodological, for favouring direct Meinongian analyses over classical empiricist alternatives.

§7. The importance of the nonexistent in accounting for the existent

The reasons for adopting a theory of objects include not only its ability to account for the hard data concerning statements about nonentities, but also the fact that such a theory makes it possible to avoid various problems concerning the actual world and about entities, and to give a more sensible and commonsense account of the actual world. For what one says about the nonexistent affects in crucial ways what one says about the actual world: they are not independent. The classical war against nonentities is not just a defensive action against the ghostly armies of the nonexistent which leaves what is said about the actual world otherwise untouched: the defensive action has a way, as

defensive actions do, of carrying over into and affecting, in quite drastic ways, life within the fort. There are several areas where the carry over is important, e.g. the theory of universals, epistemology, value theory. A corollary of this is that logical issues are not merely esoteric haggling but have important repercussions on the rest of philosophy, on metaphysics and epistemology for instance, as the examples to be sketched will show.

Thus the claim, made for instance by Parsons (Parsons 1975, p. 73), that there is no difference between a Meinongian theory and its rivals as regards existents, that differences only emerge concerning what does not exist, is seriously mistaken. Indeed Parsons thereby gives away one of the *main* reasons for adopting a Meinongian theory – which is not merely the vastly more satisfactory account of intensional phenomena it allows – but that it enables a much more satisfactory account of the actual world, of what exists and is known to exist. There are two important sources of differences between what the rival theories say, and can allow for, concerning the actual world.

Firstly, because he is not forced by the Ontological Assumption to say that certain items he talks or thinks about exist, the Meinongian can, and typically does, operate with a much sparer and more economically populated universe of existents than rival theorists. Despite all the jokes about overpopulated, teeming universes, ontological slums, metaphysical extravagance, and so on, a genuine Meinongian is in fact very much more economical with respect to what really matters – existence assumptions. Thus he is not obliged – just because he wants to retain, among many other things, the small part ordinary discourse an empiricist would consider respectable, such as some mathematics – to say that such items as sets and functions (and perhaps properties) and so forth exist in some mysterious platonic fashion. Unless essential areas such as mathematics and much of science are given away entirely, theories operating with the Ontological Assumption are always forced into some greater or lesser degree of platonism. The Meinongian is often (quite mistakenly) accused of holding a "metaphysical" doctrine which involves strange objects, mysteriously existing or subsisting. But in fact *what the platonist is forced to say exists in order to retain even doubtfully adequate shreds of true discourse involves him in an ontology far more mysterious than that of the Meinongian.* The Meinongian, on the other hand, can obtain all of these things and more with a commonsense ontology in which what exists are particulars which have concrete existence in space and time, essentially, that is, he can take account of more but assume less. He gets more miles (of

true discourse) to the gallon (of existence assumptions) and as well avoids the mysteries of platonic existence.

Secondly, there is an important difference between the rival theories which is usually missed. There is a spillover from the theoretical treatment of nonentities into what one says about entities because the theories give different treatments of the intensional, and intensionality is something which applies to what exists as well as what does not exist. Intensionality is an – perhaps *the* – important bridge which connects what is said about the nonexistent with what is said about the existent. For the intensional can relate the existent and the nonexistent: the objects of true intensional relations need not exist. The treatment of nonentities has a crucial bearing on the treatment of intensionality, and the treatment of intensionality in turn has a considerable bearing on what is said about the actual world, about what is observed, believed, valued, and so forth.

In fact the treatment of intensionality is critical to many philosophical positions in epistemology. Observation, perception, imagination, and so on, are all intensional relations, i.e. these relations all require for their semantic evaluation world shift. Thus certain sorts of ways of treating intensionality which are forced on philosophers by what they say about the nonexistent will also rule out certain sorts of ways of treating intensional relations such as observation. The traditional problems of epistemology – problems which, significantly, have been seen as of central importance in philosophy only since the rise to dominance of empiricism and associated logical extensionalism – are created by the failure to appreciate the intensional inexistential character of perception or to treat its intensionality properly. Often they are the product of attempts to *extensionalise* perception relations, of treating perception relations as if they were like paradigm extensional relations such as "kicks". The traditional "problem cases" appear when the intensionality of the relation cannot be ignored. Thus the problems of illusions and hallucinations (i.e. cases where the perceived item does not exist), and of the incompleteness and selectivity of observation (cases where the relation is referentially opaque) are cases where the intensionality of perception relations is clearly manifested.

The proof of these claims lies in the detailed demonstration in at least certain crucial cases. In what follows the critical cases of universals and of perception are treated in considerable detail, and subsequently various other cases, drawn for instance from the

philosophy of mind and value theory, are considered but in lesser detail, since leading features of the treatment transfer from the critical cases.

§8. Illustration 1: Universals. Nonexistence and the general universal problem

The rejection of the Ontological Assumption, and the further step of allowing nonentities some determinate properties, makes it possible for the theory of items to avoid all the standard positions and difficulties on universals. For the standard positions on universals arise from the implicit acceptance of the Reference Theory, the Ontological Assumption particularly (as Reid pointed out long ago; Reid 1895, p. 375[1]): without the Assumption there is not nearly so much to explain.

The problem of universals is usually taken to concern the existence or nonexistence of abstractions, such as attributes, about which true statements can be made, or which have a place in some theory. But the *same problem – the general universals problem – arises whenever true statements are made* or appear to be made *about any item*, abstract or not, *which does not exist or whose existence is doubtful* or sometimes doubted, e.g. the self, substance, external objects of perception, other minds, future happenings, etc. – in short, wherever philosophical scepticism can arise. Not only do the same problems arise, but the same positions – paralleling the triad, nominalism, realism or platonism, and conceptualism or subjectivism – emerge in an attempt to meet the problem.

Which positions emerge depends primarily – for positions that rely upon reductive analysis, as do all usual positions except the most hardline – on what surrogate entities the analysis attempts to reduce problematic objects to. Thus, for instance, if the entities are words the resulting position is a nominalism, if concepts or meanings a conceptualism, if subjective ideas a subjectivism. As a first example consider analyses of natural numbers: according to nominalisms these are (really) numerals or nominalistic constructions (such as fusions) of these, according to conceptualisms concepts, according to subjectivisms (or intuitionisms) mental ideas or mental constructions. Since the question of statements about numbers turns out to be but a special case of the general issue of statements about properties and their analysis, a second example is provided by the nominalistic and other analyses of properties. A third example is the attempt to analyse intensional sentences; these demand analysis because, among other things, so

[1] Reid's position is further considered in 12.1.

many of them ascribe (intensional) properties to items which do not exist. Nominalistic analyses typically attempt to analyse intensional sentences in terms of quotation; thus several analyses already rejected, e.g. Carnap's analysis of belief sentences, Quine's analysis of certain modal sentences, and still fashionable analyses of intensionality in terms of metalinguistic translation. Why nominalists prefer quotational analyses, when they can get away with them, is simply explained: according to them the only things there are are individuals, and, as a special case of these, words. Everything then is either a word or an object (= extralinguistic entity): that's all there is (= exists). Since statements ascribing intensional properties are often not about extralinguistic entities, they must be about words. As a final example, consider analyses of temporal discourse, in particular of sentences about past and future items. Platonists, encouraged by relativity physics, boldly assert that past and future items all do exist. But according to more cautious subjectivists, of whom Augustine is a good representative, statements about past items should be analysed in terms of memory statements and statements about future items in terms of expectations; and the relevant memories and expectations of course exist now. Direct nominalistic analyses according to which a statement about Aristotle is really about the name "Aristotle" are patently implausible; instead nominalists usually insist that "Aristotle" is really a disguised descriptive phrase ("the man who ...") and that true statements about past and future items should be analysed using Russell's theory of descriptions (or the like), whereupon the recalcitrant names of past and future items disappear into secondary occurrences of descriptions. Whatever the example, the following methodologically unsound practice is to be observed:– Wherever such reductive analyses patently cannot be performed or are just too implausible, there is an attempt to dismiss sentences whose truth we are supposed to explain, to write off these sentences as meaningless, in some way unintelligible, etc., and anyway as not needed (e.g. Quine advocates just such a write-off of many intensional sentences, in his "Flight from Intensionality" of WO).

The general universals problem arises from the fact that if the Ontological Assumption is accepted as a criterion of what we can legitimately say, what we can legitimately talk about appears to be much *less* than what we seem to be able to say and what we need for many purposes to say. If it is true that no statements about nonentities are true, then a great many important theories would be false or doubtful. The correctness of mathematics would be as doubtful as the existence of the numbers and other objects

it treats. The standard positions are attempts to close the gap between the Ontological Assumption and the obvious facts. Faced with the gap between the facts of discourse and the Ontological Assumption, the standard positions are, like the blind man and the elephant, each seizing on some aspect of the facts and emphasizing it at the expense of the others. (They have been blinded by the Ontological Assumption.)

Thus the nominalist chooses to regard the existence of certain items (characteristically individuals), and the nonexistence of others (invariably abstract objects) as the hardest fact, and is not prepared to compromise on the nonexistence of such objects as abstractions, even if this means abandoning discourse in which they appear. But the nominalist is also prepared to accept the Ontological Assumption as a criterion of what can truly be said, and resigns himself to dispensing with the superfluous discourse and theories. The nominalist argument is: only items of sort α exist, but the Ontological Assumption is correct; therefore only items of sort α can really figure in true statements.[1] All the rest it is our duty to renounce.

This is a hard position, and hard to maintain. The nominalist therefore looks for a way to soften it which will not infringe his principles. He will not admit any enlargement of the class of items said to exist; the only way any of the renounced statements can be readmitted is by reducing such statements to statements about items already in the

[1] Nominalist sects differ as to the constitution of sort α. Historically important sects are materialisms, according to which only material things exist (thus Hobbes), and idealisms and subjectivisms, according to which, in pure form, the only things that (really) exist are ideas or are mental (thus Berkeley). Recently nominalism has taken some different turns; in particular, Goodman (e.g. in 1977 and in PB) has attempted to redefine nominalism in terms of the recognition of individuals as the only things that exist, where an *individual* is anything (one likes, including even abstractions and spirits, providing they are construed as individuals) that satisfies certain logical conditions furnished by the calculus of individuals, most notably a strong extensionality requirement which abstract classes do not satisfy. But if particulars such as communities, forests and ecosystems exist the strong extensionality requirement, like other stringent requirements on individuals, appears too strong. Elsewhere Goodman characterises nominalism as "a refusal to recognise classes," which is too narrow and would make Armstrong 1978 and perhaps Russell (of 1908) nominalists; but he seems prepared to expand this to "a refusal to recognise abstractions", which is nearer the mark. For if to recognise is to acknowledge or claim the existence of (one, just one, of the ordinary senses of the tricky verb "recognise") and if individuals (or, apparently, particulars) are what contrast with abstractions, then we are back with nominalism as the position which acknowledges the existence only of individuals (or particulars), If, however, "recognise" means "acknowledge the validity or genuineness of" (part of the OED sense) we are not back at all with the Ontological Assumption. But of course Goodman, like other nominalists, takes the Ontological Assumption for granted: talk about what does not exist, about nonindividuals, is not legitimate.

Because acceptance of the Ontological Assumption is a common denominator of nominalisms and platonisms, classifications of the sects are not of much importance. For anyone who is interested in such classification, the latest in rococo structuring of the positions may be found in Armstrong 1978.

class whose existence is admitted. He will not admit abstractions, so he cannot admit a reduction to concepts or meanings. But although doubtful items do not belong to α their names do. The only systematic reduction of left-over statements that is open to the nominalist is a reduction of statements about nonentities to statements about their names. (Hence the term "nominalism" and the characterisation of nominalism as the doctrine that abstractions and nonentities generally are mere names.) In modern terms the nominalistic reduction becomes a metalinguistic one; to be acceptable, non-referential statements must be analysed as referential statements in the object language, or, failing this, as referential statements in the metalanguage. At each level we stay within the framework of the Reference Theory.

If the nominalist regards what exists as settled and takes the Ontological Assumption as a criterion of what can truly be said, the platonist takes what can truly be said as settled and applies the Ontological Assumption as a criterion of existence. We do make true statements about abstractions, and perhaps about individuals such as Pegasus and the round square; since the Ontological Assumption is correct, they must therefore exist. The obvious subjects in such discourse are the correct and proper subjects, and they cannot be analysed away. The platonist gives priority to the fact of discourse about nonentities, and is prepared to manipulate the concept of existence and expand the class of existing items to maintain such discourse.

This hard-line platonism resists reanalysis of problematic statements; according to it they are really about what they seem to be about. But as in the case of nominalism, the hard position is worn away into various compromise positions.

There are two basic ways of modifying this extreme platonistic position. Because in the ordinary sense of "exist" in which furniture and horses exist, abstractions and fictions do not, the platonist usually seeks to make this position more plausible by insisting that such doubtful items do exist, but in a different sense. Thus numbers have "mathematical existence," fictions "fictional existence," etc.: generally, the objects of any theory ϕ that truly attribute properties to the object whose existence is in the ordinary sense at best doubtful, have ϕ-existence. This doctrine of levels of existence has already been attacked, in chapter 4 [Vol. 2 *—Eds.*] and elsewhere. What is relevant at this point, is that, by so expanding the senses of the word "exist", that no item fails to exist "in some sense", the Ontological Assumption is made to exclude no discourse. This is therefore a dishonest

attempt to evade some of the ill-effects of the Ontological Assumption while maintaining the appearance of conforming to it, and taking advantage of some of the information existence supplies. This platonist no longer treats the Ontological Assumption in full seriousness, but lacks the courage to declare it false.

The second way of softening the hard platonistic position is to attempt to reduce the number of items claimed to exist by reducing statements about some sorts of items to statements about other sorts of items. In this way the number of doubtful items claimed to exist might, it has seemed, be reduced to just a few sorts, e.g. concepts or attributes, or for those not prepared to accept intensional notions, classes. At this point the position differs from the nominalistic position only, but fundamentally, in admitting certain classes of abstract items that are said to exist. This platonism typically requires at most two senses of "exist," individual existence and abstract existence, but it incurs all the difficulties associated with a reduction. The form of this qualified platonism which aims at a reduction to concepts is sometimes called *conceptualism*. In fact platonism fragments under softening into various positions according to which sorts of abstract objects are taken to exist. All these compromise positions are however like the extreme positions in accepting the Ontological Assumption, and, what is characteristic of platonism, the assumption that some abstract objects exist, of course remains.

A further variant on platonism, commonly not included in the typology of positions but widespread, attempts to have the best of each of these positions by combining the Ontological Assumption, as a criterion of existence, with a pragmatic theory of truth. The fruitfulness or convenience of discourse or the goodness of a theory, becomes the test of existence. This position, *opportunism*, includes *Occamism*. According to *Occam's Razor*, entities should not be multiplied beyond necessity i.e. one should be prepared to tailor one's claims about what exists to one's needs. Occam's Razor counsels a restrained opportunism. Opportunism, like the other positions, accepts the Ontological Assumption.[1]

[1] Given the Assumption the classification of positions projected exhausts the possibilities. For given that items must exist for true ascriptions of features to be made to them, we must say, of apparently true ascriptions of features to nonentities, that either the items do exist somehow (the problematic is unproblematic after all), or that the sentences are really about different admissible entities (the problematic reduces to the unproblematic), or that the statements are not true at all (the problematic is beyond redemption). The genuine opportunist will try to play all these lines as suits his case, a strategy which naturally makes his position rather more difficult to refute. The same classification of positions applies also to the general universals problem. It is precisely the triadic classification of positions into transcendental, reductive, and sceptical that Wisdom has considered in detail in the case of many characteristically philosophical problems (see Wisdom 1952 and Wisdom 1953; also SMM, p. 191).

But it exhibits a conflicting attitude towards existence; for by accepting the Ontological Assumption it concedes that existence is a serious matter for what can be said; but by treating existence claims as capable of being settled on pragmatic grounds, e.g. of expediency or what is good for business, it reveals that it does not really take existence seriously at all. This conflict typifies positions which attempt to keep the Ontological Assumption and mitigate its effects.

Philosophical analysis is the main method of attempting to mitigate the damaging effects. The nominalist often hopes, by reduction or analysis of problematic statements (apparently) about universals to unproblematic statements (about, e.g. particulars), to increase the scope of what he can truly say; while the platonist hopes, by similar analyses, to limit the scope of what he has to say somehow exists. In each case replacement is the objective: the aim is to provide another set of *entities* which the problematic statements are said to be "really" about. In the same vein the sentences for which an analysis is demanded are said to be misleading as to logical form (because they do not match up with the philosophical theory combined with the Ontological Assumption). The analysis is supposed to show, when the resulting *logical* subjects of the analysing sentences are considered, that the sentences really are about entities after all. Much of modern philosophy is based on the hunt for the entities various troublesome sentences are (supposed to be) really about and for the associated logical analyses. Once again it is argued that we must supply existent (transparent) items to which reference is made, to explain the truth of the statements in question.

Once we have got rid of the Ontological Assumption, however, of the idea that what we can talk about correctly coincides with what exists, there is once again no need to try to locate such entities and such analyses. It is not unfair to comment that promising analyses are not so often found, and that, almost invariably, those that are found succeed only for limited classes of cases (e.g. provided various classes of statements are excluded, and provided replacement in highly intensional contexts is not demanded.)

It is all too commonly assumed that analysis is the only way of removing existence assumptions. Realists are especially prone to this error, and not surprisingly, for the assumption, like the whole apparatus of platonism, rests on the Ontological Assumption. For given that true statements are made about xs,[1] e.g. of the form "a has property x", but

[1] In the universals case it is not just that statements are made but, as Armstrong emphasizes in 1978, the apparatus of universals, especially as illustrated by type-words, is continually used even by nominal-

that xs do not exist the statements must be analysable into equivalent true statements not about xs. The assumption that analysis is compulsory underlies the whole classification and assessment of positions on universals in Armstrong 1978 (the assumption surfaces explicitly in Armstrong 1978 vol. I, pp. 17–18; but in implicit form, such as on p. 61 of vol. I, the assumption is pervasive throughout the two volumes). As it happens, there is a perfectly satisfactory analysis (up to coentailment strength) of the form Armstrong takes as problematic, namely "a has the property F", but Armstrong does not consider the analysis among his varieties of nominalist strategies (I, p. 12ff.; II, p. 1ff.). Armstrong considers properties expressed in the form "being ϕ" (rather than, e.g. $\lambda x\ x\phi$); then, by a direct analogue of a λ-conversion thesis,

> a has the property being ϕ iff a is ϕ,

e.g. a has the property being white iff a is white. The analysis avoids *all* Armstrong's objections to nominalistic analyses of the given form. Of course the analysis does not shield nominalism from Armstrong's positive arguments for platonism (especially I, p. 58ff.); for "being ϕ" may occupy a subject position, admit of quantification, etc., whereas the analysis only eliminates "being ϕ" from a certain class of sentence contexts. But the fact that property subjects, such as "being ϕ", cannot be eliminated by analysis from subject positions in true statements does not show, what Armstrong assumes (p. 61), that the properties designated exist. That is just the Ontological Assumption over again. Indeed the Pap–Jackson argument, from the uneliminable occurrence of property terms in subject positions, which Armstrong applies "to show that the truth of a certain statements demands the existence of universals" (II, p. 2), depends essentially on the Ontological Assumption.[1]

Another recent example of the analysis assumption at work occurs in Chisholm's case for an "ontology of states of affairs". Chisholm contends that:

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ists. A similar point was made long ago by Reid, both as regards universals, and as to other problematic items heaved up by the general universals problem – to which Hamilton felicitously replied (in the case of the necessity of causes: Reid 1895, p. 457):

> It is the triumph of scepticism to show that speculation and practice are irreconcilable.

[1] Armstrong in fact thinks that an analysis of such statements as "Redness is a colour" and "Red resembles orange more than it resembles blue" (the sort of statements Pap's argument relied upon) can be provided: his argument is that certain prominent sorts of nominalists cannot give any analysis of them.

> If (i) there is a sentence which seems to commit us to the existence of a certain object, (ii) we know the sentence to be true, and (iii) we can find no way of explicating or paraphrasing the sentence that will make it clear to us that the truth of the sentence is compatible with the nonexistence of such an object, then it is more reasonable to suppose that there is such an object than it is not to suppose that there is such an object (Chisholm 1976, p. 117).

Chisholm argues that there are sentences concerning states-of-affairs that satisfy conditions (i) and (ii) and for which there appear to be no paraphrases which avoid commitment "to the existence of propositions or of states of affairs". Chisholm's working conclusion, despite the hedging in (iii), is that states-of-affairs exist, not merely that it is more reasonable to suppose that they exist than not; that is, the operational conclusion is that without analysis or paraphrase, existence follows. But, as Chisholm rightly says (p. 117), it doesn't. Nor does the hedged claim. Moreover Chisholm's argument that sentences concerning abstract states-of-affairs satisfy conditions (i) and (ii) depends essentially on the Ontological Assumption. The argument is, in outline, that true statements of intensional attitudes may have a common object, a state-of-affairs; only the Ontological Assumption lifts the object to existence.

The distortions of all the usual positions on universals are forced upon them by their unquestioning acceptance of the Ontological Assumption. It is only the Ontological Assumption that forces us to choose in this way between taking a sensible position on what exists (as the nominalist may), *or else* (like the platonist) taking a sensible position on what we can talk about, and what can appear in a theory, *but not both*. Once the Ontological Assumption is abandoned, we can recognise that something does not exist without denying ourselves the privilege of making true statements about it. Hence the traditional problem of universals fails to arise for the theory of items. The position of the theory of items on universals differs from all the traditional positions but has points of resemblance with both platonism and with nominalism. Like platonism, the theory of items recognises the importance of statements about apparent nonentities, and recognises that they cannot simply be dismissed or ignored. But like nominalism the theory of items is unprepared to explain these facts by the platonistic technique of expanding the class of what is said to exist beyond what does exist. Like nominalism the theory of items is able to retain the ordinary sense of the word "exists"; but unlike the nominalist the noneist is

not obliged to renounce statements about abstractions and other nonentities. He is able to keep the ordinary sense of "exists" without these consequences only because existence is no longer a necessary condition for the possession of properties.

The platonists and opportunists, because of their readiness to manipulate what is said to exist, have tried to give the impression that there is no stable sense of the word "exists." The use of the Ontological Assumption as a criterion of existence encourages this belief in the instability of "exists," because different conceptions of what can legitimately be spoken about result in different conceptions of existence. But "exists" does have a stable sense, and what exists cannot be decided by preference, convenience, bargaining or alleged necessity of some sort. It has nothing whatever to do with what we are prepared to talk about. No expansion, however arbitrary, of the word "exists" makes it plausible to say that items with inconsistent properties exist, and yet they can be said to have properties, and we are prepared to make true statements about them. Nor is it plausible to claim that an item exists when some property which is decidable in principle by investigation of the item, is indeterminate of it. If an item exists its descriptions have a reference, and this reference determines completely its referential properties. Since the (actual) reference settles these matters, that there is no way, even in principle, of settling such matters is a good sign that there is no reference. If something is said to exist, it is reasonable to expect to be able to investigate it, to differentiate it from other items of the same kind, and to be able to stand in certain relations to it, relations one could not expect to have to a nonentity. If a swimming pool is claimed to exist, we can expect (in principle at least) to be able to swim in it, but we should not expect to swim in a nonexistent swimming pool. If a horse is said to exist, we can expect it to have certain specific and detailable properties such as colour, weight, age, sex, location, etc., but we can hardly have all these expectations about nonexistent horses, about the Horse or the average horse. The normal distinction between what exists and what does not is supported by certain expectations and activities; the rules that govern the use of the word "exists" in normal discourse are not Rafferty's rules. Nor is it the case that the concept of existence even in classical logic is quite as malleable as the Platonist supposes it to be. In classical logic existence is part of a whole network of interlocking concepts, and is tied down by more than just the Ontological Assumption. If an item is introduced as existing it becomes subject to all the rules for referential occurrence, not just those following from the Ontological Assumption. But if the item does not exist many of these rules break down. Because of

this, the strategy of retaining the Ontological Assumption by stretching the word "exist" so as to capture a larger class of items than do exist, necessitates important and eventually drastic changes at other points in the logical theory, e.g. the theory of intensionality.

Existence, then, both in normal discourse and in classical logic is tied down by its links with other notions such as consistency, completeness, reference, and assumptibility. But, as the platonist hastens to point out, there is nothing to prevent us using the word "exist" in any way we please. However, it is not unreasonable to require that before we adopt a usage which is misleading and liable to cause dislocation and equivocation, it should be clear that the gains from doing so at least outweigh the losses. If the Ontological Assumption is to be dropped, we gain nothing by the platonistic reformation of "exists", for we can attribute properties to such items even when they do not exist; on the other hand, we do lose a valuable distinction, and as a consequence we are forced to treat the items we have introduced as existing in a completely inappropriate fashion, i.e. by subjecting them to the rules for referential occurrence, and treating them as if they are complete. But if the purpose of the platonistic reformation of usage is, as it seems, to *save* the Ontological Assumption, this amounts to rubbing out a perfectly good distinction in order to save a faulty theory.[1]

These points make it clear once again that the platonistic and opportunistic attempts to solve the universals problem by tampering with the word "exist" represent a different resolution (and a less effective one) than that proposed by the theory of items, namely the explicit rejection of the Ontological Assumption. Nonetheless, as already observed (e.g. in 4.3 [Vol. 2 *—Eds.*]), there has been an attempt to confuse the position of the theory of items with platonism by using the Ontological Assumption as a criterion of commitment to existence, and even worse, by assuming it in the very characterisation of the options open on the universals problem.

The position of the theory of items is platonistic, according to this view, because preparedness to talk about and attribute properties to an item commits one to its existence. It is often claimed that ordinary language is platonistic on the same grounds – when the truth is that it, like the theory of items, fails to conform to the Ontological Assumption. The criterion of existential commitment assumed is however is as unsatis-

[1] All that may be saved in the end is, as we have revealed, the *appearance* of the retaining the Ontological Assumption, since the original Ontological Assumption is changed as the sense of "exist" is changed.

factory as the Ontological Assumption on which it is based. There are many attributions of properties to items which do not presuppose their existence. It is perfectly consistent to say "I am thinking about something which does not exist". Of course, it has nowhere been denied that there are certain contexts, certain ways of talking about an item, and certain properties, which *do* presuppose existence, but it is enough that there are others which do not. Neither in the sense of "exists" embodied in ordinary language, nor in the refined sense of the theory of items, does the mere attribution of properties to nonentities commit one to their existence.

The craftier move of using the Ontological Assumption in characterising positions on universals redefines a platonist as a person who is prepared to talk about ("countenance", "recognise", "accept") items which do not exist. This not only assumes the Ontological Assumption, but involves the further fallacy of assuming that everyone accepts it. Even if the Ontological Assumption were true, it would not follow that the *position* (philosophical opinion) that nonentities have properties is the same as the position that nonentities exist. For even if A is logically equivalent to B, that someone believes that A, or asserts or claims that A, does not imply that he believes, asserts or claims, that B. One might as well say that if God does not exist a theist is a person who believes that a nonexistent item exists. A similar invalid principle is involved in the characterisation of the platonistic position as one of being prepared to *talk* about nonentities. When platonism is properly characterised, the theory of items is not at all easily – and certainly not correctly – convicted of platonism.

The rejection of the standard positions on universals goes only so far: it leaves much to be done. So far the argument has taken it largely for granted that universals do not exist. This indeed appears to be the commonsense position and the uncorrupted naive position,[1] but it requires some argument. The core of the argument always concerns however criteria for existence – a matter taken up in the next chapter (9.9) where the question of the existence of universals is reassessed, and where some argument added to commonsense convictions. Nor so far has a classification of universals been considered,

[1] It is also a long-standing philosophical position, which has nevertheless been lost from the modern repertoire: cf. again the Epicureans and Reid cited on p. 2 [of Vol. 1 —*Eds.*].

The position of the early Russell (e.g. in the *Principles* 1937) which superficially looks like an ontological translation of the noneist position, is really a two-kinds-of-existence platonistic position. So too it seems (though it is difficult to be quite sure) is the neglected position of Moore (set out in the later chapters of his 1953). Meinong's position is more vexed: though it permits of a noneist reconstruction, it also lends itself to kinds-of-existence construals (see further 12.2).

nor questions of the properties and relations of universals, especially their relations to particulars.

§9. Illustration 1 continued: Neutral universal theory, and neutral resolution of the problems of transcendental and immanent theories

Universals of a variety of sorts – e.g. properties, relational properties, relations (of many adicities), classes; functions and operations – form an indispensable, and uneliminable, part of what richer discourse is about. Their indispensability for theoretical purposes, especially for classification and explanation, is acknowledged, perhaps most vociferously, by those engaged in disposing of them and who would analyse them away if they could (e.g. Bentham, Vaihinger, Quine). Their general uneliminability is shown by the unsolvability of various elimination problems, e.g. in the case of relations, by Ackermann's results (in 1934; stated in Church 1956, p. 305), and by indefinability theorems. Such results put an end to philosophers' claims that talk of universals, of one sort or another, can be paraphrased in favour of quantificational talk about particulars (at least if requisite properties such as truth values are to be preserved by the paraphrase), claims that are typically based on but a few examples (as an example, consider Ryle's discussion of universals as systematically misleading expressions in Ryle 1971).[1]

The theory of objects accordingly includes – in order to accommodate richer discourse it has no option but to include – universals among its objects. But the universals of the theory are neither transcendent nor immanent. That classification presupposes that universals exist. Were universals to exist there would be a problem, a traditional problem as to how and where they exist, in particular a problem as to whether they exist separately from particulars (transcendent positions) or not separately from particulars but "in" particulars (immanent positions). But since they do not exist, the traditional classification is falsely premissed, and offers only a false choice. A further position can be taken, a *neutral* position. With the removal of the false premiss, the main difficulties of transcendental and immanent universal theories are removed.

Consider the supposedly serious problem for transcendental theories, namely what relation holds between particulars and universals (cf. Armstrong 1978, p. 66ff.). The

[1] Strictly a philosopher who claims that a class of expressions is eliminable in one way or another owes us, eventually at least, a proof of the matter.

obvious commonsense answer can again be unproblematically given by the neutral theory, namely in the property case, particulars *have*, or *instantiate*, properties. The logic of attributes of the neutral theory is based on the neutral logic of λ-conversion (the fuller logic of universals is further discussed below).

Consider the separation of particulars and universals that engenders difficulties for transcendent theories (cf. Armstrong 1978, p. 68; Armstrong indeed takes the argument that follows to refute transcendental realism, vol. II. p. 2). Consider a particular a without the property of whiteness; it is still possible, *if* a exists separately from the property (at least in the sense of separately which implies independently), that a is white. On the neutral theory the difficulty vanishes: a is white iff, as a matter of logic, a instantiates whiteness. There is no separate, or independent, existence of particular and property, for properties do not exist.

The objection from causal efficacy may be similarly met. Consider the vaunted problem: if a thing's properties are determined by relations to universals then the thing's properties cannot be causally efficacious (cf. Armstrong 1978, p. 75). But a thing's standing in an instantiation relation to a universal λf is *logically* tantamount to a thing's f-ing. So there is no more problem for the relational account than there is for an immanent one.

Consider the vicious infinite regress of relativism that is alleged to rebut any relational theory relating particulars to universals (cf. again Armstrong 1978, p. 70, p. 77). On such a theory af is logically equated with and analysed as (in one sense) a's having R to a ϕ; specifically R is the relation of instantiation, ι, and ϕ is the property of f-ness, λf. Then $aR\phi$

> is one of the situations the theory undertakes to analyse. So it must be a matter of the ordered pair $\langle a, \phi\rangle$ having R' to a new ϕ-like entity: ϕ_R. If R and R' are different, the same problem arises with R' and so *ad infinitum*. If R and R' are identical the projected analysis of $Ra\phi$ has appealed to R itself, which is circular (Armstrong 1978, pp. 70–1).[1]

Consider what the theory of λ-conversion yields:

$aR\phi$ iff $\langle a, \phi\rangle\ \iota\ \lambda a\phi(aR\phi)$, i.e. (for short) iff $\langle a, \phi\rangle\ R'\phi_R$,

[1] It is worth remarking that this sort of objection, were it to carry any weight, would equally undermine standard semantical analyses of predicate logics.

where $R' = R = \iota$ and $\phi_R = \lambda R = \lambda a\phi(aR\phi)$. Thus $R' = R$ and no vicious regress ensures. What of the circularity? It is immaterial: the (neutral) relational theory did not pretend to be, and is not, fully eliminative. The failure to be fully eliminative does not render a theory unexplanatory; the neutral theory can account for much discourse which likewise cannot be paraphrased out without residue.

The Third Man argument is not effective against attribute theory, since often enough self-predication fails, i.e. the property of f-ness is not f, heaviness is not (significantly) heavy. Is it effective in cases where self-predication appears to hold, in some special cases where a property has itself as property, as for example in the case where the property is the property of being a property? Armstrong considers such an argument which he calls "the Restricted Third Man." Restated in terms of properties (Armstrong calls transcendent properties "forms") a variant of the argument, expanded to distinguish predicates Armstrong improperly conflates, runs as follows: Consider the predicates p, "is a property" and, p_1, "is a first order property." For every property, λf, $(\lambda f)p$, and in particular $(\lambda p)p$, i.e. the property of being a property is itself a property; and while for every first-order property λf, $(\lambda f)p_1$, $\sim(\lambda p)p_1$ and $\sim(\lambda p_1)p_1$, for the property of all properties of an order is not of that order (at least on usual order theory). Now consider (with Armstrong (p. 73)) the collection of all first-order properties plus λp. They have something in common all right, but not what Armstrong suggests, a third order property of propertyhood, but simply λp itself; that is, there is no regress. If on the other hand the class of first-order properties together with the second-order property λp, is considered, then all these properties do fall under a third-order property. There is again no vicious regress, though order theory is certainly uneconomical, as Armstrong complains (but really this is one of the least of the defects of order theory). Nor is order theory necessary; for there are several alternative theories. But dropping order theory in a way which at the same time removes any regress or hierarchy appears to encounter another of Armstrong's objections, namely that a property cannot have itself as one of its properties.[1] Is this so: surely $\lambda p\ \iota\ \lambda p$? Armstrong's argument to the contrary is not impressive. It is that $\lambda p\ \iota\ \lambda p$, being of the form aRa, would be a reflexive relation: but no relations are reflexive! (vol. II, p. 143 and pp. 91–3)

[1] Whether this happens depends on the sort of property abstraction principles the theory has. If, for example, the theory is a neutral property-analogue of Zermelo–Fraenkel set theory then any "regress" will give out when property abstraction gives out, but no property need have itself as one of its properties.

The case made out[1] for this astonishing, but by no means unprecedented claim, consists, firstly, of the following points against familiar examples of supposedly reflexive relations:–

1. With such connections as identity, resemblance, sameness, etc., the "relation" could be determined *a priori*; but, by empiricist principles, no relations can be shown to exist by *a priori* methods (pp. 7–8). But the claim is that the relation, e.g. identity, is reflexive, not that it exists – to derive which would require, what the argument presupposes, the Ontological Assumption. And while existence may not be determinable *a priori*, many features of objects are, as for instance in mathematics and logic.

2. Such relations would have no causal powers to act upon particulars which have them. Were the relations to exist (in the ordinary, as distinct from stretched platonic senses) the objection would be telling, but as explained under 1, they do not.

3. Natural examples of reflexivity, such as loving, amusing, preening, contradicting, can be explained away, e.g. if a man loves himself then it is, it is claimed, "other aspects of himself" that he loves. However, this is unsatisfactory. Such contortions as non-reflexive analyses of reflexive relations provide, are but distortion, and are unnecessary.

Dissolving the Third Man argument in the case of properties does not penetrate to the heart of the matter. For the argument is stated in the initial part at least of its original formulation (in Plato's *Parmenides*, 132B), in terms not of properties, but ideals (or paradigms). With ideals self-predication *is* the rule, the ideal x is always an x, e.g. the (ideal) Horse is a horse. The ideal Horse, unlike the corresponding property, equinity, can be put alongside particular horses as a horse. Surely then the Third Man argument is damaging to any theory of ideals? It is damaging *if* (i) an ideal is posited to explain (on its own) the common feature or sameness of all the objects of which it is accounted the ideal, and (ii) an ideal is always distinct from elements of classes with respect to which it is the explanation of sameness. For consider the class consisting of all the objects with a common feature plus its ideal: what explains their common nature or sameness? By (ii), the class is a new class with one more element than that the ideal accounts for, the new element being the ideal. In virtue of self-predication the ideal has the common feature, shares the sameness. By (i) some ideal explains the commonality of the new class; by

[1] The underlying reason is however to be found in the relations that Armstrong's scientific realism can sanction as existing.

(ii) it is distinct from the elements of the new class. The steps may be repeated leading to an infinite regress of ever new ideals; and no explanation is achieved of the common feature ideals are supposed to explain.

The argument leading to the regress is valid, but the assumptions on which it is premissed, assumptions (i) and (ii), are faulty. Assumption (ii) is mistaken; and (i) relies on a conflation of ideals and attributes, a confusion that runs through Plato's discussion of the theory of forms, at a very heavy cost to the adequacy of the theory. Suppose, first, (ii) is dropped. Then the obvious answer to the question that generates the regress is: the ideal itself. No regress ensues. The obvious answer can be made good. Consider a plant species of very limited distribution whose species description is based in a single paradigm specimen.[1] Other members of the species are accounted members of the species because of their similarity (resemblance, etc.) in given botanical characters to the paradigm. It is plain that the paradigm of the class plus the paradigm can simply be the paradigm itself, i.e. the putative regress stops after one step with the answer: the ideal itself. For the ideal is certainly similar in requisite respects to itself. It is not true that the explanatory feature of ideals is lost in this way. The ideal still accounts for all the particulars of its type in virtue of their relation to it. The one reason the ideal is thought not to account for the particulars of its type is that the property picture is given priority or confused with it. The property model of course derives immediately from the fact of objects which are the same, namely in a given respect, or which have a common feature. For the respect, or feature, just is the property. It is the property model, furthermore, not the ideal picture, which renders assumptions (i) and (ii) plausible. Principle (ip), i.e. (i) restated for properties, is analytically true, the common feature just is the property, which automatically (if rather trivially) accounts for the sameness in respect and hence similarity of objects which have it.[2] Further principle (iip) holds for all ordinary, specifically all predicative, properties. For classes picked out by predicative properties the One over Many argument holds, that is, for the *many* elements of the class there is *one* object, viz. the property, over and

[1] The original sample does not remain the (or a) paradigm indefinitely. The specimen fades, collects dust, is damaged, etc., while the ideal, with which it temporally coincides (so to say, a way of describing the situation that can be made good), does not.

The ideal usually does but a poor job in explaining the common feature of objects of a class sharing the feature: rather it is itself partly characterised in terms of the essential features of the objects of the class.

[2] Likewise properties furnish the object X of Socratic "What is X?" questions, not (with isolated exceptions) ideals.

above the elements, which accounts for the common feature of the elements. But though (ip) and (ii) hold for predicative properties, self-predication – an essential ingredient in the Third Man argument – obviously does not. A predicative property by definition does not apply to itself, so self-predication is logically excluded.

Thus the Third Man argument is bound to fail. For insofar as the assumptions are satisfied – as they are for predicative properties which validate the One *over* Many argument – self-predication fails; and insofar as the self-predication is universally satisfied – as it is for ideals – the assumptions fail, and only a One *for* Many argument can be sustained in some favourable cases. Both the assumptions, the One over Many argument, and self-predication can be retained, but for *different* sorts of objects. The Third Man argument would succeed only by serious equivocation, by illicitly combining features of two different models, predicative properties and ideals. To complete the story two more points should be argued: firstly, that properties and ideals are indeed different; and, secondly, that they are however conflated in Plato.

As to the first, compare objects of the following lists:

Properties	**Ideals**
triangularity	the Triangle
equinity	the Horse
wheelhood	the Wheel
greatness	the Great
⋮	⋮

The corresponding objects signified in each list are different because they have different extensional properties, e.g. the Triangle is three-sided, has three angles, etc., but triangularity does not. The Euclidean Triangle has all the properties Euclid proved of it; these are not properties of Euclidean Triangularity. The Horse is an animal, equinity is not; the Wheel has a long history, wheelhood being a timeless property has strictly no history; some men not seeking greatness have it thrust upon them, but not[1] the Great thrust upon them; and so on.

Along with different properties go different logics, and, in particular, different relations to particulars. Objects instantiate or have properties; they do not (significantly)

[1] Most of the negations are wide negations, which include nonsignificance.

instantiate or have ideals. On the other hand objects may exemplify an ideal or approximate to it; particulars do not approximate to properties; and ideals represent particulars perhaps as the most perfect examples of the type, but properties do not. The fact that the relations to particulars are different helps explain the puzzles in Plato's dialogues, persisting in commentary after commentary on the dialogues, as to what the relation of objects to forms is.

The transition from ideals to properties and back is evident in the translation of important Platonic arguments concerning the forms. For example, in the presentation of the One over Many argument in the *Phaedo* (100B–E) the subject shifts, without notice, from the Beautiful and the Great to Beauty and Greatness; while in the presentation of the Third Man argument (*Parmenides*, 131B–132B) the subject switches from Greatness to the Great, then back to Greatness (see e.g. Flew's translation in his 1971, pp. 49–50 and 70–71). Furthermore the English translations accurately reflect the original Greek, which likewise oscillates between property and ideal terminology (so Kim Lycos confirmed).

The Ontological Assumption makes an adequate account of ideals which clearly distinguishes them from properties impossible to obtain. For the Horse, unlike the property equinity, is an animal, a material item, and if it exists must exist as a material item and be numbered among existing horses. But obviously the Horse is not so numbered, and cannot so exist. Thus such ideals cannot be treated as material entities, but, unlike properties, cannot be treated either as having "abstract (non-material) existence". But this is the choice the Ontological Assumption forces. Since the Horse is not among existing horses, it is, given the Ontological Assumption, not a horse at all; no coherent account of ideals as distinct from properties is possible, and the coherent residue appears just to boil down to properties. The distinction can only be made good within a noneist theory, where such ideals can be treated as material nonentities, as distinct from both material entities and non-material entities (e.g. properties).

Problems for immanent theories of universals are likewise removed by the neutral theory. Consider for instance, the problem (discussed in Armstrong 1978, p. 76) that instances of a universal may diverge so far in features that they seem to have nothing in common (a point that underlies family resemblance accounts). Since there is no need to say that properties *exist in* entities that instantiate them, since they do not exist at all, the obvious can simply be admitted, that particulars may be unrepresentative or

imperfect bearers of the property, as human freaks and serious accident cases are of the property of being human.

Very imperfect particulars help to remove any remaining temptation to define a sense of "exists in" – a temptation to which Reid briefly succumbs (1895, p. 407), despite his rejection of the main reason for attempting to characterise *exists in*, namely the assumption that universals exist. Russell has provided a further good reason for avoiding the "exists in" terminology; namely, it sits far less satisfactorily with two or more place relations (see further the discussion in 9.9). Consider a relation such as *north of*: Edinburgh is north of London, but the relation does not exist in Edinburgh or in London or anywhere in between. It could be said that it exists in the ordered pair ⟨Edinburgh, London⟩, thus suggesting also that the ordered pair exists; but it is plain at this stage that the "exists in" terminology is otiose; whatever is expressed by R^2 exists in a and b is better said by aE & bE & $\langle a, b\rangle$ ι R^2, *without* misleadingly implying that R^2 somehow exists.[1] "But to reject the 'exist in' terminology is to reject a vital part of immanent theories, just as to reject 'exist separately' terminology is to reject the transcendental theories. The difficulties are being removed", the objection may continue, "by amputating parts of the theories". That is true but not quite to the point; for the objective is to show how noneism can avoid the difficulties of other theories.

A major problem for immanent theories concerns the relation, if any, between particulars and the universal they fall under (and that exists in them). It is a problem on which immanent theories regularly founder. It is instructive to consider how the latest model immanent theory, that of Armstrong 1978, fares in this regard, and how noneism again avoids the problem. By comparison with the copious detailed criticisms of alternative views (which is however crucial to the main exhaustion argument of 1978), the central part of Armstrong's immanent nonrelational theory of universals is exceedingly sketchy, and the direct arguments for it very sparse. (It occupies only a few pages, strictly only pp. 108–11.) On the face of it, the theory is just inconsistent: particulars are connected with universals by a nonrelational relation. Presentations of immanent realism which admit a tie between particulars and universals (e.g. Johnson 1921–1924, Bergmann 1964

[1] The sense of "exists in" defined does not on its own exclude separate existence, and thus a rapprochement, of a sort, of immanent and transcendental views. This can be avoided either in a weaker way, by explicitly rejecting separate existence, or in a stronger way, by defining a connection which excludes it, e.g. a connection of physical overlap between particulars and universals. Such an interrelation, if it ever held, would imply that some universals exist; so, according to noneism, it never holds.

and Strawson 1959; especially Strawson's "nonrelational tie") certainly suggest this; for what is a tie but a relation of a certain sort? But of course the appearance of inconsistency is easily avoided by narrowing the sense of "relation" so that some connections – relations in an ordinary sense – are not relations. The tie (connection)/relation distinction parallels a kinds-of-relation distinction[1] that also serves to explain, only *much* more satisfactorily, the connection of particulars and universals; namely (to revert once again to λ-conversion), particulars *have, or instantiate*, attributes, but the relation of *having*, or *instantiation*, is not a physical or Brentano one. Armstrong, however, rejects talk of "ties", in favour of talk of "a real distinction" between particulars (this-suches) and properties (repeatables). The rejection leads him to say that symbolism of first- and second-order predicate logic which suggests that particulars are related to properties (e.g. "Fa", "$(\exists x)Fx$", "$(\exists P)P$") is "potentially misleading". In the same vein he would have to reject as misleading the ordinary semantical analyses of these logics, and also the symbolism of such fundamental schemes as af iff $a\ \iota\ \lambda f$.

The nonrelational thesis is that the properties of a particular are not related to that particular (p. 108). The arguments for the thesis are these: most important (see especially p. 102), the failure of all alternatives (an argument noneism disposes of by production of an alternative not examined in Armstrong at all), appeal to a "great tradition" (a variant of the argument from authority), and the availability of models of concurrence without relation. One case of the latter is this:

> we are certainly able to distinguish between their [i.e. empty spaces or vacua] unrepeatable particularity and their repeatable properties (dimensions, etc.). Yet these aspects are inseparable and far too intimately conjoined to speak of their being related (p. 110).

Granted the distinction can be made, that does not exclude a relation between the items distinguished, and surely intimate conjunction – or, for that matter, inseparability – is a relation (in fact Armstrong subsequently takes conjunction as a relation; see, e.g. II, p. 38). Armstrong's main model is

> the way that the size of a thing stands to shape. Size and shape are inseparable in particulars, yet they are not related. At the same

[1] This more satisfactory way is not open to nonrelational immanent realists, by definition of their position; nor is it open to certain relational theorists.

> time they are distinguishable, and particular size and shape vary independently (p. 110).

The "model" does not reflect crucial features of what it is supposed to model, e.g. neither size nor shape is a particular or this-such, size does not (significantly) have shape, etc. Nor is it true that size and shape are unrelated, e.g. a circular house gives maximum floor space. It is false that size and shape vary independently: there are constraining relations. Nor would an improved model exclude obvious relations between particulars and universals, such as instantiation. It is essential to Armstrong's case, and to nonrelational theories generally, that relations such as instantiation be excluded in one way or another.

The extensive argument Armstrong presents that any relational form of immanent realism is inadequate is however quite inconclusive. For what is criticised is (apart from an isolated paragraph on p. 104) but a special case of the position, "the view that a particular is composed of a substratum related in a certain fashion [support] to properties" (p. 106). Examining the isolated paragraph in detail would take us back over ground already traversed. Armstrong's claim is that it is not possible to characterise the relation supposedly holding between particular and property. But the relation of instantiation can be characterised with considerable logical precision in a way which, though it is *sui generis*, is not metaphorical or analogical. Despite his no-relation thesis, Armstrong subsequently speaks of particulars enfolding universals within themselves (p. 116). The analogical sense can be explicated: a enfolds F within a iff a instantiates F. Relations are not so easy to avoid.

Criticising or correcting rival theories is mostly an easier task than enlarging upon the theory to which one is committed (as the Armstrong example indicates, and as exponents of noneism soon find out). Yet to leave neutral universal theory without some expansion of the positive theory will hardly do, especially when it is here that the main difficulties of, and open problems for, the theory lie. To begin with, it is difficult to characterise universals or abstractions decently, though doing so is an important matter if the claim that some particulars do not exist is to stand and the thesis that all nonentities are abstractions to be refuted. It can hardly be pretended that the elements of the contrasting pairs universal/particular and abstract/concrete are distinguished by their clarity. Moreover many of the accounts that have been proffered write in philosophical theories in an objectionable or prejudicing way. For example, the account of a universal as a "general notion or idea" (as in OED) would make all universals concepts (OED

definition again), thus assimilating them to attributes of a certain kind and ruling out such important universals as ideals; for it is not true that the Horse is a notion or the Whale an idea. But the real danger of accounts like the OED's is that they tend to suggest – what was regularly assumed until the work of Meinong, Frege, Moore and Russell – that abstractions, universals and notions are all in some fashion mentalist and to be accounted for psychologistically. Such an assumption was itself a product of the Reference Theory, as it was taken for granted that whatever was spoken truly about that mattered must exist, somewhere, and so commonly assumed that universals, since not in space-time, must exist in the mind. With *particular* and *concrete* the situation is worse: it is commonly assumed that a particular or concretum is a thing that exists (cf. Strawson 1959), in the case of concretum, exists in a material form (cf. OED). But many nonexistent objects are particulars, e.g. Holmes, Pickwick, Gandalf, and so on: they are certainly not universals. (Though even this has been disputed, e.g. Kripke's astonishing claim in 1973 that fictional objects are abstract entities.) Fortunately there are better accounts from which to start, e.g. that of a *universal* as a "thing that by its nature may be predicated of many" (OED) – though strictly this applies only to such universals as attributes and classes – and of an *abstraction* as something "stripped of its concrete accompaniments" (OED again), but neither of these will serve as characterisations.

Rather than venture general characterisations it is perhaps wise, and adequate for present purposes, to rest satisfied with some conditions on what count as universals and as particulars and what do not, and with rough classifications of each category. Though it is true that universals are, in a good sense, general and particulars are not, this feature is of only limited help, since the problem just shifts to the issue as to what is it to be general. It does however point to one of the cluster of features that serve to separate universals and particulars, the extent to which particulars are local and universals are not. To put it a little more precisely:

C1) A particular has an approximate location in, occupies a neighbourhood in, space or in time (and usually, where the object is not a mental one, both), whereas universals do not (significantly) have such a location or place in space or time. The location of a particular need not of course be in real, or actual, space and time. Fictional characters have locations, but in fictional space-time, i.e. the space-times of worlds distinct from $\underline{\underline{T}}$.[α]

[α] Recall Vol. 1, §1.17: $\underline{\underline{T}}$ is the factual (actual) world, the actual world or factual model. —*Eds.*

Other characteristic differences between universals and particulars derive from this *location criterion*. For example, universals are necessarily immutable, changeless (to change they would have to occur in time) and so, in a sense, eternal whereas particulars can change and many do over time; universals are uncreated, but particulars commonly enough are; etc.

The location criterion yields some of the familiar features separating universals from particulars, but only some: it reveals little of the abstract character of universals (the abstractness feature) and nothing of the relations of universals to particulars, how one universal relates as exemplar or nature or species or whatever to many particulars (the one-many feature). Universals are characteristically the product of abstraction from classes of objects which may be, or include, particulars;[1] particulars need not be so characterised. There is much in the traditional literature on the processes of abstraction, but comparatively little on the logical features of the products of the abstraction, products which can be understood, furthermore, without going through the mental processes of stripping away concrete accompaniments or the like. In what sense are universals abstraction products?

C2) *Abstraction criterion.* Universals are abstractions, inasmuch as their principal specific features are determined through logical principles of abstraction. Moreover these principles guarantee the one-many feature. There is no single abstraction principle,[2] because there is not just a single sort of universal: much as with characterisation postulates, every sort of universal has its own sort of abstraction principles. Filling out the abstraction criterion thus involves a typology of universals. Important types include these:

Attributes including properties (one-place attributes) and relations (two or more place attributes), and perhaps, as a limiting case, propositions (zero-place attributes), but it is better to keep propositions separate. Nothing prevents attributes of more than one adicity, e.g. of λf such that both af and afb (e.g. plays, fights,...). Attributes are related to instances by abstraction principles, which give a main feature of the logical behaviour

[1] The classes may also include universals; this is part of the reason for the unsolvability of elimination problems. Some traditional and some modern accounts of abstraction fail through failure to allow for this important self-involvement of universals.

[2] While it is possible on the basis of present knowledge to formulate a general schema for abstraction principles, such a schema would be of little help, and would furthermore be liable to be overthrown as further types of universals are investigated.

of attributes. For instance, a has the property f (e.g. being red, that of redness) iff af (on the example, is red). Generally $(a_1, \ldots, a_n)\ \iota\ \lambda x_1 \ldots x_n(x_1 \ldots x_n)f$ iff $(a_1 \ldots a_n)f$. The λ-conversion principle is a case of the more general abstraction principle:

$$(P\phi)(Ux_1, \ldots, Ux_n)\ .\ (x_1, \ldots, x_n)\ \iota\ \phi \text{ iff } A(x_1, \ldots, x_n),$$

which holds for extensive classes of wff of the form $A(x_1, \ldots, x_n)$ which do not contain ϕ free (dialectically, for all such classes).[1]

Classes and relations-in-extension. These are the extensional analogues of attributes. They are logically characterised through abstraction and restricted extensionality principles. It follows that one class may have many members (specifically, every class with more than one member will).

Functions, both intensional and in extension. Functions may be defined, in textbook fashion, in terms of relations and identity. In the general theory a function is relative to a given identity determinate: the general condition, where $f_=$ is an n-place function under identity determinate '=', i.e.

$$\text{if} \quad (\underset{\sim}{x}, y)f_= \ \&\ (\underset{\sim}{x}, z)f_= \quad \text{then} \quad y = z.$$

Just as attributes and classes are defined by abstraction together with, respectively, instantiation and membership, so functions tie with application. A function is an object f (a rule or operation) which *applies* to object $\underset{\sim}{x}$ to *yield*, or *give*, an object y. Thus f is a relation between $\underset{\sim}{x}$ and y. To be certain there is no loss of content in the relational reduction of functions the following connection (which may be made definitional in the absence of other conditions on application) is required:

$$f_= \text{ applies to } \underset{\sim}{x} \text{ to give } y \text{ iff } (\underset{\sim}{x}, y)f_= .$$

But $f_=$ applies to $\underset{\sim}{x}$ to give y iff y is (=) the result of application of $f_=$ to $\underset{\sim}{x}$. Since the latter may be written, for instance: $y = f_= \underset{\sim}{x}$, the familiar connection,

$$y = f_= \underset{\sim}{x} \text{ iff } (\underset{\sim}{x}, y)f_= \text{, follows.}$$

(The need for the general condition, if transitivity of the identity determinate = is not to be violated, thus becomes apparent). In ordinary mathematical practice, however, where the identity determinate is predetermined, the value of the function $f\underset{\sim}{x}$, i.e. the result of

[1] Abstraction principles need not of course be primitive but may be derived from other principles, e.g. general substitution principles.

the application of the function f to an argument $\underset{\sim}{x}$ is commonly called the function, e.g. the function $\sin(x)$, x^3. Both usages may be generally accommodated by use of the λ theory, which recovers function by abstraction from its values so as to satisfy: $\lambda\underset{\sim}{x}\ f\ \underset{\sim}{x} \approx f$. The basic λ-conversion scheme for functions is then

$(\lambda\underset{\sim}{x}\ f\ \underset{\sim}{x})\underset{\sim}{y}$ iff $f\underset{\sim}{y}$.

The distinction between functions and their values is important for the integrity of the location criterion. For a function may depend on a temporal (or spatial) value and its value vary over time. But the variation of the value over time does not imply that the function in the abstract sense varies over time: it does not.

Functions in extension reduce further to classes of ordered pairs and thence to elements of class theory: with intensional functions crucial connections in these reductions fail.

Other abstract mathematical objects. A great many of the myriad of abstract mathematical objects may be defined – have proved to be definable – in terms of the abstractions already discussed. Nothing however prevents the introduction of mathematical objects not so reducible (and a corresponding widening of abstraction principles); for that matter it is not entirely clear that such objects of present study as categories are so reducible (the real situation seems to be that they are reducible but not to Zermelo–Fraenkel set theory). Such further irreducible objects cause no problem *per se* for the theory of objects; but they can generate difficulties for the criteria outlined for universals. The force of "characterised by abstraction" dissipates if there are no bounds on such a characterisation, because future options are left open. Then there is the apparent problem of abstract objects which vary over time, which there is no excluding given such a loose account of abstraction. There is no problem however if universals are only a subclass of abstract objects, if the criteria for universals can operate independently, as it seems they can.

Assertions and propositions. The abstraction principle

$(Pp)(p$ iff $B)$, p not free in B,

delivers an assertion for every wff admitted. Naturally no one-many feature analogous to that for attributes and classes ensues for assertions (since p occurs solo on the left hand side of the biconditional). Assertions are a generalisation upon propositions (see Slog). Provided B is significant (and otherwise well behaved), the abstraction principle yields

a proposition – given, what can be guaranteed, that appropriate identity conditions also govern the objects yielded. Assertions and propositions are themselves objects which stand in relations, an important class of which are specified by a special case of the attribute abstraction scheme,

$(P\Psi)(Up_1, \ldots, Up_n)\,.\ \Psi(p_1, \ldots, p_n)$ iff $A(p_1, \ldots, p_n)$, Ψ not free in A.

Ideals and essences. The main grammatical form is "the α" where α is a general class or relation term. However in some cases "the" is omitted, e.g. Space, Man, Nature. The logic of ideals has not been seriously investigated and remains somewhat obscure.[1] It is one thing, then, to argue that ideals are readily included in a theory of objects; it is quite another having included them to determine their logical behaviour, e.g. the exact axiomatic constraints on them. But this much of logic is clear enough:

if every thing which is (an) m is f then the M is f (Ideal scheme).

It is also clear that this scheme cannot be satisfactorily expressed using existentially loaded quantifiers and extensional connectives. For example, if all existing objects of a species, or all that ever did exist, were defective and had as a result a defect g it would not follow that their ideal had defect g. Differently, the sides of every actual triangle have some thickness but the sides of the Triangle do not. However the scheme can be expressed thus:

if $(Ux)(xm \to xf)$ then (the M)f.

The self-predication property of ideals, (the M)m, is immediate. The scheme is an abstraction scheme; (unless counteracted by other principles) it strips away features of particulars that are not shared by other particulars of the given sort.

A frequently proposed elimination of ideals fails because the converse of the ideal scheme is false. There are a variety of counterexamples. Defective objects are one source, e.g. the Fox is four footed does not materially imply that the local chicken-snatcher is four footed. Historical and intensional features are another source, consider, e.g. the Wheel was invented in prehistoric times; the Aeroplane has a short history; the Moa is extinct. Such features of ideals separate them from essences, which are incomplete objects which have *just* the essential features of the respective classes they represent and

[1] Not only the logic, but the grammar, has its murky reaches. Not all common nouns yield ideal terms, in particular mass terms do not (consider "the Water", "the Footwear", "the Gold"; but "the object Gold" is in order). Which nouns do yield ideal terms, and is there a rule for "the" deletion?

no other extensional properties. Ideals satisfy further conditions, which it is not so easy to state precisely; for example, the following requirement (which is not a pure abstraction feature):

> if f is a general feature of the history or evolution of ms then (the M)f (Factual scheme).

This scheme has to be carefully applied (which shows the serious limitations in its formulation). It will not do to argue, as is commonly done: some horses exist (this is a feature of horses as opposed, e.g., to dodos), therefore the Horse exists. Ideal objects, being seriously incomplete in determinable features and having no determinate spatial location,[1] do not exist (see further chapter 9). What used to be said of the Triangle, before the sweep of modern platonism, is instructive, namely that though some triangles do exist the Triangle does not, because, for example, the lengths of the sides, the sizes of its angles, are indeterminate. The point to be made by the assertion "The Triangle is actually exemplified" or "Entities exemplify the Triangle", where

> x exemplifies the M iff x is (an) m,

[is simply that triangles exist. —*Eds.*][α] Seriously defective objects of a type are bad exemplars; paradigms are excellent exemplars.

Naturally ideals, essences and properties are not disconnected. One of Plato's phrases, "the form of", can perhaps be viewed as a conversion operation taking ideals or essences into properties, e.g. goodness is the form of the Good. *Form of* can in fact be defined, to make the connection analytic, in terms of the following: f-ness is the property of all and only those objects which exemplify the F, i.e. $\lambda f = \lambda x$ (x exemplifies the F), an immediate consequence of the definition of exemplification.

The abstractions considered by no means exhaust those that are common in modern philosophy, or that have been deployed in this text. One important omission from the listing is this:

Objectives, state of affairs, abstract events, and worlds (in one sense) are somewhat propositional-like objects; they differ however from propositions (as is explained, 12.3).

[1] The Spatial Object has a spatial location, but not a determinate one.

[α] In the original manuscript the foregoing sentence was incomplete. The bracketed addition is our hypothesised intended completion. —*Eds.*

Although the general outline of a noneist theory of universals has been given, how it escapes or resolves the main traditional problems explained, and what the logic of various sorts of universals looks like indicated, the point of a theory of universals, and the need for universals, has not been explained so much as taken for granted. These matters do not have to be taken for granted: traditionally they were explained. The need for universals in logical discourse, and in the corresponding ordinary discourse logical discourse formalises, was already observed in chapter 1 [Vol. 1 —*Eds.*], e.g. in the expressive inadequacy of quantificational logic for various purposes. The necessity for universals (of some sort) in science,[1] although it does not admit of quite such a decisive proof, is no less evident (and can be proved on weak assumptions). The main point of a theory of attributes is to offer some

> account of the relation between a predicate term and those terms which it may be used truly to describe or to clarify. And the characteristic form of the solution is to introduce some third item which links the words to the items and stands in relations to both. The tokens mean the same because they are related in the same way to the constant universal; while the items, though different . . . , may be said to be the same in a given respect if they are related in the same way to the unchanging universal (Slog, p. 197).

A synthesis of apparently different theories of universals may be effected (as is explained in Slog) within such a schematic framework.

§10. Illustration 2: Perception

What is argued, by way of second illustration of the importance of noneism, is that only a noneist[2] theory can provide, through its treatment of inexistence and intensionality, the logical foundations for a direct realist theory of perception, according to which *observation*

[1] It was much remarked upon by some who would have been the first to rid scientific discourse of them, had they been able, e.g. Bentham in Ogden 1932, Vaihinger 1949.

[2] The switch from Meinongianism to noneism is deliberate: and it is important (as well as marginally reducing dissonance). For a theory of objects, though of a Meinongian cast, can facilitate or lead to views incompatible with those Meinong held; in particular noneism enables a direct realist theory of perception, a theory that conflicts with the sort of theory of perception Meinong adopted which was a theory of content and object. Meinong reached his theory of objects by way of a kind of indirect realist theory of perception (deriving from Brentano and Twardowski); but having subsequently attained

(similarly, perception and its cases such as smelling and touching) *is a relation between an observer and an object, commonly an ordinary item in the real world, and commonly also the item it seems to be*; e.g., when a person observes an antechinus what he sees and is related to directly is an antechinus and the relation proceeds through *no* intermediaries such as ideas, concepts, contents, beliefs, sense data, images, etc. All these parasitic middlemen are bypassed and rendered redundant.

The thesis to be argued turns on a moderately sharp characterisation of direct realism. (If you want to mean something less direct or less realistic by "direct realism" then call the notion to be characterised "real realism".[1]) What is *not* direct realist, on the account adopted, is a theory which abandons direct realism in problematic cases, e.g. where perception is not veridical, the object perceived does not exist or is not as it seems to be, or where the perception predicate is not transparent. Armstrong's so-called "direct realist" account of perception (in 1961) in effect abandons a direct realist

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the theory of objects Meinong never went back and revised his theory of perception so as to remove intermediaries, i.e. contents.

The direct realist theory being sketched out is more like the commonsense theory of Reid (1895, especially p. 367ff.), who also accepted central noneist assumptions. But though the account given has much in common with Reid's account of conception, it differs in crucial respects from his account of *per*ception. For firstly, Reid, like Meinong, insisted – without however anything much in the way of argument – that perception is always of what exists. Secondly, Reid had an account of perception (of very doubtful merit, as will be brought out by implication), which appears to clash with a direct theory.

> Reid has an analysis of perception into a complexity of sensation, conception and belief. Without needing to know any more about it at the moment, we can see that it will not fit easily into a theory of direct perception. (Grave 1960, p. 30)

The account, which is *not* descriptive of perception, is this:

> ... to perceive a physical object is to have the "conception and belief of it" "suggested" to us by the sensations that we have from it. Reid says that he has no theory of perception, and Stewart says that Reid has no theory of perception. They mean that Reid's account of perception is nothing more than a straightforward description of the central facts involved by the constitution of our nature in perception, and that the inexplicability of the connections between these facts is recognised by Reid and left untampered with by conjecture. (Grave, p. 161)

[1] It is a serious question whether the noneist theory of perception presented should be accounted a realism at all. *If* realism always involves, as Bunting 1972 assumes, the existence condition, that what is perceived exists, then the noneist theory is not realism. The usual classification of positions is then – being thus referentially based – inadequate, as Bunting finally suggests (1972, p. 89): for the noneist position is neither realist (in *this* sense), phenomenalist, representationalist, nor sceptical. The Bunting way of putting things, which is certainly viable, would have the advantage of maintaining the parallel with the theory of universals – where the noneist position is not a realist one, in the sense almost always adopted in that setting of being platonistic – and also of maintaining the new broom image of noneism. It is very doubtful however that realism, as ordinarily understood in perception theory, does involve the existence condition.

theory for problem cases (i.e. cases where inexistence or intensionality creates trouble) and *supplements* it with a different account which involves a translation or analysis for these cases.[1] Thus it is not a genuine direct realist theory. By contrast, a noneist position also provides a direct account for "problem cases". According to Armstrong (1961, p. xi, my arrangement: the main points are repeated on p. 24):

> ... the main question asked about perception in modern western philosophy is "What is the direct or immediate object of awareness when we perceive?" Direct realism answers that the immediate object of awareness is never anything but a physical existent, which exists independently of the awareness of it.

The characterisation is both too strong and too weak. It is too strong because of the requirement that the object perceived is *always* an independent physical *existent*: it is enough that it sometimes, or *commonly*, is. And without this weakening there is a false contrast in the main positions presented, because the alternatives Armstrong cites, Representationalism and Phenomenalism, hold that the immediate object of awareness is always some sort of sense-impression, and often not what seems to be directly perceived. The characterisation leaves only the following sorts of options where perception is not, as it sometimes is not (e.g. in hallucinations), of existents:

(i) the rejection of such cases as either not occurring (a version of the "naive" theory) or as not perception, because not successful. But if not perception, what is it? This leads to:

(ii) analyses of such cases, and shifts to some indirect theory in these cases. Armstrong tries to contend that such cases are not cases of perception (except in inverted commas senses) and offers an indirect – and rather *un*satisfactory – account in terms of the acquiring of false beliefs or else of inclinations to false beliefs.[2]

[1] In 1968, p. 227, Armstrong weakens his claim to have given a direct realist account:

> Perception is a two-term relation holding between the mind and a portion of physical reality. It is this view that it is natural to call a "Direct Realist" theory of perception, and I now think I said something *potentially misleading* in *Perception and the Physical* World when I spoke of my own theory as a form of Direct Realism (my italics).

[2] On what is wrong with this account, and, more important, how the route to it which depends on using Meinong as a bogeyman, traces of whose theory are to be avoided at all costs, see the discussion of sensory illusion below.

The characterisation is also too weak, because there is no requirement to the effect that the external entity is commonly (i.e. in veridical cases) what it appears to be. Armstrong's characterisation allows as direct realisms many positions, which are far removed, e.g. weird monisms where the *one* object of perception is always the primeval substance. An improved characterisation of direct realism, avoiding these objections, is as follows:–

> Perception is a direct relation – the relation implying, in particular, awareness, and directness implying immediacy, i.e. that there need be no intermediary objects – between a sentient object, a perceiver, and a usually independent object, the thing perceived, which commonly (specifically, in veridical cases) exists and is as and what it appears to be.

But the object perceived may not exist, and it may not be exactly as it appears. The latter non-referential features of perception are crucial to an adequate theory of perception.

Many features of perception fall into place naturally when viewed as applications of logical theories of inexistence and intensionality. Both aspects of non-referentiality prove to be very important in epistemology. Firstly, and more controversially, that an object is perceived does not imply that it exists;[1] perception predicates can truly relate nonentities to entities: a person can see an oasis where none exists, can observe two candles when only one or none exists, can seem to hear a vehicle approaching when none is actually approaching, and so on. Blake actually *saw* "those wonderful originals called in the Sacred Scriptures the Cherubim".[2]

[1] Like most isolated ideas in philosophy – especially those that simply copy what is often, or sometimes, said outside philosophy (as does even the reaction to paradox arguments: "Well then, that's a true contradiction!") – this is not the original gem one may at first have imagined. In this case, the initial embarrassment lay in finding that one had thought of it oneself more than 10 years earlier, the further embarrassment in discovering that many others had toyed with the idea many years before that, e.g. Moore and Smythies. Still the idea has not reached the ordinary professional philosopher, and it is not uncommon to encounter such gratifying reactions to it as "That really blows the mind". Maybe, since the idea is not unfamiliar outside philosophy, philosophers' minds take less blowing than most.

[2] Blake, *Descriptive Catalogue*; cited in the above form, without any qualification on "actually *saw*", in Huxley 1959. Huxley gives many other examples of perception of what does not exist, and an interesting (if disputable) theoretical background to, and comparison of, the experiences of mescaline takers, visionaries, and schizophrenics.

Consider, first, to recall the complete naturalness of such usage of perception terms, Moore's description of his negative after-image experiments given in his "Proof of an External World" (1959, p. 131; my italics):

> ... I did find that I *saw* a grey patch for some little time – I not only *saw* a grey patch but I *saw* it *on* the white ground ... each of those grey four-pointed stars, one of which I *saw* in each experiment, was what is called an "after-image" or "after-sensation"; and can anyone deny that each of these after-images can be quite properly said to have been "presented in space"?

Several other examples of this sort (some drawn from Gregory 1966) are assembled in Bunting (1972, p. 84; my rearrangement):

> (1) When I look at a bright light and then close my eyes slightly, I see shafts of light radiating out from the bright light. ... (5) pressure on the eye makes us see light in darkness ... . (2) By focussing my eyes on that spot eighteen inches in front of me, I see two spots, and not just one. (3) When a small part [of the brain] is stimulated a human patient reports a flash of light. Upon a single change of position of the stimulating electrode, a flash is seen in another part of the visual field ... . Stimulation of the surrounding regions of the striate area also gives visual sensations ... . Brilliant coloured balloons may be seen floating up in an infinite sky.

In each case "see" is used (as Bunting contends, against Chisholm) in an ordinary, and indeed normal, sense.

Secondly, important examples of perceiving what does not exist are afforded by visions and hallucinations. Indeed hallucinations are sometimes characterised (too generously) in terms of perception of what does not exist:

> Persons who have hallucinations of sight see things that do not exist; persons who have hallucinations of smell smell odors that do not exist (L.P. King, in Kaplan 1964, p. 143).

Striking and well-documented examples of such hallucinations are provided by accounts of drug taking and schizophrenic experiences. For example, often in schizophrenia, "the

patient has trouble walking because what he feels [touches] and sees is not really there" (OP, p. 422). Or consider how Perceval subsequently described his experiences – he does not hesitate to use, nor need he refrain from using, ordinary perceptual terms such as (parts of) "hear" and "see" –

> During this year, also, I heard very beautiful voices, singing to me in the most touching manner – and on one occasion I heard the sounds of the cattle lowing and of other beasts in the fields, convey articulate sentences to me, as it is written of Balaam. On another I was threatened terribly by the thunder from heaven – in short, nearly all sounds that I heard were clothed with articulation. I saw also visions, and the same day that I heard the cattle addressing me, on looking up into heaven, as I was leaving Dr. Fox's premises, I saw a beautiful vision of the Lord descending with all his saints. During the same year, I also saw the faces of persons who approached me, clothed with the features of my nearest relations, and earliest acquaintances, so that I called out their names, and could have sworn, but for the immediate change of countenance, that my friends had been there. (in Kaplan 1964, p. 336).

The examples given, and others like them that may be assembled, serve to show that

> ... in actual English usage, the words ⟨see⟩, ⟨look⟩, ⟨hear⟩, etc., are used to describe hallucinatory sense-experiences as well as veridical ones. I am not referring here to people whose wits are bemused by drink or delirium who, it might be claimed, were no longer in a state to observe properly or to adhere to correct English usage. I am referring to the extensive factual evidence available in the reports of those experimental subjects who have taken mescaline. These subjects can of course distinguish between their hallucinations and their veridical perceptions but that is not the point. Philosophers who claim that it is only correct to say that we see physical objects (we must say that we "have" hallucinations or some such) have not studied what people who are having hallucinations under such experimental conditions actually say. The only criterion for correct usage in English is to find out what most people in the circumstances under consideration in fact

> say. Since people describing their hallucinations almost invariably say "I see" and not "I seem to see" or "I have", it is as much correct English usage to say "I saw a flower" when the flower was hallucinated as when it was a botanical flower. A study of what people say when they have hallucinatory experiences of the type called *apparitions* yields the same results; e.g. "I saw him as clearly as I am seeing you now." Therefore *seeing* cannot simply be taken as a perceptual relation between people and [existing] physical objects; for it is not the case that, in all instances of *seeing*, it is physical objects that are seen (Smythies 1956, p. 32).[1]

Nevertheless a concerted attempt has been made, even by "commonsense" and "ordinary language" philosophers, to erase such correct ways of describing these events, to turn all perception statements into what comprise only proper subclasses of these, into so-called success or achievement (or else tentative or quasi-success) expressions, which imply or presuppose existence – and to bully students out of using familiar "nonsuccess" locutions. (The "success" and "achievement" terminology is loaded: it suggests – what is often false – that perceiving what does not exist is unsuccessful.) The attempt parallels, really it is an extension of, what it is supported by, modern logical attempts (e.g. in theories of descriptions), to convert all non-referential (*Sosein*) statements to referential (*Sein*) statements.

A recent illustration of the lengths to which philosophers are prepared to go to try to enforce referential uses of perceptual discourse to the exclusion of correct non-referential discourse, is in Dretske 1969 (p. 43ff.). Dretske, like sense datum theorists, goes to some considerable trouble to establish a basic sense of "seeing", what he calls "seeing" which is fully referential, i.e. existentially loaded and transparent in the second place. Now nothing stops the introduction of such a sense: a referential sense of "see", "see^{R}", maybe defined thus (using classical notation):

$$a \text{ sees}^{\mathrm{R}}\ b \equiv a \text{ sees } b\ \&\ bE\ \&\ (\forall z)(z = b \supset .\ a \text{ sees } z).$$

[1] The quote in fact begins "Unfortunately, however". Smythies, himself a victim of referential assumptions, presents the evidence as a reason for introducing "the complications of the sense-datum terminology" (p. 31). The evidence does not, on its own, support the introduction of sense-datum or idea terminology (as will become evident); it would only support that given the further (mistaken) thesis that the basic perceptual notions must be appropriately referential.

Although a sees^{R} b implies a sees b, the converse does not hold; introduction of a referential sense of *seeing* provides no guarantee that "a sees b" implies "b exists". But in the course of his exercise with "seeing$_{\mathrm{n}}$", Dretske claims and tries to show that *seeing*, in the ordinary sense, is a success notion, that to see a entails that a exists (the *existence condition*). His first move is typically philosophical, that of shifting the burden of proof. He asserts (p. 43) that the manner in which he has characterised his nonepistemic seeing, *seeing*$_{\mathrm{n}}$, provides us with an existential implication:

> if a sees$_{\mathrm{n}}$ b then there exists a z (having name or description "b") such that a sees$_{\mathrm{n}}$ z.

This is not so, without further ado tantamount to imposing the existential requirement. For according to the characterisation (p. 20),

> S sees$_{\mathrm{n}}$ $D = D$ is visually differentiated from its immediate environment by S.

Moore, who saw (i.e. saw$_{\mathrm{n}}$) a grey afterimage, visually differentiated it from its immediate environment, but the existence of the afterimage hardly followed therefrom, for reasons Moore gave. (Similarly with Bunting's examples.) Thus the characterisation of "sees$_{\mathrm{n}}$" no more implies that existential generalisation holds than the relation of seeing guarantees such generalisation. Dretske would deny this: while he admits

> Nothing I have said about seeing$_{\mathrm{n}}$ ... rules out the possibility of seeing$_{\mathrm{n}}$ after-images, spots before one's eyes, and hallucinatory rats,

he goes on to claim

> in each case these elements *must exist* in order to be seen (p. 46).

This is to assume the point at issue, to apply the existence condition to determine what exists. However what exists is quite differently determined, with the common result (argued for in the next chapter) that afterimages, spots before the eyes of the concussed, and hallucinatory objects do not exist. Even Dretske, despite his commitment to the existence condition, has doubts about whether hallucinatory rats and hallucinatory daggers he claims must exist do exist (see his note, p. 46); and of course they do not, such is the point of the modification "hallucinatory".

In any case (as Dretske concedes, p. 46), the attempt to enforce the existence condition does not meet the hard cases, that is cases where a and others claim that a sees b, where b does not exist and a and the others know this but refuse to withdraw

the perception claim. Dretske's ploy is to try to assimilate such cases to those where we are prepared, in the given contexts, to supply an intensional covering functor. The argument is by analogy, the analogies relied upon comprising examples from fiction where we are prepared to introduce such functors as "Once upon a time", examples of dreams where "we preface the narrative with the words 'last night I dreamed' [and] there is a suspension of certain standard implications" (p. 47), examples involving reports of very unusual situations – the miner trapped for weeks in a dark mine shaft "who reports having seen the most *fabulous* cuisine set before him" (p. 48, my italics), wild lions in the street – where the reporter is willing to preface his remarks with "It is just as though" (p. 49). Dretske claims that, in the same way, in the hard cases the speaker and the rest of us are willing to supply such covering functors as "I seem to see" or "It seems that" and to do, what this permits, suspend standard implications, such as (you guessed it) the existence condition. Many of us and many speakers are, for good reasons, not willing to do so: so even where the basis of the analogy is good,[1] the analogy breaks down. For consider what Dretske is obliged to say in one of the hard cases where an object is reported as seen (p. 49):

> Obviously the context in which the report is being made already functions to make this qualification (prefacing what is said with "I seem to see") apparent to everyone.

This is not obvious because it is not so. No qualification may be required, so the prefatory qualification will hardly be apparent to everyone. Indeed it may be apparent that to impose such a qualification is a mistake, and would result in misdescription: for many of us are aware of the differences between seeing and seeming to see (in the common sense where the latter implies not seeing), and appreciate that cases of seeing where the existence condition fails are not properly relocated as cases of seeming to see. (In fact serious theoretical distortion can result from attempts to relocate these cases to render the existence condition true, as explained shortly.) The existence condition is not a standard implication which can however be suspended in exceptional circumstances provided intensional cover is understood; to assume it is is to assume again the point at issue, and to assume a case of the Ontological Assumption. There is no such standard implication on

[1] The basis is in doubt in fictional cases, where often we are not prepared to cover statements, e.g. to trade in "Mr. Pickwick was portly" for something of the form "O(Mr. Pickwick was portly)": see especially chapter 7 [Vol. 2 *—Eds.*].

the ordinary sense of "see"; to impose the condition is to write in a theoretical condition drawn from a mistaken theory (which takes the OA as a norm).

The issue reduces, in fact, to whether intensional cover has to be supplied. For Dretske concedes (p. 49) that the existence condition can be suspended by linguistic or nonlinguistic signals, devices, and other means; in such cases the existence condition would fail unless cover were supplied. But suspension of the condition does *not* imply that cover is presupposed. Suppose a speaker who had been hallucinating reported that he saw remarkable flowers but also indicated that he was aware that no such flowers existed. The signal suspends the existence condition; thus the condition fails unless cover is supplied. But correct usage of "saw" (Dretske's "*one* sense of the verb") does not require any such cover; and to impose a cover such as "It seemed that" would falsify much data.

For consider again usage: asked what one sees or hears in an hallucinatory situation one can truly answer: I am looking at two candles and I hear them burning; I see the stars symmetrically arranged and so close that I could touch them. More generally, the answer takes the form $a\phi b$ where, a is sentient creature, ϕ a two-place perception predicate, and b a non-existent object. Such claims may be true: one sometimes sees something that does not exist: indeed sometimes one can know that it does not exist even though, or while, one sees it. Moreover, however hallucinatory phenomena are described, given sufficient detail we can *define* perception predicates, like the usual *non*success predicates, in terms of these. The natural description of hallucinatory perception is commonly that of seeing, hearing, or otherwise perceiving, what does not exist. Note that such experiences cannot be accurately described as "imagined hearings, seeings, etc." They are quite genuine, and not *imaginary*, experiences of hearing or seeing certain items. When people such as Perceval recover, they do not renounce their claims to have heard and seen the things they did hear and see, they renounce their *belief that what they perceived was something in the actual world*. It is not the experiences which are unreal or imaginary but the items so experienced.

The natural way to describe such perceptual experiences, then, is in terms of perception of a nonentity, as a genuine perceptual experience of something which has no existence in the real world. Nevertheless the pressure of referential accounts of perception leads to the ruling out of such natural descriptions, and to the alternative description of such cases, as for example in Dretske, not in the natural way as genuine perceptual

experiences of imaginary items, but as imaginary or nongenuine perceptual experiences ("perceived imaginaries" are forced referentially into "imaginary perceiveds"). According to the referential view, an apparent perception of a nonentity cannot be a genuine perceptual experience; the "perceiver" only seems to see, hear, etc; in such cases it is false that anything at all is seen, heard, etc.

Such an account is an obvious outcome of the referential view of perception, but there are powerful reasons for rejecting it. It is, first of all, fairly clear that to say someone has an imaginary or illusory or otherwise nongenuine perception of something is quite different in meaning from saying that she has a genuine perceptual experience of something imaginary or unreal. It is, for example, not a difficult thing to imagine one is seeing a ghost, but that is not at all the same thing as actually having an hallucinatory experience of one; nor is seeming to see, or thinking falsely that one sees, a White-headed Pigeon at all the same thing as having an hallucinatory experience of a White-headed Pigeon – that is the case where one has a genuine perceptual experience of a White-headed Pigeon which is not an inhabitant of the actual world (i.e. belongs to $d(\underline{\underline{T}}) - e(\underline{\underline{T}})$).[α] There are of course imaginary perceptual experiences as well as genuine perceptual experiences of imaginary items, but they are not the same thing: perceiving an imaginary a is *not* imagining perceiving a. And there are certainly many cases which cannot be properly described in the way suggested.

The motivation for the redescription attempt is much the same as for adverbial theories of intensional notions. The natural description of a genuine perception of *something* which does not exist would run counter to the Reference Theory and require not only quantification into an intensional context, but nonexistential quantification at that. The redescription transforms this awkward relation between an entity and nonentity into a pure property of an entity, and thereby avoids offending against the Reference Theory. But it is especially clear in this kind of case that the redescription move does not work, that there are important cases which cannot be so redescribed, and that the proposed redescription would eliminate distinctions which are essential for understanding and describing important aspects of the real world. The redescription does not succeed; but it is not just a matter of terminology or of "correct usage", the redescription distorts features of the cases described.

[α] From Vol. 1, §1.17: $d(\underline{\underline{T}}) - e(\underline{\underline{T}})$ is the domain of the factual (actual) world minus its existent items – i.e. its nonexistent items. —*Eds.*

Consider, for example, the perceptual hypothesis in the explanation of schizophrenia as outlined in *Orthomolecular Psychiatry* (OP), and especially Kirk's paper in that collection. The explanation of schizophrenia preferred in *Orthomolecular Psychiatry* can be seen as operating on three levels, a physiological level, an experiential level and a social level. The perceptual hypothesis is at the experiential level. This hypothesis explains the behaviour of schizophrenia as resulting from experiences of systematically distorted perception – which is seen as having usually an underlying physiological cause. According to this theory the schizophrenic person may develop a false belief system as a result of his systematically distorted perceptual experiences, and the social interactions this produces; in advanced cases these perceptual experiences include perception of unreal items and hallucinatory experiences. But to explain schizophrenia in this way, to give the perceptual distortion the major explanatory role on the experiential level, is to assume that these are indeed genuine perceptual experiences, and that the development of false belief systems are secondary and to be explained in a fairly natural way by the perceptual experiences hypothesized. That is, the perceptual experiences explain the false beliefs, and not the other way around; and the explanation requires that there are genuine perceptual experiences which do not require further unravelling or explanation on the experiential level (they may be explained at other levels, e.g. physiological). The schizophrenic experience and schizophrenic behaviour cannot be understood, in terms of the perceptual hypothesis, if it is assumed that these distinctive experiences are merely imaginary or false, not genuine perceptual experiences, standing in need of further explanation at the experiential level. Schizophrenic people usually rightly and indignantly reject the suggestion that they merely *imagine* seeing or hearing the things they do; and when such people recover, as the case of Perceval indicates, they usually do not withdraw the claim to have seen or heard these things, they simply cease to believe that what they saw and heard was real.

These different approaches to perception make a great difference, then, in practical cases. For in the case of the perceptual hypothesis the schizophrenic's false belief system, and the bizarre behaviour often associated with it, is viewed as primarily a consequence of a distorted perceptual experience of the world, and consequently distorted social interactions; and so the belief system may be seen, in a straightforward way, as what it seems to be, primarily a consequence of distorted perception and as part of a reasonable and rational attempt to explain and cope with the world as presented in perception. If,

on the other hand, the possibility of distorted perception is ruled out, as it is on referential theories, the schizophrenic belief system would tend to be viewed as *prima facie* irrational as an irrational body of imaginary perceptual experiences, inexplicable and irrational beliefs, and bizarre behaviour. Since these are inexplicable when taken at face value, attempts are made to procure rationality through various interpretations, which provide them with a meaning and a reasonableness which would otherwise, on the false perception view, be thoroughly lacking; such approaches thus give rise to a host of interpretation treatments, most of them strained and fanciful. The important point is that referential accounts such as the false belief account appears to rule out the perceptual explanation of schizophrenia, since if cases of hallucinatory perception are not genuine cases of perception, obviously there cannot be any explanation in terms of perception or defects in perceptual apparatus, and if these are merely false beliefs, then they cannot be the explaining factor but only what is to be explained. This may in fact be one reason why this most straightforward explanation of the problem has been overlooked for so long.

The perceptual explanation of schizophrenia may or may not be the most satisfactory explanation among modern explanations of schizophrenia (although there is some reason for thinking it might be, in terms of its ability to account for the data; see Kirk's assessment in OP). It would be ironic indeed if the Reference Theory and associated empiricism, which delight in presenting themselves as the upholders of science and bastions of the scientific approach, should exclude, through their theories of perception, perhaps the best explanation of what has been described as "the most baffling problem known to science". But whatever value the perceptual explanation is ultimately found to have, it counts sufficiently against accounts like the false belief account, which include the existence condition, that they rule out such an explanation presumably as illogical before it can even begin, and before it can be tested; indeed they rule out a whole class of explanations in terms of faulty or disturbed perceptual apparatus before they can really begin.

The main motivation for the existence condition (as for the transparency condition) appears to derive from the Reference Theory. But further motivation for the denial of the possibility of seeing or perceiving the nonactual comes from the (mistaken) attempt to view perception as completely paralleling the physical perception process that takes place in *veridical* cases; for example, seeing is viewed as occurring just when light

emitted by a certain object strikes the perceiver's eye in a certain way, and so on through the physiological story (where everything is supposed to proceed referentially).[1] But a nonentity obviously cannot emit light which strikes a perceiver's eye, etc.; so, obviously, a nonentity cannot be seen.

The move amounts to an attempt to referentialize perception, to remove its intensional inexistential character. For the physical relation in terms of which the account is given is extensional (e.g. light striking the observer's eye); so the perception claim if it is (said) to be true when and only when this extensional perceptual process claim is true, must also be extensional. While the claim that a nonentity cannot stand in the requisite extensional perceptual relation is right, the requirement of such a simple physical relation (either as a necessary or as a sufficient condition) as the basis of perception is wrong. Certainly a physical and visual relation of the relevant kind may be *involved*, but the requirement interprets this involvement too simplistically. For example, an hallucinatory experience, e.g. of a ghost, may be described in terms of an "as if" or a counterfactual physical relation (his optical equipment was affected in much the same way as it would have been if it had in fact been a ghost; it was *as if* he had seen a ghost); but the counterfactual or conditional part of this is firstly irreducible, secondly makes the matter irreducibly intensional (for look at descriptions which can be substituted in *as if* contexts), and thirdly, removes the case for the restriction of perception to *actual items*, since this new counterfactualised relation can as easily relate a nonentity (as perceived) to an entity (as perceiver) as an entity to an entity.

The usual extensional attempt tries to restrict cases of "real" perceiving to the extensional case, setting the "as if" or "counterfactual" visual process observations aside as imaginary perception, as not genuine perception. This should be rejected, for the reasons given and others (to be adduced). What has to be given away is not however the physiological story of perception but the simple-minded extensional account of perception.

In a similar vein, it is sometimes objected to direct realist theories of perception that they do not allow for, or indeed are incompatible with, the causal story of perception which modern science has revealed. The weaker claim may be found, for example, in Hirst 1967 (p. 80), the stronger claim in Smythies 1956. Hirst's line is that "some attempt has

[1] Thus, for example, Chalmers 1976, p. 22ff. Criticism of this position is taken up again in 11.3.

... been made [by common sense realists] to deal with the causal processes, but not very convincingly". For they (usually linguistic analysts)

> have said little of a positive nature; their main attitude is that the causal processes are at most only the conditions of perception and are the concern of the scientist ... . Unfortunately, scientists generally claim that the study of the causal processes requires representative realism, and even if the plain man does not bother about them, an adequate philosophical theory cannot ignore the causes and conditions of perceiving, particularly since the explanation of illusions depends on them (Hirst, p. 80).

While it is true that an adequate theory cannot ignore the conditions of perceiving – some of which have but little to do with causal processes – and that the sharp separation linguistic analysts have tried to impose between common sense philosophy and science is artificial and implausible, convincingly dealing with causal processes (insofar as they are presently known) can be satisfactorily expressed in the language of common sense. The scientists usually arrive, like Hirst, at a representative theory for (bad) philosophical reasons; they "are persuaded by the argument from illusion" and through uncritical adoption of a referential model of perception. And despite the claims of some scientists, it false that a theory of the causal processes requires representative realism. Smythies is not unrepresentative of "the scientists".

Smythies objects (1956, p. 31) to the common speech common sense account of perception,

> we will not be able to give any logically coherent account of how the physical and physiological processes concerned in perception are related to my visual experience. For to attempt to do so along these lines leads us into the logical fallacy discussed in (3.1).

The fallacy alluded to is led to by

> the theory of perception known as naive realism ... . For it is clearly a logical fallacy to state that a series or class of events with a temporal duration of three hundred years [obtained in perceiving a star at the appropriate distance] is identical with a series or class of events with a temporal duration of three seconds [sensing a sense datum related

> to the star]. Yet the theory of naive realism states that ... [These two series or classes] are identical (p. 15).

Even if the naive theory did state this – which is decidedly doubtful – such a naive theory is not implied by common speech common sense accounts of perception.[1]

It is not the case that the causal story of perception as so far revealed by modern science is incompatible with direct realist theories of perception. In trying to show this, it helps to separate what may be called the *physiological story* – which is the account, with theoretical components, of what happens in perception of various sorts – from the *causal theory* of perception, a competing, philosophical theory, which, unlike the physiological story with which it tries to associate or *identify* itself, is (at least as usually presented) incompatible with real realism.

> The causal theory of perception, can be taken as holding that an observer, O, perceives an object, M, only if M causes O to have sense impressions (Donnellan 1974, pp. 18–9).

But consider any case where a perceives M and M does not exist; since M does not exist it cannot physically cause any reactions in an existing perceiver a. Hence real realism entails the falsity of the causal theory, so (conventionally) formulated. To be sure, the causal theory can be modified so as to be rendered compatible with realism;[2] e.g. Donnellan's formulation is first restricted to "veridical" perception, and a further clause is added to account for remaining cases. But taken literally the causal theory is false; for the pomegranate flower I am inspecting does not cause me to see it.[3] Moreover the causal theory, even treated more sympathetically, characteristically imports so many suspect philosophical middlemen (such as sense impressions, in the technical sense of sense

[1] It is surely false also that "the class of events denoted by the phrase 'I perceived a star'", in the context of a star at 300 light years distance, is "a class of events with a temporal duration of three hundred years".

[2] As the causal theory of names was adjusted in chapter 1, §14 [Vol. 1 *—Eds.*], to permit a synthesis with noneism. In general, causal theories of any sort, which work for a restricted class of cases, can be combined with noneism by being restricted to those cases. The usual trick of causal theories is of course to pretend to universality when only referential cases are covered; i.e. the success of the theories presupposes the Reference Theory.

[3] This is one reason why reformulations of the causal theory like the following (suggested by what Dretske has to say in 1969) fail:

> if x sees y then some (further unspecified) causal chain links y with x.

To fit with noneism of course, y should be replaced by some $\delta(y)$ which exists, otherwise causal linkages of nonentities with entities remain.

data or Humean impressions) in an essential way that it is best abandoned. Abandoning the philosophical theory does *not* imply abandonment of the physiological story, which if satisfactorily presented need say nothing about sense impressions and little, if anything, about causes in general. The important point for the synthesis of the physiological theory with noneism is that the story *need not* (though it may) commence with an external entity which vibrates, emits or reflects light, or whatever: it can begin with what happens in an observer's head. Consider the patient who sees brilliant balloons floating up in an infinite sky (example (3) above): the physiological story, most details of which are unknown, starts with small electrical charges being sent through a probe inserted in the striate area of the patient's brain.

How is the correct physiological story, considered as a conjunction S_p, in the case where a sees b which does not exist, reconcile with statement p, that a sees b? In the same way as when b does exist: if the story is adequate, $S_p \equiv p$. But the connection is a contingent one; p neither entails S_p (consider, e.g. the situation Dretske describes in 1969, chapter 1, where a man regularly sees what happens in the other side of a massive quite opaque wall), nor is entailed by S_p. Hence, as expected, the meaning of perceptual predicates cannot be given in physiological terms; for if it could, such entailments would follow. So too someone's knowing p does not entail that he knows S_p, since a material equivalence does not license replacement in intensional frames. But isn't to see, for example, the same as to have certain physiological processes going on? Yes, presumably; but the identity is a contingent extensional one, not a logical or intensional one (a much fuller account of the matter is given in Routley and Macrae 1966). Thus familiar problems that confront, and are sometimes claimed to invalidate, referential realist-style theories over the connections of perception and physiological processes (e.g. how they can be the same when the logical properties and meanings differ: $a = b \;\&\; \sim\Box(a = b)$) simply dissolve under the non-referential identity theory (explained and defended in chapter 1 [Vol. 1 *—Eds.*]).

The second, not uncontroversial, facet of the non-referentiality of perception is referential opacity of perceptual terms: $a\phi b$ and $b = c$ does not guarantee $a\phi c$. For example, a looked for (looked at, noticed, was aware of, saw) a speckled hen does not materially imply, even though the hen is one with 999 ± 7 speckles, that a looked for (etc.) a speckled hen with 999 ± 7 speckles. The basic verb "aware" of much perception theory is conspicuously opaque, especially in *that*-constructions (to which theories often

try to reduce *of*-constructions); for instance, to adapt a famous example, George IV was aware that the author of *Waverley* wrote *Waverley* but was not aware that Scott wrote *Waverley*. To be sure, transparent analogues of opaque predicates can be readily enough designed (e.g. using the English "in fact"), much as existentially-loaded (success) versions of unloaded predicates are easily introduced. But these analogues do not replace, or remove the need for, the opaque unloaded originals. Moreover the needed opaque originals are not so easily recovered from their transparent analogues – or recoverable at all in a classical theory of the modern extensional sort.

The restriction of perception terms to "success" terms is only the first then, of restrictions designed to turn perception relations into honest-to-God referential relations. Not only are we invited (as by Armstrong, Chisholm, Dretske, and others, including some like Reid and Meinong who should have known better) to reject inexistential perception relations; we are also invited (as by Dretske, Kripke, Quine and others) to reject opaque perception relations.[1] We are encouraged, especially through incompleteness or "facade" arguments, to render our senses of perception relations less subject to incompleteness and properly transparent. Thus, for example; when we see Mr. Jones going down the street *by seeing* Mr. Jones' head bobbing along the top of the hedge, what we are invited to say – all we are said to *really see* – is that we only *see* Mr. Jones' head.

Much as the inexistential character of some perception claims is important in – a crucial component in – meeting sceptical arguments from cases of nonveridical or non-straightforward perception – for example, arguments from illusion, verification, time gap – so the opacity of many perception claims is important in meeting this other class of sceptical arguments, namely those from incomplete evidence, perspective dependence, Gestalt shifts, and the like, and also the more comprehensive class of arguments directed against realism, e.g. arguments from causation and from the composition of matter. Consider, for example, the latter argument:– put crudely, the argument is that were Simple Simon to directly see a mangosteen then, since a mangosteen is nothing but a certain collection of elementary particles ($m = cc$ for short), he would directly see the collection of elementary particles, which of course he doesn't, so he doesn't directly see the mangosteen. But in the common opaque sense of "directly see" the extensional identity $m = cc$ does not legitimate replacement of "m" by "cc" in "SS directly sees m"; and in the transparent

[1] The invitation is a bit like one from the mafia or the state to join its latest insurance or licensing scheme. Not accepting it is taken to spell trouble.

sense of "directly see", expressed in English by such locutions as "in fact directly see" (and formed logically by such constructions as $(Px)[m = x$ & SS directly sees $x]$[1]), where replacement is legitimate, SS does in fact directly see the collection of particles. Resolved along essentially similar lines (as we shall see) are several other difficulties in the theory of perception, e.g. the independence and relative completeness of objects when perception itself is incomplete and sense dependent, and the problem of how perception claims can go beyond immediately observed features, beyond the apparently given. Indeed it is perhaps not going too far to claim that *most of the sceptically-based arguments which are supposed to discredit direct realist theories can be met by drawing attention to the intensional and inexistential features of objects of perception.* The underlying reason is that the Reference Theory is the main force behind scepticism, especially epistemological scepticism.[2]

Since the sceptical arguments are commonly turned against direct realism, in the first place to destroy directness and realist conditions and to argue for intermediary entities, it is worth a further detour to see how the more difficult of these arguments can be defeated.[3]

Perhaps the most telling of the sceptical arguments against direct realism, and the hardest to rebut, is the *incompleteness* or facade *argument.* The argument is difficult to rebut because, among other things, it is usually incompletely formulated, so that crucial premisses are hidden from view. The following detailed formulation of the incompleteness argument against direct realism represents a class of sceptical arguments which depend upon Leibnitz identity and ultimately on the Reference Theory. The argument leads to the conclusion that, given classical logic and especially Leibnitz identity, we cannot

[1] The requisite distinction cannot be made adequately in classical logical terms.

[2] Thus it is that more honest thinkers committed to the Reference Theory, such as Russell, find some of the sceptical arguments valid, and rather irresistible. The reason why Russell thought the sceptical arguments could not be defeated, was because on his and classical logical theory they could not be. Classically they are (virtually) inescapable. The fallacy lies in assuming that classical logic is the one true logic, and reflects the ways we reason. From the viewpoint of noneism the arguments are invalid, and are not particularly difficult to fault.

[3] No claim to exhaustiveness is made, so the argument for the main thesis linking scepticism and the RT remains incomplete. While the latter argument can, it is claimed, be made good, that would require, what is not attempted here, something approaching an exhaustive classification of prevailing sceptical arguments. However some of the omitted sceptical arguments are considered elsewhere, e.g., arguments from fallibility in 11.4, or are touched upon elsewhere in the text, e.g. arguments from infinite corrigibility and revisability. Valuable investigations of some of the omitted arguments can be found in Wisdom 1952 and Griffin and Harton 1981.

both admit an obvious intensional feature of perception, namely its incompleteness or selectivity, in other words its opacity, *and* make the obvious normal claim about *what* is perceived, that is, the Direct Realist claim. The argument, which admits of many variations, takes the following form:

1. When someone, z for example, perceives Mr. Jones, z actually notices only a few of the things about him. Alternatively,

1′. Only a (tiny) subset of Mr. Jones' properties are given in perception in any perception event.

2. By definition, the perceived item is the item with all and only the properties which are actually perceived of the item.

3. So the perceived item (Mr. J*n*s) has only a (tiny) subset of all Mr. Jones' property.

4. But Mr. Jones is the item with *all* Mr. Jones' properties.

5. By Leibnitz identity, therefore, what is perceived (Mr. J*n*s) is not identical with Mr. Jones.

6. Generalising, by the same argument, what is perceived directly is never the real item in the actual world; i.e. direct realism is false.

An alternative conclusion to 5 is

5′. The perceived item (Mr. J*n*s) cannot be the same as the real Mr. Jones.

The problem presented by the argument is resolved in noneist theory by distinguishing clearly opaque and transparent senses of "what is perceived" or "the perceived item", which the plausibility of the argument depends upon confusing. Formally these are distinguished as

(1) $\imath x\ P_z x$ (the opaque "item"),

that is, the perceived item as defined in premiss 2 as having all and only the properties perceived of the real item; and

(2) $\imath x(Py)(x = y\ \&\ P_z y)$,

that is, the transparent sense of "what is perceived", according to which what is perceived is the item with all and only the properties of the real item.

The argument trades on confusing these senses and the confusion is facilitated, indeed is difficult to avoid, because of the "item" terminology used. To speak of "the perceived item", "the perceived object" and especially of "what is perceived" is, normally, to speak in sense (2) above. Item, object, and "what is" talk *is* referentially transparent, in its normal uncovered use. Definition (1) therefore in premiss 2 (a special case of the notion of "intensional object") introduces a special and artificial sense of "what is perceived" or "perceived item" which is in fact referentially opaque, contrary to the normal convention for using "what is" and "item" and "object" talk. So strong is this convention that "the perceived item" of premiss 2 might almost be said to be inconsistently specified, since on the one hand the definition specifies it as opaque (sense (1)), while on the other the use of "item" terminology specifies it as transparent (sense (2)).

The terminological point does not get to the bottom of what is wrong with the argument however. The confusion in terminology merely encourages us to go on to make an illegitimate identification between sense (1) and sense (2) which is in fact necessary if the argument is to show anything significant, and in particular to count against Realism. For in order for the conclusion 5 to follow in any damaging sense, such a missing identification must be supplied; for in order to count against Realism the conclusion must show that what is perceived *in the transparent sense* is not identical with Mr. Jones. But this it cannot do, without the addition of a further premiss $4'$ – false on the noneist theory – which states that the perceived item as defined in premiss 2 is, in a transparent sense, "what is perceived" as in the conclusion 5; that is, which illegitimately identifies senses (1) and (2) above. Without such a further premiss the conclusion does not follow if "what is perceived" in the conclusion is read in the usual transparent way, and it is only if it is so read that the conclusion is damaging to Realism.

The argument then faces a dilemma. *Either* it must supply a further premiss (premiss $4'$: What is perceived is the perceived item) identifying "the perceived item" in premiss 2 with "what is perceived" in step 5, a premiss which the noneist will reject, *or* the conclusion does not follow in any sense which could be damaging to Realism. For without such a reading of the conclusion all 5 (likewise $5'$.) states is that the transparent "item" is not identical with the opaque one. But this is a perfectly harmless conclusion, which the realist can admit, and in fact it simply restates the initial points concerning the incompleteness of perception, in a misleading and tortuous way (misleading because uncovered "item" talk is naturally transparent). The argument purports to falsify Real-

ism, but in fact there is nothing about the conclusion that the opaque item differs from the transparent one which is inconsistent with a realist position.

The argument is resolved for the noneist then by the distinguishing of opaque and transparent senses of and "what is perceived", "the perceived item" which correspond to opaque and transparent senses of perception. It is important to note however that this way out of the problem is *not* available given the apparatus of classical logic, and in particular Leibnitz identity; for making such a distinction is entirely dependent on the rejection of Leibnitz and the adoption of an account of intensionality and of extensional identity according to which such intensional features do not transfer across extensional identities. Given such an account the class of perceived properties will of course be only a subset of the class of all properties of the item, and the perceived item defined as having just the perceived properties not only can but *must* be distinguished from the transparent item, the item proper, defined, through extensional identity, as having the further properties the item in fact has as well as these perceived ones (sense (2): $\imath x(Py)(x = y \;\&\; P_z y)$). This latter item may, in addition to *all* its other properties, *also* have the property of being perceived, in which case it is "the perceived item" or "an item which is perceived".

The Leibnitz identity principle, on the other hand, prevents such a distinction and forces the disastrous identification of the transparent and opaque items, of $\imath x\ P_z x$ and $\imath x(Py)(x = y \;\&\; P_z y)$, as is now shown.

1) It is logically true that $P_z x \equiv (Py)(x = y \;\&\; P_z y)$. For $P_z x \supset .\ x = x \;\&\; P_z x$, so by particularisation $P_z x \supset (Py)(x = y \;\&\; P_z y)$. Conversely, for every x, $x = y \;\&\; P_z y \supset P_z x$, by Leibnitz identity. Hence distributing P, since y is not free in $P_z x$, $(Py)(x = y \;\& \; P_z y) \supset P_z x$, completing the proof of 1). Hence:

2) $\imath x\ P_z x = \imath x(Py)(x = y \;\&\; P_z y)$; for where A and B are logically equivalent, $\imath x A = \imath x B$ on every standard description theory.

3) By Leibnitz again, the transparent and opaque items have exactly the same properties.

This type of argument, and the Leibnitz identity-Reference Theory logical framework which produce it, forces a choice then between, on the one hand, denying the first premiss and misrepresenting the character of perception as complete and extensional,

which yields Naive Realism or a camera or other mechanical account of perception, and on the other hand, accepting the conclusion, which leads to the denial of Realism and the well known unpalatable alternatives of Representationalism, Phenomenalism and Scepticism. This of course is just the choice that modern empiricist epistemology has typically presented. The alternative solution points a way to a realism that does not depend upon denying the intensional character of perception, which is what generates the difficulties of the naive form of realism, and that breaks the false choice created by the acceptance of assumptions drawn from the Reference Theory.

A closely related argument to the incompleteness argument is Hume's argument from *perceptual relativity*, which runs as follows:

> The table which we see, seems to diminish as we move further from it; but the real table, which exists independently of us, suffers no alteration. It was, therefore, nothing but its image which was presented to the mind (*Essay on the Academical or Sceptical Philosophy*).

The argument and the larger claims Hume supposes it to support are delightfully dealt with by Reid, who demolishes Hume's sceptical case (see 1895, p. 302ff.). Reid dissolves Hume's perceptual relativity argument using a distinction between real magnitude and apparent magnitude, as follows:

> the table we see seems to diminish as we remove further from it; that is, its apparent magnitude is diminished; but the real table suffers no alteration – to wit, in its real magnitude; therefore, it is not the real table we see. I admit both the premises in this syllogism, but I deny the conclusion. The syllogism has what the logicians call two middle terms: apparent magnitude ... in the first premise; real magnitude in the second (1895, p. 304).

Reid does not however get to the logical bottom of arguments of the perceptual relativity sort, which lies in identity.

On a common modern variation on Hume's argument two observers A and B in different positions have different sense impressions of the table, for example, they see it as different in size according as their distance from it varies; but the real table cannot have two different sizes. It is, therefore, not the real table, but something else (e.g. sense data of the table) that they see.

The main logical assumptions of the argument are not supplied, but when they are, its closeness to the basic incompleteness argument is clear. For the argument is essentially that the opaque or *perceived* object (e.g. the perceived table) has different properties from the *real* table. Therefore, by Leibnitz, the perceived table cannot be identical with the real table, and so must be something else, e.g. Hume's images. As before, it is concluded that what is seen is not the real table i.e. that realism is false. Hume's use of the fact of apparent variation of the size of the table (i.e. variation of size of the perceived table), and the second argument's use of the difference in perceived size to different observers, are designed to establish that the properties of the perceived table cannot be the same as those of the real table.

Thus the style of argument is very similar to that of the incompleteness argument. And it is resolved in the same way, by rejecting the full strength Leibnitz principle which creates the problem of how the perceived item and the real item can be identical. This sceptical argument, like nearly all the others, is the result of an inadequate treatment of intensionality and inexistence, and of the application of principles, such as Leibnitz identity, derived from the Reference Theory.

Arguments of similar style are commonly deployed also to (try to) show that perception must be analysed into two components, (raw) data or experience and, superimposed on that, interpretation. Such arguments (further considered in 11.4ff.), which lead to intermediary objects, those of experience, likewise result from the mistaken quest for fully Leibnitzian objects in perception.

A common route to intermediary objects is from *nonveridical perception*. Grave sets out succinctly the usual philosophical leap, specialised to the case of memory:

> We have false memories and these have no intrinsic marks to distinguish them from true memories. While the object of a true memory could perhaps be a past event as it actually was, the object of a false memory could not be a past event as it actually was. The false object must be an idea (1960, p. 24).

Why must it? The false object is simply an object – in this case an event that did not exist, at least as remembered (it soon turns out). To authorise the philosopher's leap to ideas one of the two great prejudices underlying the Theory of Ideas has to be imported, namely that ideal substitutes have to be found for nonexistent objects. Without this

assumption, which serves to enforce the Ontological Assumption, the argument fails to establish its conclusion (the argument is further considered and criticised in detail in 12.1).

Another popular argument for intermediary objects which poses no problem for noneism is the *time gap* argument. The usual gap argument is premissed on the assumption that what is directly perceived is always in the present, an assumption the argument can be turned around to repudiate. More generally, it can be convincingly argued that a perceiver can sometimes perceive what no longer exists from the adjacent past, something that on noneist principles is quite unproblematic. A nice example provided by Meinong (discussed in Russell 1904, p. 213) is the perception of a complete melody; since some of the notes in the perceived melody are in the past and no longer exist, in perceiving the melody one perceives what in part does not exist. Another example of perceiving what does not exist in the adjacent past is of this sort:– The stew was on the table some time ago. The stew no longer exists: we have eaten all of it.

Busho, one of our neighbours, a large bush-rat (*Rattus fuscipes*) who has superb sensory equipment for smelling, enters. Busho smells the stew. He looks about to see if any of it remains, e.g. that we have dropped on the table. The truth *Busho smells the stew*, states a perceptual relation between an object that exists and one that does not exist, though it did exist in the vicinity. One might try to say that, even though *we* can't detect it, *the smell of the stew exists* – if one is prepared to allow that smells exist separately from their sources, just as one can say that perceptual traces of stars exists after they have disintegrated – but that is not really to the point. For Busho smells, *not* just the smell of the stew, but the stew.

Arguments against direct realism and for intermediaries from *sensory hallucination and sensory illusion* are likewise met at once by noneism. Consider hallucinations, where items that do not exist are perceived (there need be no sense deception). There is simply no problem, and no call for substitute entities which are referentially related to perceivers. One simply sees what does not exist. Sensory illusion is even less likely to deliver the intermediaries representationalisms and phenomenalisms seek and require, since in illusory cases entities are perceived. They are simply not as they appear to be; the stick which is seen exists but it is not bent, the way it looks to be. Certainly illusion and the like reveal that sense perception is occasionally in error; but direct realism is not committed to the (false) thesis that philosophers try to hang on "naive realism",

that perception is totally reliable, that things are always as they are perceived to be (cf. Hospers 1956, p. 380).

Nonveridical perception does however cause serious difficulties for rival positions to noneism which account themselves direct realist, for example for Armstrong's theory of perception (in 1961, 1968) where nonveridical perception – which is said not to be perception at all – has to be analysed away, but the analysis given remains unsatisfactory. Interestingly, but by now not too surprisingly, Armstrong's argument that such an analysis is required (why try for one if it is unnecessary?) is anti-noneist. Armstrong's route to his account of nonveridical "perception" of sensory illusion (1961, p. 81ff.), proceeds by explicitly rejecting principles of Meinong's theory of objects and thereby assumptions of common sense. Armstrong assumes that there cannot be relations of perception or belief to propositions that are false or states-of-affairs these propositions delineate: for example, no relation can obtain between creature a and the inhabited centre of the earth in virtue of a's (false) belief that the centre of the earth is inhabited, because it is false that the centre of the earth is inhabited and so the state of affairs of its being inhabited does not obtain. Armstrong's reason is that corollary of the Ontological Assumption that there cannot be relations to what does not exist,[1] the argument being that there is nothing to relate to. Nothing existent, certainly; but objects to relate to, also certainly. For a's belief that the centre of the earth is inhabited relates a to a proposition, and this relation induces a (definable) relation between a and the inhabited centre of the earth. Similarly perception remains a relation, whether or not what the perceiver relates to is true or not true, exists or does not exist. Intensional relations commonly and quite characteristically relate the existent and the nonexistent.

According to Armstrong the commonsense account of a visual hallucination of a cat on a mat, as the "seeing" of an object which does not exist, though "very natural", is "completely mistaken" (1961, p. 83). But he does nothing to show this; he simply reiterates his own opposing views, that "there is no object at all, physical or non-physical, which we are perceiving in any possible sense of the word 'perceiving'" (p. 83) – a completely indefensible claim since such senses could easily be invented were they not already familiar from natural language (e.g. a sense could be defined in terms of Armstrong's own belief relation, so that, for instance, a perceives^{A} x iff a has the false belief that he veridically

[1] If there were relations to nonexistents, then nonentities would have properties, contradicting the Ontological Assumption.

perceives x). The "error" in introducing such a (natural language) sense of perceiving, in which one can perceive what does not exist, is said to be "ultimately ... the same as Meinong's error about the objects of thought and belief" (p. 84), and that Armstrong supposes is the end of the matter. Of course it is not: positions can no longer be dismissed by being associated with Meinong. Meinong made no errors in his main theses concerning objects of thought and belief.

In Armstrong 1968 where the theory is elaborated (and amended) a somewhat different route is taken to the thesis that perception is the acquiring of beliefs (or information), or rather that perception is the acquiring of false beliefs or inclinations to false beliefs (p. 112). But the thesis maintains its status as a (dubious) conjecture, since the argument given (1968, p. 209) is inconclusive for the following reason:– even if a "biological function of perception is to give the organism information about the current state of its own body and its environment" this does *not* "*lead* to the view that perception is *nothing but* the acquiring of true or false beliefs concerning the current state of the organism's body and environment" (p. 209, my emphasis).

Not only is the route defective, so are the results reached (summarised Armstrong 1961, p. 192). For in the ordinary senses of "belief" and "inclination to belief", perception cannot be adequately explained in terms of acquisition of beliefs and inclinations thereto; yet a specially prepared sense of "belief" which did the job would be without much explanatory merit.[1] On Armstrong's account however, perception does disappear, in a most unlikely way, into the acquiring of beliefs, true beliefs in veridical cases, and false beliefs otherwise. Such an account – which would in any case only supply a necessary condition, since such beliefs can be acquired, even immediately, in other ways than by perception, certainly on nonempiricist theories[2] – is patently inadequate, in both true and false cases, since such beliefs are unnecessary. Apposite also in perception cases is Reid's reply to Stewart's view that conception and imagination always carry temporary belief with them –

[1] Though this is what Armstrong would eventually resort to with "counterfactual beliefs" and "potential beliefs".

[2] It might be thought that the account could be repaired, as a sufficient condition, by adding (after "acquiring") "*by (means of) the senses*". But Armstrong disallows – and really has to disallow, since it involves a merely contingently connected and circularly characterised restriction – this addition as part of his *analysis* (1968, pp. 211–3).

It is rather noticeable that although Armstrong devotes a good deal of space (especially in 1968) to defending one half of his conjectural analysis under the heading "perception without belief" he devotes no space to defending the other half, "requisite" beliefs without perception.

> I can conceive the steeple of the cathedral standing on its point ... I cannot find a vestige of belief accompanying it (quoted in Grave 1960, p. 32).

To avoid counterexamples to his account, Armstrong, as a first theory-saving strategy, tacks "inclinations to beliefs" on to beliefs.

> The inclination to believe is a thought about the world that would necessarily be a belief, but for the fact that it is inhibited by previously acquired knowledge which holds the thought in check.

Unless empiricism is written in at the bottom, in the assumption that all immediately acquired beliefs or inclinations to beliefs are cases of perception, the disjoined condition *beliefs or inclinations to beliefs* is not sufficient. Certainly on Meinong's theory one can immediately acquire inclinations to believe in other ways, e.g. through characterisation principles. Nor, more importantly, is the disjoined condition necessary. For consider certain sorts of drug-induced hallucinations: perception occurs but neither false beliefs nor inclinations to false beliefs are acquired, because, for example, there is no inclination to accept what is seen as real, or perhaps as other than a passing show. Consider likewise Smythies' example of hallucinatory flowers (presented above).

The serious problems in trying to dismiss nonveridical perception as not really perception of objects (nonentities), but as something to be recast in terms of sets of beliefs and inclinations to beliefs and their acquisition, can be brought out as follows:– You can compare what you see in your vision (or your dream) to a painting, e.g. the interiors resemble those of a Vermeer, you can compare the shining city of your vision to a Breughel, or perhaps to a city in a poem by Blake. But how can you compare a set of *beliefs* or *inclinations* to a painting? A Vermeer interior is not a set of beliefs, nor can it be compared to a set of beliefs. It seems that a category mistake is involved in taking such occurrences as involving belief sets. One may be presented in a vision however with something of the same order as a painting, and just as with observing a painting one might simply take note of it without forming any particular beliefs about its status in the actual world. For example, one might see an after-image without having or acquiring any particular beliefs (or inclinations to believe) about whether or not it exists.

Eventually Armstrong concedes that there are cases of perception without belief and without inclination to believe (e.g. 1968, p. 222: one case allowed is that of percep-

tions involved in looking in a mirror). His further theory-saving strategies there is no inclination to believe: they involve yet further disjuncts. The first step yields, in effect, the disjunct: Beliefs or inclinations to belief or counterfactual beliefs or potential beliefs. But a "counterfactual belief", "*but* for ... he *would have* believed", is not a belief, except under an unacceptably low redefinition of "belief"; similarly in the case of "potential beliefs". Such "beliefs" cannot (contrary to 1968, p. 223) be "fitted into" Armstrong's analysis without abandoning it. Nor is Armstrong entirely satisfied; he proceeds to add, as a second step, a further disjunct: or something "*like* the acquiring of beliefs or potential beliefs" (p. 223). This removes almost all the stuffing from the original thesis (to which Armstrong shortly reverts, without any appearance of dis-ease, although it has been qualified away).

Even if the account worked it would only cater for *perceives that*. Armstrong supposes (in 1961) that "a perceives b" can be reduced to something of the form "a perceives that bf"; but it is very doubtful that it can be. Certainly the favourite substitute for predicate "f", which cannot be left free, namely "exists" fails badly; consider, for instance, "Smythies perceives an hallucinatory rose". Armstrong's subsequent "account of talk of perceiving *things*" (in 1968, p. 228) should be, *it seems*, that "a perceives b" is tantamount to "for some f, a perceives that bf": "the idiom 'A perceives x' ... tells us that it is information or misinformation *about* x that is acquired but it tells us nothing more" (p. 228). The quantificational analysis is not however equivalent to Armstrong's proposal, for whereas A's acquiring of [mis]information about x does not imply that A perceives x, A's perceiving xf does imply that A perceived x.[1] The more questionable converse depends on the assumption that A cannot perceive x without perceiving something about x. But if such an assumption is true it is at best contingently true, and so will not provide a logical connection of sufficient strength for an analysis. And it is doubtful that it is even contingently true. Consider, for instance, the child who perceives something, just something, without perceiving anything about it.

[1] The principle does not hold for absolutely every subject however: consider, e.g., "a sees that it will rain" or "a perceives it is snowing". What is more Armstrong looks like tearing down his own account, for (p. 230) he rejects the thesis that A perceives x is y entails that A perceives x on the basis of the following example: that when A sees smoke emerging out of a chimney, A can be said to see that there is a fire in the hearth, but cannot be said to see the fire. With the relation of perceiving, especially *literally* perceiving, the example breaks down. However it is true that there is a determinate of "see" (and *perhaps* also of "perceives") which permits inference: equally there is another important determinate, clear for "perceives", for which the example fails.

A noneist account of perceiving *things*[1] likewise diverges from Armstrong's account (in 1968) on other central points. Firstly, it is false that "phrases of the form 'perceives an x' have an 'existence grammar'" (p. 227); a perceiver may perceive what does not exist. Secondly, as a consequence, it is false that when A perceives x "it is entailed that x is the cause of A's perception" (p. 229); for suppose x does not exist.

Armstrong claims as a virtue of his theory that it "can very simply solve pressing problems about our conception of the physical world" (p. 239). It is very doubtful that the theory does succeed in that. For example, in Armstrong's solution to the "problem" of mirror images, there are no *objects* such as mirror images, just acquiring of false beliefs of certain sorts, etc. But this destroys the logic of mirror images where such items function as objects of quantification. Thus both you and I can see the image of a bucket, so some one object is seen by both of us; etc. In contrast, noneism lets us retain the cherished picture of the physical world according to which

> the physical world ... consists of a single realm of material objects and perhaps other objects, related in space and enduring and changing in time. Material objects have shape and size, they move or are at rest, they are hot or cold, hard or soft, rough or smooth, heavy or light, they are coloured, they may have a taste, and they may emit sounds or smells ... (pp. 239–240).

The sorts of things that are supposed to upset this picture, cases of nonveridical perception, and perceptual relativism, examples such as mirror images and white dots, have already, for the most part, been considered.[2] They do not upset the noneist picture. That is, "it is possible to preserve our picture of the physical world more or less intact"

[1] Perception relates perceivers not only to (bottom-order) things and to (higher-order) judgements, but also to other higher-order objects, e.g. featurestances, as in "a perceived the ugliness of the city", and properties, as in "a sometimes perceives pure redness". Nor do these further cases simply reduce without remainder to the first cases, as 12.3 will reveal. However all cases are of the uniform form xPy where x is a perceiver and y an object.

[2] White dots are the main exception. The problem, explained by Austin (in 1962), is that (in a suitable context) it is true that:

i) That white dot is my house, and
ii) I live in my house,

but it is false, what follows by legitimate substitution of an extensional identity in an extensional frame,

iii) I live in that white dot.

The trouble lies with i) which is contextually compressed, as can be independently seen. For it is just false that my house is (identical with) a white dot. The trouble is removed upon expanding i); for it amounts in context to:

i*) What looks like [appears to be] a white dot at this distance is my house.

(p. 241), not in the difficulty-fraught ways of the representative theory of perception or of Armstrong's analysis, but by distinguishing in the noneist way between two classes of perceived objects, the existent objects of the physical world and the nonexistent objects of appearance.

It remains to argue more generally the adequacy of the noneist version of direct realism as against rival theories of perception. Rivals to noneism typically offer accounts of intensionality and inexistence which lead, in the illustrative case of perception, to phenomenalist or sense data theories or indirect or representational theories. Noneism enables us to say the obvious thing about perception, namely that what are observed are commonly external things, just as it enables us to say the obvious thing about nonentities, namely that they are sometimes objects of true statements: rivals do not. To establish the large claim staked out it helps to separate the following *necessary* conditions for a logical treatment of intensionality to be able to provide a satisfactory treatment of direct realism, keeping in view the working illustration, that of the theory of perception:

(i) *The relational, or realist, condition.* Intensional statements must be able to provide genuine relations. In order for intensional statements to provide genuine relations, what has to be admitted is the treatment of the intensionally indicated object as a full subject, and so, for example, quantification into intensional contexts.

(ii) *The directness, or no replacement, condition.* The relation applies to the intensionally indicated subject and not to some analysandum inserted to analyse it away. The apparent subject of intensionality is normally the real or genuine subject, not some replacement subject. Just as according to the noneist when I say I am thinking about Pegasus what I am thinking about is Pegasus and not a concept, a name, or a nothing-entity (e.g. the null set or a null entity), or some other allegedly existing item (e.g. everything that exists that isn't Pegasus), so in the parallel theory of perception case what you see is the table and not an indirect mediating object dropped in to do the same jobs as the substitute referents in the case of nonentities. That is, the obvious objects of perception are normally the genuine ones.

Not just any relation, then, will provide a direct realist theory; it must be a relation between the right sort of things. In order to satisfy the second condition for a direct

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Then the substitution in ii) is unproblematic, for it leads only to:

iii*) I live in what looks like a white dot at this distance.

realist theory intensional predicates must be able to apply directly to the intensionally indicated objects which may be in the actual world. That is, intensional properties must be able to be properties of items in the actual world which also have other nonintensional properties; for example, in "The oasis is lush and green and Bookchin is looking at it", the properties must be attributable to the one item, the oasis, which has both extensional and intensional features.

One and the same item, which may or may not exist, has both extensional and intensional properties. This is brought out by the conjunction test for condition (ii), by examples of conjoined statements which contrast two such properties of the same item. Recall the logical features of such examples as "the girl was crossing the road but the driver saw her too late", the two contrasting properties of the one item, the girl. A real realist theory will similarly have both extensional and intensional properties as properties of the one item. Being able to do this is basic to the noneist theory being developed.

Noneism can meet these very reasonable conditions on a realist theory of perception. And it does more than just enable a direct realist position to be adopted: it also blocks familiar routes to indirect positions and, what is closely related, to scepticism; it closes these argument routes on grounds of invalidity (as has been noticed). For example, one argument for indirect objects of perception that leads on to scepticism is by way of nonveridical perception. Consider "he is looking at a beehive" or "he seems to see a beehive" where no beehive exists. Then there must be, so the argument goes, a mediating entity, e.g. a sensation as of a beehive, which is what the observer really sees, or more accurately *has*, which is distinct from the beehive itself but somehow related to it. But on a noneist account no such mediating entity is required: what is looked at is a beehive which does not exist.[1]

More generally, what are perceived in cases of nonveridical perception are either objects which do not exist at all (hallucination cases) or objects which though they exist in fact have properties different from those they are perceived to have (including illusion cases, e.g. the stick exists but is not bent). In both sorts of cases the objects of perception themselves (e.g. the bent stick) do not exist. This five-year-old-standard explanation short circuits several sceptical arguments: there is no initial step back to alternative objects of perception (such as sense data clusters), similar in some respects to existent objects,

[1] The differences between *seeing* and *seeming to see* do not disappear. They can in fact be explained, for what it is worth, in almost exactly the way Austin explains them (in 1962).

whose correlation with actual objects can readily be put in doubt. Nor does analysis demand a step back to real intermediary objects of perception.[1]

The noneist account is thus only one step removed from a "naive realism", and indeed is a version of what the American New Realists counted as naive realism:

> The objectified dreamland of the child and the ghostland of the savage are the first effort of natural realism to cope with the problem of error (in Chisholm 1960, p. 153).

Simply add to methods of the child and the savage the nonexistent objects of the noneist, which include the worlds of intensional semantics, i.e. ghosts and dreamworlds rendered logically tractable. This natural – or commonsense – realism is not naive, in the sense that it takes all perception as veridical (in this sense it is doubtful of course that the naive realist is more than a fabrication of philosophers: a mythological stalking figure who helps get courses in epistemology started). But it does take all perception as directly presenting objects to perceivers, only not all of these objects will exist and not all of them will actually be as they appear to be. The New Realists, in their criticism of natural realism, assume however that the perceived objects must all exist in the way presented (they assume in fact what is the basic trouble with all the standard theories of perception, namely the Reference Theory: that perception discourse, like other discourse, must be, at bottom, referential). Remove their assumption – as Reid removed the assumptions of the Theory of Ideas, an outcome of the Reference Theory – and the objections they make collapse. Consider, for example, the difficulties they try to manufacture out of the issue: where do "the objects of our dreams and our fancies, and of illusions generally" exist? But if they do not exist,[2] then they do not exist somewhere. There is no point in trying to find some place, such as the observer's mind (a curious *place*, which soon causes new difficulties) in which to locate them: indeed this is to make the mistake of treating the objects as referential.

To return to the conditions for direct realism: *only* a noneist theory can meet the conditions imposed in a satisfactory fashion; theories set within a referential or classical

[1] Nothing of course *stops* the introduction of intensional objects of perception, sense data, and so on; and *some* of these objects are readily defined. It is simply that such objects have no real work to do, they are theoretically superfluous; and they get in the way, and in the resulting confusion aid sceptical causes.

[2] As the New Realists at one point recognise, either contradicting their theme that they must exist or, what comes to the same, counting the objects as nonexistent existents.

logical framework cannot. Observe that the argument which follows will work, within limits, with either facet of non-referentiality. It is, for instance, enough to rely on the opacity of perception to show that a purely classical theory cannot succeed. But the other facet is important in showing, for example, that no analysis within the framework of Montague semantics can succeed.

ad (i) i.e. *Relationality*. The analysis of intensionality which noneist theory makes possible allows for intensional predicates to yield genuine intensional properties of the intensionally-indicated object which is also treated as a full logical subject. Thus a noneist theory allows statements such as $a\phi b$, where ϕ is intensional, to yield a genuine relation. Although a noneist theory can satisfy condition (i), rival theories which do not admit replacement within and quantification into intensional contexts cannot. The prohibition on quantifying-in blocks the analysis of intensional predicates such as those of observation as genuinely relational. For a genuine relation has converses which show internal subjects, allow replacement and particularisation, and so on. On any such "analysis" which refuses these logical transformations, observation cannot give an entire relation between an observer and an object observe: all it yields is, e.g., a property of an observer. The numerous hints of a sense datum theory lurking in the murky shallows of Quinean utterance are not then a merely accidental phenomenon: some such indirect epistemological position is indeed an outcome of the currently popular position prohibiting quantifying-in – although the fact that it is is evidently not realised by most of those who accept such a position, who appear to believe that they have the option of adopting a direct realist theory of perception still open to them.[1] There are even some who want, inconsistently, to run such logical theories in tandem with a direct realist theory of perception. There has been little attempt made to put together logical and epistemological theories in recent times. In particular, insufficient thought has been given to the currently canonised classical logical doctrine and its implications. Either epistemology is a much more cut and dried matter than most philosophers have thought and epistemological positions such as those of sense data must be accepted like their logical counterparts as established theories, or the correctness of the logical counterparts is much *less* settled than it is usually taken to be. The sense datum theory will have to be elevated from its recent humble position to one more nearly equal to that of its powerful and well thought

[1] Put differently, a good many people attracted to logical theories like Quine's haven't realised what the bill of goods includes, and also, if they had, might come to look at it a little more critically, since to many philosophers realistic theories of perception are appealing.

of relative, i.e. classical logical theory, or (preferably) the powerful relative should be demoted to a similarly humble position.

On the no-analysis, no-quantification-in theory, for example, we are (to elaborate on previous points) prevented from treating claims such as "The table was there and it was noticed by Charlie" in the direct way, from taking both the location of the table and Charlie's noticing it as properties of the table: properties like being noticed or perceived by observers cannot, it is alleged, be properties of tables in a direct and obvious way (they are not traits of a table). Accordingly the theory prevents us from saying the obvious things about tables etc., that what are perceived, observed and so on are objects in the actual world – just as it prevents us saying the obvious things about objects that do not exist, namely that we can make statements truly and directly about what does not exist.

Adopting this position on intensionality, that of unanalysability with a view to dispensing with a logical analysis which takes account of nonentities, thus involves a heavy penalty with respect to the actual world. For, as a result, intensional statements can never yield properties of items in the actual world or relations of them to observers. The intensional floats, disconnected from the actual world. The no-analysis theory leads us to see the object as a sort of content, or data-cluster, having no genuine connection with anything in the actual world; and these data as divorced from actual objects. The theory accordingly yields unanalysable perception contents.

In view of the blocking of analysis of the relation of intensional relations of observers to objects, what we wind up with, all we are allowed, are properties of observers. It becomes then a problem how observers *relate* – extensionally it is supposed – to the world. This is the genesis of several sceptical arguments: for relations cannot be manufactured out of properties. The result is of course observer oriented: hence too the familiar array of anthropocentric theories of perception, such as idealism, phenomenalism, etc. The key part of the solution to the problem is elementary: the relations that connect objects in the world and observers are intensional ones. It is perfectly legitimate to abstract a subject from mixed claims and obtain, e.g., "the table was both there and observed by Charlie to be there", with both features applying to the table. Making this sort of extraction of subjects is both a legitimate, and an indispensable move, and can be readily handled logically within the theory of items.

ad (ii), i.e. *Directness*. A noneist theory can meet condition (ii) in full. First of all, it can meet the conjunction requirement, because just as Pegasus is a winged horse and has the property of being thought about by Charlie, so the girl can both be crossing the road and have the property of being seen or of not being noticed by the driver, i.e. intensional properties apply to the same objects as extensional properties. There are no special intensional objects required. On the noneist theory such statements are about the obvious subject, about what they seem to be about. By contrast the directness condition rules out all indirect and translational analyses of intensionality, that is, all those theories which, though they allow quantifying into intensional contexts and allow that intensional predicates can yield genuine relations, insist upon translating perception statements into something else, upon providing a substitute subject (for example, concepts or names, as in theories such as Frege's) which can then be regarded as occurring referentially and as denoting what these statements are really about.[1]

Furthermore only a noneist theory is going to be able to give a straightforward account of perception, which yields intensional properties directly as properties of items – because it is evident, firstly, that the objects of intensional attitudes need not exist and, secondly, that intensional relations are generally not transparent. Since there is no basis for imposing one analysis for entities and another for nonexistent items in intensional settings when in fact there is no relevant difference between cases (e.g. it makes no difference to the analysis whether x exists or not in "John imagined x in his bedroom"), any satisfactory analysis will have to work in the same way for both entities and nonentities. Hence a theory that refuses analysis in the nonexistence case should likewise refuse analysis where entities are concerned; and only a theory which allows direct analysis in the nonentity case (that is direct extraction of a subject to which the property is ascribed, e.g. by passive transformation) can properly allow the direct ascription of an intensional property to an entity. It simply does not matter whether the object exists or not – sometimes it would not be known – for the logical analysis involved. Thus the insisted-upon distinction between the existent and nonexistent is not logically relevant in many cases, e.g. many intensional cases, and should be immaterial to the analysis obtained. However a suspicion of the nonexistent has broadened into a suspicion of the intensional, and a drastic narrowing down of the epistemological options and a Parmenidean rejection by

[1] Similarly, it rules out, as we have seen, Armstrong's theory of perception, which depends upon some sort of analysis at least in the case of nonveridical perception.

philosophers of much of what actually goes on, e.g. John's noticing the table but thinking it was a desk.

The options for the treatment of intensionality that the referential theories (of existence and identity) currently in vogue force upon us are very limited. Each one of these options is independently unsatisfactory because of its treatment of both nonexistence and opacity and is thereby associated with unsatisfactory theories of perception.[1] These options exhaust the positions which a referential logical theory allows, and not one of these makes a direct realist theory possible, for each leads to violations of at least one of requirements (i) and (ii). The options on intensionality the referential theory admits can be summed up in a biological classification of referential positions on intensionality, as follows:

(a) treat them as referential as they stand or,

(a*) do not;

(b) analyse them into referential form by transforming the subject to a referential one or,

(b*) do not, i.e. refuse analysis.

The options are exhaustive.

We consider each option in turn in the perception case.

(a) This is the naive (Russellian) theory according to which the difference between extensional and intensional is not given recognition in the treatment of subjects and predicates. There is no prohibition on quantifying into intensional contexts but such quantification assumes referential transparency (or extensionality) and existential loading, i.e. features appropriate only for (purely) referential contexts. For example, "I am thinking that some horse, Pegasus, is a winged horse", is considered as "I am thinking that there exists an x such that x is Pegasus and x is a winged horse", i.e. "I am thinking that Pegasus exists and is a winged horse". As the example illustrates, this method commonly gives the wrong truth value and where it does not do so this is often a matter of sheer luck.

[1] Here again we see the chain: A certain type of treatment of referentiality compels a certain sort of treatment of intensionality, which compels a certain sort of theory of perception.

In the case of perception, the position reduces to the naive realist theory of perception, with its failure to recognise that predicates like "observes" and "listens to" are different from "kicks". The problems of naive realism arise from this, from its attempt to fit the non-referential into a referential frame, for example, from its attempt to treat the intensional properties of items as if they were simple extensional ones and from its attempt to treat all perception as veridical. Most of the objections to naive realist theories are ways of pointing to the intensional, non-referential, nature of perception; and a commonsense, as opposed to a mythical naive, realism is one that takes account of the intensional character of perception.

(b) The translation moves recognise the deficiencies of naive realism and attempt to provide substitute subjects (in the corresponding case of universals these are concepts or names according as to whether the position is a conceptualism or a nominalism). They proceed by attempting to isolate the intensional component into these substitute subjects, and then by treating the resulting new relation as an extensional one.[1] They may require translation or replacement, or they may demand analyses or replacement only in problematic cases, partial replacement. Among the latter are double or multiple reference theories of the Fregean type as analyses of intensionality. The counterparts in epistemology of replacement positions are all the mediation theories, e.g. representative realism and some forms of phenomenalism.[2] These theories attempt to isolate intensionality in some ideas or sensations, to which the observer is related by a straightforward extensional relation. It is again a way of avoiding coming to grips with the phenomenon of intensionality and the fact that it is different from extensionality and demands a rather different sort of treatment.

(b*) These are positions which effectively prohibit analysis, which reject subject extraction and quantification into intensional contexts. (This corresponds to the nominalism of, for example, virtual set theory.) These lead to the (adverbial) treatment of intensional statements as yielding purely properties of the holders of intensional attributes; genuine relations disappear. In the epistemological case observation relations become proper-

[1] A similar strategy can be used, likewise with some success, in providing extensional semantics for intensional logics, where the intensionality is pushed back into (unanalysed) worlds and their interrelations: see 1.24 [Vol. 1 —*Eds.*] and for criticism 10.3ff. and ER.

[2] There are of course many mediation theories, in particular phenomenalist theories with existing intermediaries beyond which, so it turns out, there is nothing, and representative and Kantian theories according to which beyond the transparent immediates there are things.

ties of the observer. The sense-datum theory of familiar phenomenalism fits in here for example. Observe that phenomenalism, like nominalism, splits into (b) and (b*) forms.

As in the universals case, so in the epistemological case, all the positions overlook a basic option. In the universals case the option is that of talking about universals without attributing existence to them; in the epistemological case the option is that of taking intensional inexistential relations as genuine, direct, and not in need of extensional, or referential, reduction. As with universals, so with epistemology, application of the Reference Theory and its elaborations generate many problems and a range of unacceptable "solutions". The overlooked alternative in epistemology, as with universals, is not to try to treat non-referential occurrence as if it were referential, as if intensionality did not occur, but to try to explain, accommodate, and systematise the theory, and face up to such occurrences beginning with the recognition that "thinks" and "sees" are different from "kicks", but no less respectable. As in the case of nonentities, the whole demand to give an explanation in terms that the empiricist or idealist allows as satisfactory, to remove the alleged mystery by doing so or giving a reduction in the accepted framework, should be resisted. The correct nonreduction recipe is: don't try to explain intensionality and nonexistence away, try to explain them. This is what the theory of items is largely about.

§11. Other illustrations: value theory, the philosophy of law, the philosophy of mind, ...

The treatment of the apparently diverse problem of perception and of universals are but two illustrations, in (what are usually accounted) epistemology and metaphysics respectively, as to how noneism can bring out the obvious and commonsense account of matters which have become, under the influence of the Reference Theory, deep philosophical problems. A similar procedure to that of the illustrations may be applied in other philosophical areas, e.g. in the philosophies of mathematics and science (as in chapter 10 and 11 below). Some other areas where noneist treatment can be fruitfully applied are worth recording.

Area 1. Axiology and the objects of value. Valuational relations are inexistential. That is, valuation relations are genuine relations which may truly relate a valuer to an object that does not exist; thus, e.g. in "a valued b", "a praised b", "a blamed b", "a preferred b

to c", "a ranked b as better than c", b and c may well not exist. Just one live example will suffice: consider "Sensitive environmentalists prefer a no-logging future for the fragile forests of the Amazon to a selective-logging future". Neither future can be expected to eventuate: the objects spoken about do not exist. But once again quantification and other logical operations are not thereby ruled out.

Important valuational relations are intensional. This is most simply shown using the observation that ranking relations such as preference may relate states-of-affairs or, with a little stretching, propositions, e.g. "a preferred our doing x to our doing y" and "a preferred that p to the proposition that q"; and then making the further observation that material equivalents, or for that matter strict equivalents, cannot be intersubstituted generally preserving truth. Similarly central relations in aesthetics, such as admiration are inexistential and intensional.

Largely because of assumptions drawn from the Reference Theory, the relations (and properties) of value theory have either been misconstrued, as existentially-loaded or as extensional – yielding in combination absolutely naive naturalism – or else the relations, because of their intensional inexistential character, have been, if not differently misconstrued (e.g. as not genuine relations, or as blocking logical analysis within the scope of the relation), taken as problematic and in need of reductive analysis. The result has been an array of positions in ethics and aesthetics paralleling those considered in perception theory. An example should serve to recall some of the familiar philosophical ploys – value data is past redemption (nihilism, in the form of scepticism about values); problematic value data is nothing over and above its unproblematic bases, personal taste, preference, feelings, emotions (subjectivisms and forms of emotivism, corresponding to phenomenalism in perception theory); the problematic data reduces to *other* unproblematic bases (imperativalism, utilitarianism, naturalisms, corresponding to representationalism). As we have seen, logical analysis within intensional functors is perfectly intelligible and legitimate. But as in epistemology, the familiar prohibition of analysis inside intensional functors, induced by referential assumptions, blocks *relations of valuers to things valued*. Everything becomes just not-further-analysable properties of valuers. It is a short step to the view that values are subjective: it is all a question of features of valuers, a subjective matter for individual valuers.

The familiar objection will be: if valuational attributes are genuine irreducible attributes – or at least attributes not reducible along any of the tried, and as you say failed, lines – then surely you are stuck with an indefensible objectivism, very likely with some sort of intuitionism. The reply, also hopefully becoming familiar, is: No, not at all. Intuitionism is like platonism in theories of universals; it supposes values to exist, and it too commonly supposes valuational properties to behave like extensional properties (but Moore 1903 did not suppose the latter, as his contrast and comparison between goodness and yellowness indicates). The dichotomy between objective and subjective, commonly used as a weapon against environmental value theories, is accordingly a false dichotomy. As it was in universals theory that all the standard positions turned out to be referentially based and were avoided by noneism, so it is in value theory also. Certainly value attributes are irreducibly intensional and may apply to objects and values that do not exist; but it does not follow that no account can given of them, or that they are detached from valuers and to be found in the world, or that they are only comprehended or apprehended by a special sense or intuition, and have no connection with individual and group preference rankings. An account can be given – it relies on a semantical analysis, not a translation or reduction – which makes the connection with valuers, with their preference rankings, and which therefore can be used to resolve the epistemic problems of intuitionism (details of such an account are given in ENP1).

Area 2. Objects of social and political theory. Many of the fundamental notions of social and political theory are likewise intensional and inexistential. Consider, for instance, *consent*. It is opaque, and intensional in the second place. x may consent to ϕ with y, but not consent to ϕ with z, though $z = y$, e.g. z is Henry Higgins and y is the man known as "Professor Higgins" who has a communicable disease. Sometimes this opacity has been glimpsed but expressed somewhat misleadingly in terms of consent depending on the description of what is consented to. Consent is also inexistential; e.g. I can consent to meet you at a place that does not in fact exist; you can consent to purchase goods that do not exist, etc. Yet most of the theories of consent that have been proposed ignore one or both of these fundamental logical features of the notion.

Other examples concern obligations, rights (see ENP2), promises, and contracts.

Area 3. The philosophy of law. According to Honoré, who provides a useful introduction to this area:

> where lawyers have yielded to the temptation [to assume the Ontological Assumption, to insisting that we cannot talk about or operate with what does not exist], pernicious doctrines have resulted (1971, p. 302).

Honoré's working example, from the law of contracts, is

> the legal doctrine that we cannot sell nonexistent goods. This doctrine is found in Roman, modern European, English and American law. Great efforts have been made to find ways of overcoming what are felt to be its manifest inconveniences. Thus, if the sale of nonexistent goods is void, not merely can the buyer not be compelled to pay, but the seller cannot be sued for failing to deliver the goods. Hence if the buyer has made a good bargain, he loses the benefit of it. Clearly this is unjust (p. 302).

Similarly, if the buyer incurs heavy expenses in equipping to salvage the goods, as in *McRae v. Commonwealth Disposals Commission*, it is unjust if he has no redress for damages under the contract because it is void.

The real reason for this pernicious legal doctrine is, so Honoré argues, a logical one, the Ontological Assumption in legal form: "the agreement can be nothing but a phantom since there is nothing on which it can fasten" (Cheshire and Fifoot, *The Law of Contract*, 6th edition, p. 192; quoted by Honoré, p. 303). Similarly in the "leading case" of *Couturier v. Hastie*, the judges

> intimated that the contract would be void, inasmuch as "it plainly imports that there was something which was to be sold at the time of the contract, and something to be purchased", whereas the object of the sale ceased to exist (Anson 1975, p. 277).

Likewise in *Dell v. Lever Bros.*, Lord Atkin stated:

> though the parties were in fact agreed about the subject matter, yet a consent to transfer or take delivery of something not existent is deemed useless, the consent is nullified (32, A.C. 161, p. 223).

Correspondingly, the "solution to the legal difficulties concerning the sales of nonexistent goods" lies in rejection of the legal Ontological Assumption, that contracts con-

cerning nonexistent objects cannot be valid and binding, that we cannot buy or sell nonexistent goods. Thus Honoré (p. 305):

> To the extent that it is possible, not merely to refer to, but to say true or false things about nonexistent objects, the court should be entitled to treat the sale of a non-existent object as valid,

and rather similarly Slade (1954, p. 385) who on the same basis criticises the doctrine of mistake under which the sale of nonexistent objects is commonly treated (e.g. in Anson 1975). Slade's argument is rejected in Anson, where – in contrast to the Russellian position of the judges in *Couturier v. Hastie* and the British Sale of Goods Act 1893, that a contract concerning what does not exist is not valid, but void – a Strawsonian position is attempted, that the question of validity of such contracts does not generally arise (pp. 277–78). Since this position, like the Russellian position, runs into serious trouble with *McRae's Case*, where the question of validity was crucial in the action for damages, Anson's approach, like Strawson's, is duly complicated and rendered more opaque. According to Anson (in contrast, e.g., to Cheshire and Fifoot, *op. cit.*), "there is ... no absolute rule that a contract for the sale of a *res extincta* is necessarily void in English law" (p. 279); whether it is not void or void depends on "the construction of the agreement", "whether the seller [or buyer] assumed responsibility for the non-existence of the subject-matter"(!) or neither did, in which case "the contract is void for mutual mistake" (p. 279). Far from this appearing "the most satisfactory approach to the question of mistake as to the existence of the subject-matter of the contract", it is decidedly unsatisfactory given what preceded it. For it abandons the earlier Strawsonian approach in favour of a two-valued position, validity always arises, but validity is no longer nullified by nonexistence, but depends on what the contract may *well not* indicate, the intentions of the buyer and the seller to the nonexistence of the goods. More serious, for Anson has at least in the end abandoned the legal Ontological Assumption, is the mistake of trying to treat all cases of nonexistence of the subject matter of a contract as mistake (pp. 271, 276, 279). There need be no mistake.

A more satisfactory approach is Honoré's which avoids entirely the question of mistake:[1]

[1] Likewise none of the judges in *Couturier v. Hastie* "actually mentioned the word 'mistake', for they considered the case purely as one of the construction of the contract" as Anson worriedly reports, p. 277.

> the sellers authorize or mandate the buyer to act on the assumption that the tanker [the object] exists. The buyer does so, and incurs expense in the enterprise. The sellers thereby render themselves liable for the expense incurred (p. 307).

"For this a conceptual scheme under which we can refer to non-existent objects" is required (p. 308).

Area 4. The philosophy of mind. Much of the philosophy of mind consists in an examination of intensional inexistential relations, such as believing, thinking, inquiring, imagining, remembering. Since much philosophy of mind is empiricist in origin and reductionist in outlook, these relations cause serious problems, and are said to be in need of analysis – of some sort, behaviourist or physicalist (central state) reductions or conceptual analyses, reductions and analyses designed to remove any traces of ghosts in the human machines, of the spiritual. But there is no need for (reductionistic) analysis: intensional and inexistential relations are in order as they are.[1] Perception [similarly also conception, ...] is what it seems to be, and what philosophers have agreed among themselves it is not, a relation between a creature, a perceiver [believer], and an object, the thing perceived [believed, commonly a proposition]. The object may not exist, as, e.g., in hallucinatory cases [as, e.g. in "Saul believed God's word", or where the object is a proposition]. And the relation is intensional; replacement of propositional objects by material or strict equi-

[1] By contrast Smart has asserted (e.g. on an ABC radio programme, 1978) that intensional and mental statements such as those about beliefs, desires, likes, and so forth are *vague* (as Quine is said to have *shown*, via his arguments on opacity!), *suspect, second grade*, and in need of replacement analysis or junking. Thus the sciences in which they appear essentially, such as the social sciences, are second grade too. Of course to claim "second-gradeness" for these sciences is to understate the position, since they presumably share the vague, imprecise and suspect character of the statements on which they are based, and so are not really sciences at all.

Carried through this in fact appears to throw out not only *most* but *virtually all* of science, so far as science, according to empiricist belief, depends upon observation. For predicates of observation, functors like "sees", "observes", "hears [that]" etc. are, as substitution tests indicate, intensional and exhibit all the leading features which have lead Quine and followers (e.g. Davidson, with his example, which Smart exploits to reveal the "vagueness" of desires: "a sloop, but not a specific sloop") to claim such statements are vague, imprecise, suspect, etc. But true statements about what people have *observed*, different people in different and various circumstances, are the major, and according to empiricists, the *entire, evidence* for the statements of science. If those statements, e.g. "Observer 1 saw the crystals sink to the bottom of the jar", "Observer 2 saw ...", are vague, imprecise and *suspect*, then what they are evidence for, the statements based upon them ("the crystals sank to the bottom of the jar"), can hardly be much better. Thus this sort of extreme empiricism has thrown away its ladder. Not just the greater part of, but *all* of empirical science is suspect. The position arrived at is, at bottom when followed through, a scientifically dressed up form of scepticism.

valents may change truth values. It is the same too for many many other mental notions, e.g. conceiving, thinking, remembering, intending, etc.

Similarly minds and the objects of mental or intensional activity such as perception, imagination, thought, and so on, objects such as images and thoughts, are substantially in order as they are, and not in need of reduction, analysis or relocation. They do not exist, the logic is not that of transparent entities, but they are, once again, none the worse for that. From this noneist point of view *one of the main projects of* Ryle's *The Concept of Mind* (1949) *is misconceived*. That project is to adjust discourse so that discourse about mental objects – which would, Ryle supposes, imply the existence of such objects – is eliminated. But given that one can discourse, truly and quite satisfactorily about what does not exist, such a project lacks point.

Mental objects which are not overt, public, testable, are anathema to Ryle. Much of the detail of *Concept* is devoted to showing that we can avoid and are very well advised to avoid talking about such objects. Thus, for instance, Ryle writes at the outset of the first chapter of detailed investigation of mental concepts (p. 25): "when we describe people as exercising qualities of mind we are not referring to occult episodes".

A criticism, like that already advanced (in 1.17 [Vol. 1 *—Eds.*] and in chapter 7 [Vol. 2 *—Eds.*]) of Ryle's account of imagination (1949, p. 245ff.), can be made of many of Ryle's "rectifications of the logical geography" of other notions. Recall that Ryle tries to sever imagination from its connections with seeing and hearing (p. 245) and to dispose of the objects of imagination thus "imagining occurs but images are not seen" (p. 247). This is a mistake born of the Reference Theory. The objects of imagination are imagined, images are seen; but they do not thereby exist, as Ryle supposes. Rather, as Reid observed (1895, pp. 362–3), imagination, which is a species of conception, can easily be of what does not exist.

In particular, a parallel criticism can be made of Ryle's devious treatment of intellectual operations, where it is suggested that such acts as judging, abstracting, deducing, etc. do not really occur, and certainly do not have objects:

> We hear stories of people doing such things as judging, abstracting, subsuming, deducing, inducing, predicating and so forth, as if these were recordable operations actually executed by particular people at particular stages of their ponderings. ... [Such operations] are mis-

> rendered when taken as denoting acts of which pondering consists (p. 285).

The operations are recordable operations, with requisite objects, in which people do engage, sometimes as a part of pondering. So it is also with the operations of sensing and feeling and some of their alleged problematic objects, sensations and feeling (p. 199). And so on.

So it is too with other mental phenomena which have been treated in the manner of Ryle, for example remembering as considered by Vendler 1978. According to Vendler, an author can think and work out a novel including all its objects, people, towns, etc., "without in doing so thinking *of* anything". But of course he thinks of something, though not always something existent. Moreover, according to Vendler, the author cannot remember his hero! But again of course he can, much as he can remember a scene from a film. That something never did exist, such as the author's hero, does not exclude its being thought of or remembered. Noneism enables us to return to the track of common sense, which Ryle and Vendler have endeavoured to direct us away from.

The case of perception has already been considered in detail; the case of belief is investigated in some detail in the next section, for the good reason that belief is a central mental notion which, as recognized by Hume and Reid, is involved in or with many other mental notions. But several of the main points made concerning belief and perception go over, with but small modification, to very many other mental relations.[1]

§12. The commonsense account of belief: A recapitulation of main theses,[2] and an elaboration of some of these theses

> ... what is ... belief ...? Every man knows what it is, but no man can define it ... . And if no philosopher had endeavoured to define and explain belief, some paradoxes in philosophy, more incredible than ever were brought forth by the most abject superstition or the

[1] This applies in particular to another example, which like belief is also important and central (and involved in or with many other mental notions, as Spinoza realised), that of desire.

[2] The theses presented overlap those argued for in more detail in Routley[2] 1975. Some of the theses are however stated more satisfactorily than in the original, and the shape of the core logic of belief now appears much clearer than it was in 1974.

> most frantic enthusiasm, had never seen the light. (Reid 1895, p. 107: Reid is alluding to the theories of Hume and Locke).

1. *Belief is a relation, not simply a property.* On the commonsense account, as on Reid's account, belief is a relation. For firstly, neither the form "believes that p" nor the form "a believes" are well formed. Belief is thus (and somewhat trivially) a relation between a creature, a believer, and an object, the thing believed, which may be another creature or a judgement, or what a judgement is about. In familiar symbolism, Belief $= \lambda x\ \lambda y\ xBy$, where xBy represents x believes y. What Reid takes to be the obvious commonsense account of belief yields the same result (given the logical connection between operations and relations). Belief is a mental operation, the operation depending upon who has the belief (e.g. 1895, p. 327, p. 108):

> Belief must have an object. For he that believes must believe something; and that which he believes is called the object of his belief (p. 327).

As Reid would have said, the correctness of these claims is self-evident. Although the basic case for the thesis is that it is self-evident, it can be argued for as follows:[1] A predicate ϕ specifies a *relation* if it is sometimes true or false for objects x and y that $\phi(x, y)$, where x is an *object* if it is open to objectual quantification. (There are of course other connected accounts of relations and objects that can be deployed.) Now we can find a and b and p such that

(α) a believes b (on this occasion) and what b says, namely that p,

[1] Although the correctness of the commonsense account of belief is self-evident, there are – in part for this reason, that there is nothing more evident from which it could be derived – difficulties in defending it. There are however ways of defending it. One is to try to adapt Moore's way (1959, pp. 44–5), and to argue to correctness from features of the common sense view of the world. Moore propounds, and regards as important, two "peculiar properties" of common sense propositions of the classes he has cited, namely:

> *if we know that they are features in the "Common Sense view of the world", it follows that they are true; and if they are features in the Common Sense view of the world (whether "we" know this or not), it follows that they are true.*

This is less remarkable than at first appears, since Moore builds into "Common Sense view of the world" the assumption that its propositions are true.

A more satisfactory alternative is to argue for the correctness of the account from 1) particular common sense truths about beliefs of the form a believes b. 2) analytic truths drawn from neutral logical theory as relations, objects, etc. This alternative way is elaborated in the text – showing, once again that what is *self-evident can nevertheless be argued for.*

and such that further (an application)

(α') a believes b (on this occasion), and a believes what b says, and a believes that p.

There is no doubt that "a" is a subject which signifies an object: all the tests are passed. The doubts that are typically raised about the relation concern its other end. But can there be any doubt that where a believes b, b is a suitable object? Nor can the sense of "belief" be different, else two-way connections between (α) and (α') would fail. In any case, object tests are passed in the remaining cases. What is the object of a's belief: *what b says, that p*? Is it quantifiable? Of course. *Something* is such that a believes it. And identity replacements are in order, e.g. aB what b says and what b says = that p implies that aB that p. Specifically, the identity principle is: if $aB\S p$ and $\S p = \S q$ then $aB\S q$, where "§" abbreviates "that" and "=" represents (strong) judgemental identity: contingent identities cannot, of course, be intersubstituted.

2. *Belief is sui generis, irreducible, indefinable* except in its own circle. In particular it is not extensionally reducible, and not modally reducible. It is of a very high level of intensionality. So too belief is not susceptible to analysis. But belief can be placed in a network of notions, exteriorised, e.g. knowledge and thought provide upper and lower bounds.

To expand on these points: The relation of belief is *sui generis* in that, while the predicate B can be paraphrased in terms of predicates of its own circle – giving belief in varying degrees, as, e.g. "gives credence to", "puts trust in", "accepts as true", "assents to", "is convinced of", in the fashion of the dictionaries – it cannot be reduced to something outside this circle. In Reid's terms:

> Belief, assent, conviction, are words which I do not think admit of logical definition, because the operation of mind signified by them is perfectly simple, and of its own kind.[1] (p. 329)

In certain, but important cases, the irreducibility of belief can be shown, simply enough. Consider, for example, popular hard-headed positions, which tolerate none but extensional (or modal) notions (as intelligible, scientific, worth bothering about,

[1] To which Reid added (tongue in cheek?)

> Nor do they need to be defined, because they are common words, and well understood (p. 327).

The history of recent philosophy hasn't exactly borne out this claim.

or whatever: the familiar). Belief is not reducible to such notions. For consider the philosophically important case where B relates a believer to a judgement, e.g. to an object of the form §p, i.e. that p, where p is a declarative sentence.[1] Were the relation extensional, p could be replaced by any q, such that $q \equiv p$, preserving truth. But it is easy to find q such that $q \equiv p$ but $xB\S p \not\equiv xB\S q$.[2] The literature on belief is littered with failed attempts to recapture belief in the extensional sphere, beginning with quotational analyses. Again, the elementary logic of belief ensures that no such analyses can proceed: not only do statements of belief translate into other languages perfectly well (Church's argument against Carnap) but statements of belief permit elementary transformations (e.g. active to passive) and derivations (e.g. p & p to p) which quotation prohibits.

A similar replacement argument shows that "It is believed" is not modal, and so differs logically from "It is necessary" which is modal, i.e. permits replacement of strict equivalents or provable material equivalents. The more recent literature on belief is sprinkled with failed attempts to capture belief in the modal sphere, especially through possible world semantics. Nor is belief of the order of intensionality of entailment; for replacement of higher degree co-entailments fails for belief functors.

The fact that a (non-platitudinous) analysis of belief of a syntactical type is not to be expected, does not imply that belief cannot be elucidated; it can, by models – such as representation models, e.g. a creature's beliefs are its representation of the world, of how things are – by semantical evaluation, and by exteriorisation. Even though the relation is *sui generis*, a great deal can be said about it, enough to separate it from many other intensional relations (and to cast into doubt some of the regressive philosophical literature on the topic). A relation can be located not only by interiorisation or analysis, resolution into (simpler) components, but by *exteriorisation*, by placement with respect to larger surroundings. Recourse to the holistic exteriorisation method is appropriate in the case of belief; scope for application of the method is evident:

[1] The judgemental objects of belief may take other forms, such as *oratio obliqua*, e.g. Yellow Robin may believe a goshawk to be nearby, or deleted propositional form, e.g. a fairy wren believes the copperhead is near its nest.

The non-judgemental objects of belief divide into those that allude in one way or another to judgements, e.g. her proposition, the story, what was said, and those that are holders or makers or judgements, e.g. the storyteller, her lecturer, Bill, ...

[2] This point, like many of those made but sketchily here, is spelled out in Routley[2] 1975.

> Not only in most of our intellectual operations, but in many of the active principles of the human mind, belief enters as an ingredient (Reid 1895, p. 327).

An especially important connection is that with conception: $xB\S p$ entails $xC\S p$, but not conversely, where "C" reads "conceives".

> Of [the] object of his belief, he must have some conception, clear or obscure; for although there may be the most clear and distinct conception of an object without any belief of its existence, there can be no belief without conception.

Since knowledge entails belief,[1] belief is bounded above by knowledge and below by conception: roughly, $K \Rightarrow B \Rightarrow C$.

3. *Belief and conception are intensional and inexistential*; that does not count however against their being genuine relations. Consider belief, which will serve, to begin with, as representative. Belief relates two objects. The relation conforms moreover to the general logic of relations (that of PM, without extensionality). The idea that belief is not a relation, but for instance a property of some kind of the believer, is frequently based on the assumptions that relations can only relate what exists and that the objects of belief sometimes do not exist, as when the objects are false judgements. Although the objects of belief frequently do not exist – no judgements exist (according to noneism), though creatures make and believe them – a relation does *not*, in general, require the existence of its relata; only *certain sorts* of relations, Brentano relations, require that. Belief, that is, is inexistential in the second place: xBy does not require that y exists.

It is at this point that the connections of belief with conception and thought become important. For it is well enough known that x may think of y though y does not exist. It is less well known, but the merest commonsense as Reid contended, that the objects of conception need not exist, and may indeed be impossible. The same is true of belief (as is argued directly in Routley[2] 1975). As to the first thesis,

[1] Subject perhaps to provisions, e.g. that $SxB\S p$ where $SxK\S p$, where 'S' is the significance functor. The thesis that knowledge entails belief is, and was always intended as, a thesis restricted to the cases where the objects are propositional, and is not upset (as Vendler and others have supposed) by examples involving non-propositional objects. Certainly xKy does not entail xBy: consider, e.g. "Tom knows the way to the station" and "Tom knows Nixon".

> conception is often employed about objects that neither do, nor did, nor will exist. This is the very nature of this faculty, that its object though distinctly conceived, may have no existence. ... every such act [as conception] must have an object; for he that conceives a centaur, he may have a distinct conception of this object, though no centaur ever existed.
>
> ... I know of no truth more evident to the common sense and the experience of mankind ... than that men may ... conceive things that never existed (Reid 1895, p. 368, my rearrangement).

An essentially similar thesis, but formulated in terms of thought, is included in Moore's truisms, or axioms, of common sense:

> I have had expectations with regard to the future, and many beliefs of other kinds, both true and false; 1 have thought of imaginary things, and persons and incidents, in the reality of which I did not believe (1959, p. 34).

The second thesis, Reid states a little less directly, but nonetheless clearly enough:

> There remains another mistake concerning conception which deserves to be noticed. It is – that our conception of things is a test of their possibility, so that, what we can distinctly conceive, we may conclude to be possible; and of what is impossible we can have no conception (1895, p. 376).

Belief involves more than conception (as the content of belief *properly* includes the content of conception), so it would be invalid to infer corresponding features of belief from those of conception. However a rickety bridge can be made. What a belief that p amounts to over conception that p is something like (though this will afford no satisfactory syntactic analysis): assenting to the truth of p, nodding to p, certifying p as true.[1] One can conceive what does not exist, such as a false or impossible proposition, and certify it as true, assign it to one's true box.

[1] Thus a fuller semantical analysis of $xB\S p$ will presumably include a clause to the effect that $p \in T_x$, p is among the truths as x sees (conceives) them: see below.

But such moves are no real substitute for the direct case, from examples, for the theses, again commonsense theses, that belief is inexistential and that one can believe what is impossible.[1]

The other main basis for the thesis that belief is not a relation is the intensionality of belief, the intensionality of belief being established by examples (along the lines already set out in 2). Intensionality is identified with opacity (mistakenly, but the mistake is not material for present purposes, since opacity of belief can be granted[2]), and the opacity of belief applied to discredit the assumption that belief has an object or objects – since objecthood requires clearness and distinctness, or at least clear identity criteria; but in the case of the "objects" of belief the requirements are not satisfied. Though the requirements can be met, they should not go uncontested (see chapter 4 [Vol. 2 *—Eds.*]). The objects are, moreover, open to (neutral) quantification in the ordinary way, as when we argue: if x believes that $(\dots)$ then x believes something false. Etc. In sum, neither the intensionality nor inexistentiality of belief, though undoubted features of belief, affect the relational account of belief or the thesis that belief has objects.

It is a corollary of the relational account that theories that would reduce belief to a property of believers, such as adverbial theories and some dispositional theories, are mistaken. Consider, for example, Armstrong's claim (1968, p. 245):

> Most modern philosophers accept the view that to say that A believes p is to make a dispositional statement about A. I think it is clear that they are right. Now if to say that A believes p is to make a dispositional statement about A, then, ..., we are implying that A is in a certain *state*, even although that state can only be described in terms of its manifestations.

If the modern philosophers thereby mean, as they usually do, that belief is not a relation, but only a dispositional property, or state, of A, then the view should be rejected: it

[1] The main arguments are indicated in Routley[2] 1975, especially §11, and need not be repeated here. It is worth noting however, that the number of serious thinkers who genuinely believe explicit contradictions, such as those yielded by semantical paradoxes, and who are not merely prepared to entertain the hypotheses that the world (as some totality of propositions is inconsistent, but affirm that it is, is on the increase. These beliefs appear to satisfy, furthermore, all usual behavioural criteria for belief. No adequate theory of belief can simply dismiss such beliefs as not occurring.

[2] However tricky determinable phrases such as *what is believed* can have both opaque and transparent determinates; contrast $\imath y\, xB \dots y \dots$ and $\imath y(Pz)(y = z \;\&\; xB \dots z \dots)$, where "$\imath$" symbolises neutral "the", "P" neutral "some" and "=" extensional identity.

has left out fundamental features, relationality, and the objects of belief. The account Armstrong elaborates certainly does. So does the account which made the dispositional view famous, Ryle's. Ryle restricts dispositional statements to those ascribing properties from the outset:

> dispositional statements, namely, statements to the effect that a mentioned thing, beast or person, has a certain capacity, tendency or propensity, or is subject to a certain liability (1949, p. 127).

The metaphysical advantages of the contraction of a relation to a property are evident enough, the way is made easier for reductions of belief to what it is not, whether reductions of behaviouristic sorts or central state theory. If belief is not simply a state of a believer, but a relation, these reductions are complicated – though not *thereby* ruled out.[1] Nor is some account of belief as a semi-dispositional relation – a relation which is dispositional in its first place, so to say – excluded. However, whatever plausibility Ryle's account of belief as a tendency (pp. 133–4) had – it should never have been much – diminishes further when the relationality of belief is properly considered.[2]

4. *The objects of belief* in cases which can be given the form $aB\S p$ *are, at a surface level, propositions.* In terms of a neutral theory of propositions, according to which propositions are certain objects which do not exist, a solution of various important puzzles about belief and truth can be given (the details are to be found in 1.23 [Vol. 1 *—Eds.*]).

However the analysis can always be *deepened* because sentences expressing propositions always have subject-predicate form and so are about something, something to which the believer relates. For example, the statement "Weingartner believes that Pegasus is winged" which states a surface relation between Weingartner and the judgement that Pegasus is winged, at a deeper level yields a relation, again inexistential and intensional, between Weingartner and Pegasus. Put differently, $xB\S p$ is of the fuller form

[1] The problem of finding an extensional identity, or more weakly a correlation, between what is believed by a believer on the one hand and the believer's neurophysiological state and condition on the other, is rendered no more difficult than before, e.g. on quotational or property theories. Representations of what is believed (e.g. of a logical type) are not difficult to devise; but whether they bear any good relation to neural circuitry and arrangements is quite another matter.

[2] By what tendency is x related to p when $xB\S p$? Presumably, x tends to behave in ways (to say or do things) connected with the assertion "p" is true. But it is difficult, to say the least, to fill out the connection satisfactorily. Even with notions of the belief circle such as *affirms*, the account fails since x may exhibit no such tendencies, or exhibit them though no belief is held. Also the quotational part causes trouble. As to just how exactly belief is supposed to be a tendency, Ryle offers almost no help.

$xB\S yf$, which yields a relation between x and y of the form xR^ty for appropriate relation R^t. In more complex cases where that statement has multiple subjects, the relation can be represented as between a believer and several objects, i.e. as a many-place relation.

The procedure of *deepening the relation* may be rendered formally secure as follows: where xBA and A is *about* $y_1, \ldots, y_n$ (e.g. according to the theory of aboutness of Slog, chapter 3), then x stands in the deeper relation to $y_1, \ldots, y_n$. By deepening, which can always be effected, propositional intermediaries (which are not too fancifully viewed as fictions) can be left behind, and relations to bottom-order objects often obtained. Thus *belief is built*, in something like the way Russell tried to show with his multiple relation account of belief, *on relations between objects*; only neither the initial objects nor the relations are restricted, in the ways Russell supposed, to the existent and the extensional.

In deepening, to replace relations like belief by more ordinary relations on bottom-order objects, an important difference between belief and such notions as perception emerges. In the case of perception, which naturally encourages deepening, the relation transfers to the new object; specifically, $xP\S yf$, where P represents "perceives", implies that xPy.[1] Similarly conceiving transfers. By contrast, $xB\S yf$ does not imply xBy.

The further theses involve a progressive refinement of commonsense. That is, the fuller account is attained by a conservative extension of commonsense, in the sense explained in chapter 6 [Vol. 2 *—Eds.*].

5. *Belief has a nontrivial logic*, but the logic is not modal in character. Belief systems are more than mere lists, but satisfy certain unremarkable closure conditions, though not closure under logical consequence. The claim (again argued in Routley[2] 1975) is that there is a logic of belief, a set of core constraints which apply to the beliefs any believer can hold. All these principles, take however, a conditional form, namely *if* xBA *then* xBC for certain related C. There are no propositions one has to believe. Correspondingly there are none one cannot believe. A corollary is that the laws of thought are a myth, i.e. there are no *logical* theses of the form xBA (as distinct from contingent truths).

The logic of belief is characterised as much by what is rejected, by rejection principles, as by what is asserted, by assertion principles. Thus, for example, $\dashv$ if aBp & $p \rightarrow q$ then aBq. Similarly, and at least as important, $\dashv$ if $A \Leftrightarrow B$ and aBA then aBB; i.e. en-

[1] There are everyday uses of "perceives" which violate this condition (see above); so strictly the contrast made needs tightening up.

tailment replacement in specifically belief contexts fails. This is not only the key to what is wrong with the paradox of analysis: it also indicates the form a semantical analysis of belief will take.

6. *The relational account of belief leads directly to a semantical evaluation rule*, of the following form at actual world T: $I(xBA, T) = 1$ iff $\underline{\underline{R}}^x[A]$, where $[A]$ gives the range of A, i.e. the worlds where A holds. However in the light of the principles that hold, and fail, for belief the evaluation can be simplified to:

$I(xBA, T) = 1$ iff for some b such that $T_x b$, $I(A, b) = 1$,

i.e. that x believes A is true (in the model) iff for some world, the world of x's beliefs, A holds in b.[1] The semantical analysis yields a representation model: what x believes is a matter of x's representation of what is the case, which is given by a world. More picturesquely, a creature's beliefs give its picture of how its part of the world really is. This can be put in terms of Ramsay's map metaphor (as elaborated in Armstrong 1973), but a map representation is much more limiting since there is much that can be or is believed that is not too easily or at all naturally represented on a (conventional) map. And the map in question is seriously incomplete: it only represents that part of the world the creature is suitably informed about.

7. *The main* and interesting *logic* of belief and propositional identity *is frozen at the first degree* stage. Given this thesis, the semantical evaluational rules for the higher degree, i.e. at worlds c other than T, is made simple:

$I(xBA, c) = 1$ if the model so assigns, i.e. the value at c is arbitrarily assigned.

8. *Belief is systemic*, i.e. a creature's beliefs form a system. But beliefs can be both amalgamated and separated: believing A & B just is believing A and believing B. A holistic view of belief is mistaken because simplification holds within beliefs, i.e. if $xB(C$ & $D)$ then xBC.

9. *Belief systems may well be inconsistent*; furthermore a creature may believe in explicit contradictions, such belief may be quite *rational*.

10. *Belief may be viewed* (though somewhat *artificially*) *as consisting of two components, an assumption* or thought *component*, giving the content of the belief, *and a*

[1] Observe that this worlds semantics for belief can be reworked functionally (i.e. in terms of valuation functions only) without worlds at all: see Routley and Loparić 1978.

conviction moment or component. For to believe something is to take (assume, conceive) it to hold, in a, *and* to take it to hold true, i.e. to hold in T. Thus Meinong, Frege and others, not only as regards belief, but as regards (for instance) *assertion*, which can be seen as comprising an assumption component plus a presentation moment. To what extent can these features be worked into the semantics? The rule for assumption is like that for belief apart from the replacement of belief world T_x by assumption world A_x, i.e. the world of x's assumptions. What distinguishes T_x is undoubtedly its assumed connection with T, this is the conviction moment. What holds is not that $T_x \subseteq T$, for x's beliefs might be false. Nor is it that x takes T to include T_x. Firstly, semantic purity has been lost; for in effect a belief functor has been put into the semantical theory, to give "x believes $\S(T_x \subseteq T)$". Secondly, the assumption has the same sort of things wrong with it as the syntactical principle that approximates it, namely $xB(xBA \to A)$, x believes whatever she believes is true. No properly modest person, who believes in her own fallibility, believes such a proposition concerning herself. Can this principle be improved upon syntactically? It seems not (except by the trivial and unhelpful principle $xBA \to xBA$). It seems a good conjecture, on the basis of a search of principles, that there are no systemic principles formulable within the logical framework so far indicated which would isolate the conviction component and distinguish belief from assumption. This conjecture can, moreover, be defended, for example initially as follows: any such principle would have to take the form xBD; but *a fortiori* there are no such logical principles.

The (artificial) separation of belief into components thus delivers Hume's legitimate problem – what distinguishes belief from mere thought?

11. *Hume's problem may be resolved by way of the logic of inference.* There are two directions in which to seek the desired discrimination between belief and mere thought, namely through (1) exteriorisation – interconnections with functors such as those of cause, desire, inference are obvious and familiar candidates – and (2) use of mixed metalinguistic principles. Though both courses are worth pursuing, (2) leads back eventually to (1). The key lies in the connection of what is believed with T, which can be expressed (more satisfactorily than in the previous attempt in 10) thus:

(CF) If xBA then $xB(A$ holds in $T)$, or

whatever x believes, x believes to hold true. CF and its converse yield what Davidson (1975, p. 23) has now called the redundancy theory of belief, namely

(RD) xBA iff $xB(A$ is true$)$.

The problem with mixed semantical principles such as CF and RD is how to make them logically informative, how to cash out x believes that a holds in T. The most conspicuous logical feature of accepting a statement A as true is being prepared to detach from it in an implication or to use it as a premiss in inference. An initial formulation of the distinguishing feature is then

(CF†) if xBA then x is prepared to use A as a premiss in inferences.

This important feature has been noticed, but in the too limited context of practical reasoning, by Armstrong who suggests (1973, p. 74): "beliefs are, thoughts are not, premisses in our practical reasoning".

In order to obtain a more formal expression of (CF†) we relativise (to x) the standard logical notation: $A_1, \ldots, A_n \vdash B$, which may be read roughly "from premises $A_1, \ldots, A_n$ one may infer B". The new notation $A_1, \ldots, A_n \vdash_x B$ reads approximately "from $A_1, \ldots, A_n$ x may infer B". The detachment of beliefs rule (a sort of cut rule) can then be stated:

$$\frac{xBA \qquad A, A_1, \ldots, A_n \vdash_x B}{A_1, \ldots, A_n \vdash_x B}$$

A parallel detachment of mere thoughts rule evidently fails. The well-known action guiding character of belief is a corollary of the rule; for a person's beliefs supply premisses in his practical reasoning about what action to take. The rule also explains why one cannot rationally adhere wittingly to false beliefs; for then one would be prepared generally in actual situations to detach from premisses one recognised to be false, which is hardly rational.

Given that the theses advanced under 1–11 are near the mark, (practically) all other accounts of belief and its logic of explicitness in the literature are defective.

§13. Corollaries for the logic and ontology of natural language

An important corollary of the illustrations is this:– The classical logical position is regarded as having a rather unquestionable status these days: it is (so it is said) the

rational, scientific position: it has the status of a received theory: it is the status quo. It has made a pretty clean sweep in most places where Anglo-American influence reaches, to a point where alternative non-classical logics are widely regarded as deviant, wayout ones. But as we have seen the received position implies by fairly direct steps positions in epistemology and elsewhere which are quite widely regarded as doubtful or debatable – certainly, unless philosophy has sharply changed, not ones which have the status of a received theory. But if p leads to q, and q is debatable, then p is debatable. Applying this principle, it appears to follow that matters taken for granted in the classical theory are not nearly as cut and dried as the adherents of such a theory would have us believe. Unless direct realist theories of perception, for instance, can somehow be written off as miserable superstition, it would appear that classical theories cannot correctly make the claim to rationality, adequacy, and scientific respectability that they actually seem to be able to get away with making.

One upshot is a case for a good deal more toleration towards alternatives and their investigation, and for less dogmatism in the wiping out of logical alternatives than is usually displayed. Such dogmatism involves a turning away from the best traditions of philosophy. In epistemology, for example, there have indeed been fashions, many of which seem amazing to people under the sway of later fashions, but there has rarely been a time, certainly not a recent time, in free philosophical discussion, when one of these positions was regarded as having the status of a received doctrine, to the extent that challenges to it were regarded as ratbaggery, as worthless, or a waste of time, or so that there was regarded as being just one position that an informed person could hold. Yet classical logical theory, though no less debatable, has virtually reached that state, at least with many of its adherents, and certainly in many places.

A much superior choice as working logical theory for investigating the philosophical problem areas considered, and others, is that furnished by (radical) noneism. The superiority of radical noneism over classical logic can be argued by way of models for theory choice, for example, by optimisation models in the fashion of Routley 1980, or from accounts of theory growth as in Priest 1979a. It can also be argued in other ways, in the ways of this book, and directly as in the following type of argument designed to indicate that the logic and ontology of natural language is noneist:–

Only a direct treatment of statements about nonentities can reflect ways in which we correctly talk about them in natural language. The argument derives from the character of highly intensional functors such as belief.

1. A belief concerning item x is not equivalent to a belief concerning anything other than x, where the identity determinates for "the same item" are stringent, and certainly exclude such factual identifications as round squares and ordered pairs consisting of null sets and other set theoretical fandanglry (unless the belief concept itself is totally reanalysed, as something else other than ordinary belief, but such analyses have been objected to on several other grounds in 1.7 [Vol. 1 *—Eds.*]).

2. But the item about which we can and do have beliefs, as delimited under 1, include, as a simple matter of quite hard data, not only nonentities but also impossible items.

3. To account for the way in which we operate with belief notions, to account for the things which we can, as a matter of quite hard data, truly say in natural language about beliefs, etc., it is necessary that such items be able to occur as full logical subjects, be quantified over, etc.

4. Classical logical theory is, as has been seen, inadequate to the task delineated in 2 and 3, but radical noneism is not. Thus:

5. Classical logical theory, in contrast to noneism, is inadequate to account for what is said in natural language. It is inadequate in fact on both intensional and inexistential fronts. For, to mention the inexistential, natural language does not carry, or lead to, the load of ontological commitments that philosophers in the classical logical mould would attribute to it. In natural language, which readily mirrors, and facilitates the presentation of, commonsense theses, one can and does correctly talk of what does not exist; and, as a matter of commonsense, many things that are spoken of, sometimes truly, do not exist.

It is one thing realising and showing the inadequacy of classical logical theory, in particular for major philosophical and linguistic purposes; it is quite another turning around the entrenched classical logical programme,[1] which keeps reappearing dressed in new gear. The last trendy garb for classical theory, and ever-associated empiricism, is advertised under such appealing headings as "the philosophy of language", "the semantics of natural language (or Davidsonian) programme" and "the philosophy of action".

[1] As it is turning around any deeply entrenched theory: see 11.4.

Philosophy of language, for example, as generally practised, is simply a reattire and face lift for classical logical theory and associated empiricism. And really it is a rather hopeless attempt to fit the data of language into the procrustean bed of an old model which cannot explain crucial elements of it. Comparison with a new physical theory, such as quantum theory, which supersedes classical physical theory, is revealing. The moral for currently fashionable, but essentially classical, logical theories masquerading under the title "philosophy of language", is that one should not refuse to recognize data because it cannot be explained in terms of an old model, or persist with obviously hopeless attempts to fit the data into an old and defective model even if it is dressed up in new attire. One should recognise that the old model, even if it feels comfortable and familiar, is inadequate to explain the data and observable facts, that it is inadequate to account for and explain the world. Such an approach would lead us to recognise non-referential occurrences for what they are, just as it leads to recognition of nonclassical objects such as quanta, even if these objects fit ill into the older model (indeed threaten to destroy it) and lead to much discomfort. The new "philosophy of language" is not in these terms a genuine methodologically-sound study of language and semantics at all; it does not attempt to explain data so much as to bend it[1] or to dismiss it where inconvenient, etc.

Similarly the "semantics of natural language programme", promoted especially by Davidson, that is often taken as part of the new "philosophy of language" is less a genuine theory of language or truth, of how we can truly say the things we do, than once again a fashionable face-lift and reattiring of classical logic and empiricism, an attempt to fit the data in with an old model (using a few newer tools drawn from Tarski's semantical theory of truth) which discards, through a variety of unsatisfactory theory-saving devices, what does not fit or cannot be retailored to fit.[2] It is less an attempt to account for features of language and the world than another attempt to impose an unsatisfactory model on it.

Non-referential occurrence, manifested in the intensional and inexistential, is a crucial part of the data of language which cannot be explained away or reduced to referential. In recognising and allowing for the mode, without attempting to reduce it to something considered more familiar, or to explain it away as something else, noneism has a different methodological approach to its rivals. It does not attempt like other theories

[1] Characteristic is the finding of ambiguities in natural language where none are manifest or need occur.

[2] The methodology here, presupposed and applied against classical based rivals is further considered and defended in 11.3ff.

to try to reduce it into the preconceived model for language of the Reference Theory and its elaborations. In this respect it differs from multiple factor theories as well as from those which assume everything can be done in terms of one factor, reference.

Chapter 9

The meaning of existence

Existence is, as Russell once remarked (1937, p. 449), a prerogative of only some among objects. Some things still exist, e.g. natural forests, and some things do not exist, e.g. dryades. The main problem is: *which* things exist, and *what* – since a mere listing of (some of) those things that exist and of (some of) those that do not exist is inadequate because hardly effective given the infinity of objects and because incapable of resolving hypothetical cases – *is the demarcation criterion*? For a suitable (intensional) criterion answering the question "What exists?", if it can be found, will enable existence to be satisfactorily defined by abstraction: existence is the property of all and only these things that exist ($E = \lambda x E(x)$). And this answers the question "What is existence?" and gives the meaning of *existence*, in one sense – the semantical sense – of "meaning".[1]

Although the predicate "exists" can in principle be treated as primitive and left unanalysed and unexplained, it is important, especially in rejecting such charges as those of platonism, and for the working out of what ontology is *really* about, that some conditions at least be provided on existence. Thus even though existence is a rather more honorific notion once the Reference Theory is rejected, and less hangs on its attribution

[1] The other, quite proper, questions encompassed under the question "What is the meaning of existence?", e.g. as to what is the point or purpose, if any, of existence, or creature existence, are set aside for another time and place. Also set aside are questions existentialists have raised as to what it is to really live or to be fully alive. For these use "exist" in a different sense, namely an extension of the third sense, to have life or animation; "to live", given in the OED.

The relevant sense of "exist" is the OED sense 1. "To have place in the domain of reality, have objective being".

According to Munitz (1974, p. xiii) the genuinely philosophical problem of existence is that of a systematic analysis of the meaning of "existence", which can be separated from the different, though related, problems of existence, such as the explanations of the existence of the physical world and of the mystery of existence. For an interesting, if fundamentally mistaken, recent philosophical approach to the latter questions, see Munitz 1965.

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especially for what can be truly said, nonetheless it is important for logical theory to try to explicate the notion.

§1. The basic problem of ontology: criteria for what exists?

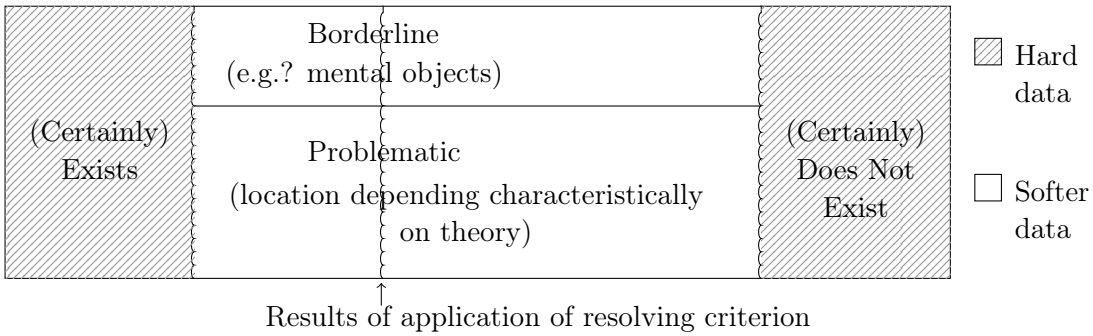
Although the problem as to what exists is the core problem of ontology, and so one of the central questions of philosophy, it is a problem that recent mainstream logical theory has tried hard to dispose of or avoid. The referential doctrines encapsulated in nondeviant modern logic, in particular the Ontological Assumption (according to which what does not exist has no properties, true discourse is never really about what does not exist), have converted existence into a sort of logical football to be kicked around with choice of bound variables and their associated entity domains; that is, existence is not treated as a stable independently characterisable notion, but rather as something to be pushed hither and thither to meet the requirement of *rendering* in some fashion all true discourse (or at least all minimally indispensable discourse, e.g. so-called scientific discourse) as about entities, i.e. things that exist. For as pointed out in the discussion of universals, given the tensions of that unhappy *menage à trois* between, *one*, what can truly be said, *two*, what exists in the ordinary sense, and, *three*, the Ontological Assumption, *something* has to give and it is usually the account of existence. Existence comes to be something to be manipulated in the interests of maintaining the Ontological Assumption without sacrificing minimal discourse; and what is said to exist may come to bear very little relation to what is ordinarily thought to exist. The slogan: to exist is to be appropriately included in a linguistic framework, to exist is to be the value of a bound variable, typify this sort of approach, and the way in which recent logic has avoided and subverted the real question of what it is to exist.[1] The question arises again however with full force, and assumes its traditional interest and importance, once the Ontological Assumption is rejected and what exists properly severed from what can truly be said. In fact an unfettered investigation of the problem of existence appears possible only with the rejection of the Ontological Assumption, and upon going beyond the actual and looking at what exists from both sides, from the outside as well as the inside.

Despite the impression Carnap and others have given, not anything goes as regards what exists, not anything can be said to exist: (even if put in a favourable linguistic

[1] See especially Carnap, MN, p. 205ff, and the discussion of Carnap's material below. See also Quine, WO.

framework) there are constraints, both on what can and what is said to exist and on what is said not to exist, imposed by the ordinary usage of "exists".[1] In virtue of this usage too the notion is much more stable than logicians have allowed. Even so, there is a large intermediate class of objects whose existential status is in doubt, or thought to be in doubt, and in dispute. In particular, there are with "exists", as with many predicates, borderline cases, and there are other cases in which usage is theory dependent. There remains a substantial area, however, which is not theory dependent and in which there is broad agreement that certain sorts of things clearly exist and certain other sorts of things clearly do not exist in the ordinary sense. In short, there are at least four classes of cases to distinguish, which may be represented pictorially thus:–

Initial diagram of object space (i.e. of $d(\underline{\underline{T}})$)



Almost everyone will agree that the following sorts of things certainly exist; nuclear power stations, Stuart Sutherland, greater gliders, ... Likewise almost everyone will agree that the following sorts of things certainly do not exist: Escher's impossible buildings, mermaids, Sherlock Holmes, ... (*No mermaids exist* is true, though many philosophers would prefer to try to express the truth differently). Since this agreement is not based on rote or list learning of things that exist or on authority or other sources of this kind, it is presumably based on the use of common criteria for the use of the term "exists". There must be such criteria (and lower and upper bounds on what can be allowed as existing): to discover what the criteria are is an important part of giving an account of existence, but of course it is not the only part. There are also the theory-dependent areas, and it is in these areas that disagreement commonly arises and the impression produced that there are no constraints, that the area is a hopeless quagmire. The theory-laden class enters through theories, especially through philosophical theories of truth and meaning, some

[1] As well as by the logical requirements, such as consistency and assumptibility already discussed.

of which have been popularly absorbed, in much the way that other theories (enough of them mistaken) are. By no means all theoretical items belong to the theory-dependent cases: idealised particulars such as the frictionless bodies, perfectly smooth surfaces, and so on, of scientific theories do not exist and are, ordinarily at least, reckoned not to exist. Likewise in the ordinary sense of "exists" such objects as Aristotle and the first fusion power station do not exist (the Minkowskian picture that encourages philosophers to say these purely past and future objects all do exist introduces its own, quite extraordinary, sense of "exist"). In contrast to these cases where usage is clearly determined but there is an attempt to *change* that usage, the usage concerning further classes of items is not, it seems, determined (though very often ordinary usage appears to settle *against* existence of any more esoteric objects). Such theory-dependent uses almost inevitably occur with certain abstractions, to take a major example. There is then no widely agreed upon usage for theories to change, but there is a gap for theories to perhaps fill. What one says about the theoretically dependent cases, what one says about the existence of the Triangle, properties, propositions, sets, numbers, theories and such like, unlike what one says about the existence of Aristotle or dodos or greater gliders, depends very heavily upon one's theory of meaning and truth.[1] Thus, for example, a whole class of ways of dealing with abstractions – by introducing subsidiary kinds of existence, e.g. exists theoretically, exists in the mind, and uses of "exists" in a broad platonic sense to cover all those classes of abstractions which are thought indispensable for (scientific) discourse – are heavily theory-dependent, and in fact generally dependent on reference theories of meaning and truth (the Reference Theory again). Users of these terms will usually agree that the theoretical items do not have ordinary concrete existence, but insist on this terminology because they wish to continue to speak truly about them and adhere to the theory that true discourse can only proceed through reference to an existent subject, in short the Ontological Assumption and the Reference Theory. In contrast, a noneist will reject these usages as involving a theory of meaning he rejects and insist that such things do not exist and there is no need, and no case, to say that they exist. There is no need because one can speak truly, and generally, of what does not exist. The noneist

[1] The aspect of trivialising real issues that so much of recent Oxford ordinary language philosophy presented in its appeal to ordinary usage, derived in large part from the neglect of these theory-dependent areas of usage, and in particular of the theories of meaning and truth associated with them. The converse also occurred – heavily theory-dependent usages were passed off as unshakeable "hard data" – ordinary usage. For example, the existence of universals and therewith the underlying ontological assumption, were extracted from "ordinary usage".

will suggest that such usages serve to prevent examination of, and realisation of the inadequacy of, the Reference Theory, and that insofar as they suggest that the items claimed to exist in such platonistic sense have concrete existence, are the sort of items likely to be encountered in the real world, they are misleading or obscure, and hinder the obtaining of an adequate account of existence.

For similar reasons noneism sets aside other kinds-of-existence doctrines (and parallel multi-criteria accounts of existence), approaches that reach their extremes in such theses as that every sort of object has its own sort of existence or that every discipline has its own kind of existence, e.g. geographical existence, historical existence, fictional existence, legal existence, mathematical existence, etc. etc. For these theses which are pushed to absurdity by multiplying distinctions of subjects – are underpinned once again by variants of the Ontological Assumption: without the assumption such kinds of existence doctrines are quite *unnecessary*. Moreover it is always a legitimate question whether what has t-type existence (e.g. parliamentary existence, mycological existence, grocery existence), does exist or not – not exists in some *other* way, but exists simpliciter.[1] Kinds-of-existence doctrines store up problems as to how objects having this or that kind of existence relate to objects having other kinds of existence and to what exists simpliciter and also problems as to the *modes* of existence of objects that do not exist simpliciter but in this or that way. These problems provide the bases of many objections to kinds (and degrees) of existence doctrines (e.g. Anderson's questions about relations of members of the kinds[2]), and thereby part of the case for the *only-one-way-of-being* theses common to

[1] It is not quite automatic that "exists" is univocal; whether there is just one sense tums on criteria for the sameness of sense. But the linguistic evidence suggests that the sense sought, that separated out from the OED senses for investigation, is a single sense. Not too much turns however on the issue of whether there is a single sense given that a single sense can be tied to different criteria.

[2] The argument, despite its initial promise, is difficult (perhaps impossible) to reconstruct in satisfactory form; for it depends on a circumscribing of what counts as a *relation* which has little justification. One fairly general version of the argument is as follows: let a exist and b be an object having f-existence and let R be an empirical relation for which aRb. Then since a exists and R is empirical b exists, so f-existence is otiose. Alternatively, there are no empirical relations relating existents to b: but then b's f-existence is totally unverifiable, and b does not exist.

The argument has several defects. But to put the argument in its best light let the relations considered be Brentano-style relations which do transfer existence. Then the first half of the argument is correct, as far as b's existence is concerned. But the second half breaks down; for a and b may very well stand in other kinds of relations, e.g. intensional relations. No sort of verification principle will then bridge the gap to unverifiability, or the leap therefrom to nonexistence.

Examples of arguments of this sort, against types of existence or multiple world theories, are examined in interesting detail in Passmore 1970. Observe that if arguments of this sort did succeed they would show that what is quite satisfactory and certainly consistent, multiple world modellings of intensional

empiricists such as Anderson and to rationalists such as Meinong, namely there is only one way of existence, being in the domain of empirical reality, i.e. existence simpliciter.[1] The rubric is however compatible with the One Way being delineated by rather different criteria.

Application of the term "exists" to such items as abstractions, then, is heavily theory-dependent, and pretheoretical usages of "exists" tend to leave it open whether such things exist, i.e. they leave the area open for the invasion of theories, including noneism. So one is not violating any accepted usage by saying that such items as Time, the Triangle and numbers exist, and one is not violating it if one says that they do not. In contrast to the pretheoretical usages, the satisfactoriness of such theoretical uses is not determined by pointing to a widespread belief or convention, but by the adequacy and correctness of the theory with which the theoretical usage is associated. The difference between someone who wants to say that such abstractions exist in the mind, in theory, or exist platonistically, and one who says that they do not exist at all, is not then the difference between two different but equally agreed conventions, but the difference between two theories, one of which may be more adequate than the other to account for the hard data presented by what can certainly be said.

It may be, however, that various theoretical uses can be eliminated by showing that they rest on bad or shaky theories or (and this will be a main strategy) by showing that the convergent cluster of criteria that lie behind the hard data of ordinary usage serve to rule out the theoretical assumptions. The evident question is then: what are these demarcation criteria in virtue of which we distinguish those things that exist from those that do not. A great variety of criteria have been proposed, often without any justification or their base being made at all clear. Some of these criteria can be dismissed

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logics, is impossible. The main line of argument is as follows (cf. p. 42): if a and b which are of different worlds, or exist in different ways, are brought together by a relation (such as participation) then "they are automatically taken to belong to a single realm of being". That is not so, but only holds good for certain sorts of relations. The remainder of the argument is that if a and b are not related in such a way, then the worlds are "split apart, and (additional objects) become quite otiose". Again that is not so; for intensional relations such as those of explanation can link the objects of different worlds. And sadly, the argument seems beyond repair.

[1] Meinong says, in GA, vol. 1, that there is only one kind of reality, empirical reality, and that so-called fictional reality is no reality at all. On Anderson's position see his 1962; also Passmore 1970. In another sense, however, Meinong is committed to an (erroneous) levels-of-being doctrine: see 12.2.

The One Way thesis is incompatible not merely with more extravagant kinds-of-existence doctrines but also with theories such as those of Moore and the early Russell, and recently Margolis 1973, which distinguish existence from being, being being a further sort of existence.

at once as conflicting with the hard data, e.g. any criterion that entails that impossible objects exist and any criterion that entails that nothing at all exists (naturally there may be other things of importance to consider in the arguments). Also we can readily set aside various

I. Correct but trivial criteria, and

II. Obviously mistaken criteria,

and move to

III. A classification of remaining criteria.

ad I. *Correct but trivial criteria*, which any possible theory can conform to or supply.

Example 1: To exist is to instantiate existence, i.e. $E(x)$ iff $(\lambda x E(x))(x)$, which is an immediate application of λ-abstraction. The account Russell offers (in 1937, p. 449) is scarcely more informative, namely "To exist is to have a specific relation to existence". For the unexplained "specific relation" has to be tantamount to none but instantiation. Many of the criteria we consider in more detail in fact only enlarge the circle evident in Russell's account a little, the circularity is just a little less transparent.

Example 2: What exists is *everything* in the sense of the universal quantifier $\forall$ of classical logic (cf. Quine FLP, p. 3). But in this sense *everything* is equivalent to *everything existent*. And certainly everything existent exists. $(\forall x)E(x)$ is a basic logical truth of free logic, which can be reexpressed classically given identity, since $E(x) \equiv (\exists y)(x = y)$, as $(\forall x)(\exists y)(x = y)$; and $(\forall x)E(x)$ expands to the trivial theorem $(Ux)(E(x) \supset E(x))$ of neutral logic. In short, the answer "Everything", where the term carries existential loading, is correct but trivial; and it will follow on any satisfactory logical theory. However in the larger sense, where "everything" means "every thing", i.e. "every object", not everything exists, for many objects do not exist.

Example 3: To exist is to be the value of a bound existentially generalisable variable.

Example 4: To exist is to have the property of satisfying the criteria for existing (Margolis 1973, p. 109, also p. 92). Such an analytic connection does nothing to separate "exist" from a wide range of other predicates, such as "is good", "is beautiful". Admittedly, though, this account does appear to conflict with such theses as that existence is not a predicate and that there are no marks or tests of existing; but it hardly conflicts in a

serious fashion, since the theses were never intended to, and hardly could, banish "exists" as a grammatical predicate (cf. 1.17 [Vol. 1 *—Eds.*]).

ad II. *Obviously mistaken criteria.*

Example 1: To exist is to be the value of a bound variable (cf. Quine).

Example 2: To exist is to be consistent (a thesis sometimes associated with Hilbert). It is quite evident however that many novels are consistent, yet their characters do not exist. There are any number of consistent (or possible) objects that do not exist.[1]

Example 3: To exist is to be an element of a good theory (cf. Sellars). A good theory (Newtonian mechanics as fairly fully elaborated in the nineteenth century was one such) may contain many elements that do not exist, e.g. ideal particles and other objects, virtual forces, etc., etc. Conversely objects that exist may be included in no good theory. The thinking behind this criterion appears to be the pragmatist equation of truth of a theory with its goodness. But even removing this defective linkage does not conspicuously improve things.

Example 4: To exist is to be an element of a true theory. The equivalence fails for the same reasons as before. True theories may well exploit theoretical objects that do not exist; and true theories may well be incomplete. Incompleteness is perhaps reduced (to the extent that limitative theorems permit) in the unobtainable limit, total correct science, but use of ideal theoretical elements may well not be. Thus the idea (in Armstrong 1978, e.g. II, p. 8) that what exists is determined by total sciences is mistaken – unless of course total correct science includes a *correct* ontology or (what is also unlikely given the possibility of neutral recasting of theories) uniquely determines its ontology.

Example 5: Variants on the Ontological Assumption, e.g. to exist is to have properties, to exist is to be the object of facts, to exist is to have physical properties, etc., etc.

Example 6: The definitions of Leśniewski's Ontology, namely, *an a* exists iff, for some *b*, the *b* is an *a*, i.e. There is something that is an *a*; and, *the a* exists iff, for some *b*, the *a* is a *b*, i.e. there is something that *a* is. The definitions presuppose the Ontological

[1] The converse thesis, that what exists is consistent, which is usually and rightly accepted, gets repudiated in various paraconsistent theories, e.g. that of Priest 1978 where the Russell class, $\{x\colon x \notin x\}$, exists though it has inconsistent properties.

Assumption. Without that assumption they are readily counterexampled. For example, the mountain I am thinking of is a golden one, but it does not exist.

And there are many other examples of plainly mistaken criteria (for one striking example see Redmon 1973).

The rejection of all these criteria, especially variants of the Ontological Assumption, has a substantial bearing on the method adopted in what follows. In particular, the question of whether *a* exists has nothing to do with whether all discourse where "*a*" occupies a subject position can be analysed away or paraphrased so that "*a*" does not occur.[1]

ad III. *Key to remaining criteria.*

A. Holistic criteria, other than spatio-temporal ones, which (try to) characterise existence in terms of some totality, e.g. true statements, the one true theory, the actual world. GROUP 0

A*. Other criteria, which typically try to characterise existence directly in terms of distinctive features of items that exist, including spatio-temporal criteria.

B. Spatio-temporal criteria GROUP 1

B*. Criteria which are not dependent on spatio-temporal relations

C. Other relational criteria.

D. With intensional relations, such as those of perception. GROUP 2

D*. With extensional relations.

E. Those based on causal type relations. GROUP 3

E*. Those without causal base. GROUP 4

C*. Completeness and determinacy criteria.

F. Full determinacy criteria. GROUP 5

F*. Qualified determinacy criteria. GROUP 6

[1] A corollary is that the methodology of much recent work on universals, e.g. that of Armstrong 1978, is quite unsound.

Although the criteria of the different groups are different, several of the criteria may, after some refinement, be amalgamated; in short, as we shall see upon considering the groups in more detail, a qualified synthesis of criteria can be effected.

§2. GROUP 0. Holistic criteria

These criteria try to characterise what it is to exist, or to be an existent or an entity, in terms of some whole or totality – such as the Physical World, the Universe, The One, or Reality – $\underline{\underline{G}}$.[α] They take the form:

OG. xE iff $xR\underline{\underline{G}}$,

where R is a relation between x and $\underline{\underline{G}}$ such as the relation of *being a part of* or *a component of* or *having a place in* or *being in* (or even *partaking of* or *participating in*). Such accounts, which perhaps go back to Parmenides, and certainly go back to Aristotle, are to be found in modern nominalism and empiricism. Thus, for example, it is a theorem of mereology (Leśniewski's formalised nominalism), and of the allegedly isomorphic calculus of individuals (Goodman's logical theory in 1977), that:

xE iff $x < \underline{\underline{G}}$.

(How trivial the theorem is depends upon the way items are defined: e.g. if $\underline{\underline{G}}$ is defined as the mereological class, or aggregate or sum, of all entities, the proof is short.) Representative of the holistic approach are the following two accounts:–

01. To exist is to be any fragment, part or real constituent of the world (Munitz 1974, e.g. p. 170);

02. To exist is to have a place in the domain of reality (OED; sense 1);[1] i.e. in symbols of world semantics xE iff $x \in d(\underline{\underline{G}})$, which, when generalised to arbitrary models, is displayed by the pure semantical rule: $I(xE, \underline{\underline{G}}) = 1$ iff $x \in d(\underline{\underline{G}})$.

[α] $\underline{\underline{G}}$ is the (actual) referential world which contains only existents – "the one and only world according to most empiricists" (cf. Vol. 1, §1.17, pp. 266–8). —*Eds.*

[1] If "have a place" is construed literally the dictionary definition does, however, have some bite: see criteria under group 1.

A first problem with such criteria is that they are circular in a rather conspicuous way and accordingly, though correct, somewhat trivial. For example, Munitz uses

> the expression "The World" to mean "The individual whole (or collective class) whose parts are all existents whatsoever" (1974, p. 141),

and the OED explains reality in terms of "what is real" or "has real existence" and "real", in this sense, in terms of "exists"; so that accounts 01 and 02 reduce to the platitude

03. To exist is to be part of [an element of] the sum of [the class of] what exists.

And, this, though true enough, is very little help on its own in characterising existence; one might almost as well say that to be red is to be part of the totality of red things, to (be) f is to be among the f things. A second problem arises from the first, namely the open hospitality of such accounts: on their own they exclude nothing. Pegasus exists iff Pegasus is in the totality: no basis is given for excluding Pegasus from the totality.[1]

Various ways out of these difficulties have been tried. One way, which commonly accompanies the pretence that the (actual, empirical) World is the only world, is to try to impose further conditions on the World; another, not so very different way, is to try to elicit features which distinguish the actual world from other worlds. The pretence that the actual world is *the only* world – that talk of other worlds is literally impossible, or does not make sense – cannot be sustained. For alternative worlds can be envisaged and described, in very considerable detail. The pretence is motivated by the mistaken assumption that there is something deeply wrong with talk about what does not exist, such as alternative worlds. Given alternative worlds, each with their respective entity domains, the difficulty reduces, in the first place, to how to characterise the actual world, to distinguish it from other worlds, and, in the second place, how to distinguish the entity domain from the wider object domain of the distinguished world. Plainly no account of the actual world that brings out its (entity) domain as something different from the totality of what exists will do; this rules out, e.g. accounts of the actual world as an arbitrarily selected possible world, as the best of possible worlds, etc. Nor will any account suffice which does not succeed in selecting the actual world from other worlds, e.g. accounts of "the" world as a world of individuals or as a world of individuals in their relations, or of the real world

[1] Similar problems to those here observed in characterising *existent* arise as regards *individual* and *particular*. They arise both independently, and because nominalism typically equates *individual* and *particular* with *entity*.

as a spatiotemporal network of things or things in their relations or of the real world as what science or physics describes.[1] For, what has been evident enough all along, and recent work on the formalisation of physics has helped to bring out (especially Bressan's work), physics can describe many different spatiotemporal worlds, even perhaps the "one true" physics. Unless *individuals* is equated with *entities*, and individuals somehow build their interrelations in, the nominalistic account of the world as a world of individuals is inadequate – for the entities could be differently arranged – and presupposes what is in question, namely what is an entity. The account of the world in terms of things in their true relations avoids the first of these objections: and otherwise the situation is like that with modal semantics shortly to be considered.

Narrowing the class of worlds by imposing constraints on *worlds* – even if it so far fails to select appropriately a singleton – seems undoubtedly to be in the right direction (this much emerges from the Aristotelian theory of definition). The restrictions have as well a most important effect, that they make criteria for existence much less hospitable. One of Meinong's arguments that higher order objects such as properties do not exist illustrates the point. Meinong argued validly thus (cf. Grossmann 1974, p. 156):

1. If ξ exist then ξ are ingredients of the physical world.

2. Sensory qualities are not ingredients of the physical world.

3. Sensory qualities do not exist.

Similarly for propositions, objectives, and so on: no such abstractions exist. Refining an existence criterion so that it begins to *work* at the same time renders it controversial: perhaps there is an unavoidable incompatibility here, that any criterion that approaches effectiveness does so by some exclusiveness and thereby becomes controversial. These issues will reappear with subsequent groups of criteria.

An approach much favoured in classical modal logic has been to take the actual world as the class of true statements, so that to exist turns out as to be the object of a true statement. But this of course writes in the Ontological Assumption, thereby forging a direct and simple – but fundamentally mistaken – link between existence and truth. Once the Assumption is rejected the notion of the actual world acquires crucial ambiguity, *at least* as between the class of true statements – the world that is everything that is the

[1] Each of these assumptions as to what the world is like will lead to further nonholistic criteria for existence to be discussed in later groups, e.g. to be an individual, to be in space-time.

case (world $\underline{\underline{T}}$) – and the totality of existing things on the other hand (domain $d(\underline{\underline{G}})$) – the worlds Wittgenstein 1947 distinguished. Given the Ontological Assumption these are isomorphic so it is commonly unnecessary to make the distinction. There is already a serious problem for the semantical theory of truth, once the possibility of alternative worlds is duly acknowledged, in selecting the base world $\underline{\underline{T}}$, where what holds is the case, at which truth is assessed. Even supposing that problem is surmounted,[1] the separate question, of demarcating the entity domain $e(\underline{\underline{T}})$, i.e. $d(\underline{\underline{G}})$, of $\underline{\underline{T}}$, remains. For insofar as the world is characterised as everything that is the case there will (on noneism) be very many things "in the world", – strictly, the objects of true statements – which do not exist, since nonentities can be the subject of true statements and thus become constituents of what is the case, and hence part of the world. So being in the world in this sense can give the right results only if the Ontological Assumption is assumed, if truth determines existence and $\underline{\underline{T}}$ determines $d(\underline{\underline{G}})$. Once the linkage of truth and existence is broken, the classical modal approach fails in removing the circularity difficulty.

One might still hope to find a characteristic of the totality $d(\underline{\underline{G}})$ to be explained more readily than characteristics of the items to be explained, but the chances of this in the case of existence do not appear particularly good. It may be more fruitful to look for a direct characterisation without a detour through the totality, through Reality or whatever. Naturally if a direct characterisation can be found, one can then return and pick up holistic criteria as well, i.e. a synthesis of criteria can then be effected.

§3. GROUP 1: Spatiotemporality and its variants

According to such criteria an item exists if it has a spatiotemporal locale or a temporal location, or some such. Representative criteria of this type are:

11. To exist is to have a space-time location or locus (cf. Chisholm 1972, p. 246; see too Bergmann's criterion, in 1964, of what it is to exist in terms of localisation in space and time): *Spacetime criterion.*

12. To exist is to have some spatial locale now, to now occupy a spatial neighbourhood (cf. chapter 2 [Vol. 2 *—Eds.*]): *Basic spatial criterion.*

[1] The problem is explained in detail and a solution, albeit of a circularish character, proposed in 1.24 [Vol. 1 *—Eds.*]. But the solution is hardly very helpful on the existence question. It would be like determining $d(\underline{\underline{G}})$ in terms of truths of the form "a exists", i.e. in terms of a's for which $I(a \text{ exists}, \underline{\underline{T}}) = 1$.

There are similar problems in picking out *the* physical world, real space, etc.

13. An object exists iff it is in time, i.e. some time is a time at which the object exists (cf. Russell 1912, pp. 155–56): *Temporal* (or pure time) *criterion.*

These criteria differ, with (roughly) 12 ⊂ 11 ⊂ 13. The inclusion is proper; for according to 13 (at least as Russell construed it) thoughts and feelings and minds exist, but according to 11 (on the usual construal at least) thoughts and minds do not exist, and according to 11 purely future; and also purely past objects exist whereas on 12 they do not. On each point of difference 12 seems to be right – at least if the aim is to explicate the *tensed* verb "exists", as distinct from "has existed", "will exist", "always exists", etc.[1] Aristotle does not exist, though he did exist; my stone temple on the mountain does not (yet) exist, though maybe it will exist. For tensed existence 11 and 13 are wrong; but, of course, however tenses are explicated tenseless notions can be defined, e.g. sometime-existence, omnitemporal-existence, by appropriately quantifying t in "exists at t". What emerges from this, generalising 12 to time t, viz.:

12t. x exists at t iff x has a spatial locale at t,

still appears (unless a rude materialism is adopted) to rule out neural objects such as thoughts. This difficulty, if it is a difficulty, could be avoided by replacing "spatial locale" suitably, e.g. by generalising 13 to:

13t. x exists at t iff x occurs (takes place, etc.) at t,

and by refusing to admit as significant such questions as "occurs *where*?" which would take 13t back to 12t.

But the refusal is commonly felt to be unsatisfactory. If ξ exist such questions as "where can they (it) be found?", "In what place(s) do they (it) occur?" are always

[1] It may be objected that on the ordinary spatial criteria existence emerges as nothing but a rather boring local property – and an attempt may be made to generalise the objection into an objection that whichever direction one takes, the platonising direction which leads one to say that everything exists or the nonplatonising direction which leads one to say that only what is now localised in space exists, the result is of no philosophical interest, existence is a bore. What little is true and relevant about all this is that given that existence is existence now – and this appears to be the ordinary sense of "exists" under which *sometime existents* such as purely past and future objects do not exist – existence is no more invariant under relativistic transformations than is the present: existence is then a local feature. Nonetheless the logical interest in what exists remains undiminished, somewhat as the philosophical interest in the present, and in tensed discourse, remains undiminished by such scientific revelation. For existence remains a complete guarantee of defensibility $((\xi x f)E \supset (\xi x f)f)$. And relativistic invariants such as sometime-existence can be had as well, for they are readily introduced definitionally.

Spatial criteria 11 and 12 stand together, either being definable in terms of the other, *sometime* existence by quantification and present existence by present time cross-section of sometime existence.

significant ones, and must get an answer (and reflection on the OED senses of "exist" confirm this claim). This is *one* of the forces behind the endeavour to design worlds, e.g. further realms and platonic heavens, for abstractions to reside in, and the *invention* of such special places as minds, so that questions like "Where are your thoughts?" can be met by "In your mind". It is important to observe that the main pressure to make these problem-proliferating moves is eliminated once the Ontological Assumption is abandoned. The pressure comes because we can undoubtedly make true statements about such objects as thoughts and concepts and properties, e.g. "I have been struggling all week with the concept of existence but not had one good thought on it". But the fact that these are true statements about ξ, e.g. about thoughts, such as that they are *had*, that the people can *entertain* or *share* the same thought or concept, does *not* entail that thoughts or concepts exist: to suppose that it did would be to invoke a version of the Ontological Assumption. It is *not necessary*, then, to say that thoughts or concepts exist in order to allow that true statements can be made about them. And there is a converging group of reasons for saying that such objects do not exist, one of which is the linkage of existence with place and the advantages of avoiding the problems that such curious places as minds and heavens can engender for philosophical theories. Other reasons from the nexus will emerge as subsequent criteria for what exists are considered, e.g. issues concerning physical action on thoughts and concepts, and the determinacy of thoughts and concepts. Criterion 13 can accordingly be dismissed.

Spatial criteria for existence have become debatable, not so much because they exclude thoughts from the honorific category of existents (unless we desperately assign thoughts some locations, such as in various brains), but because they rule out abstractions, and empiricists of various persuasions have come to realise that without the language of abstractions too much of modern science is in serious doubt. Again the Ontological Assumption has figured: without it it can simply be said that in a language of science true statements can be made about abstractions without abstractions existing. As with thoughts and minds, so with abstractions, there are arguments from other existence tests and criteria to their non-existence (arguments to nonexistence must always go back, at least implicitly to such criteria). For instance, it is evident that not all properties and not all abstract sets can exist since some are inconsistent or paradoxical, but the consistency test (at best a necessary condition for existence) does not rule out all abstractions, though perhaps (for all we know) it rules out some that feature in math-

ematics or science. What spatial criteria for existence do however are to write off all abstractions as nonexistent. This is not quite immediate for various attempts to reduce abstractions to particulars have to be disqualified, e.g. Russell's onetime proposal that attributes be supplanted by collections of their instances (inadequate because actual instances are insufficient for dispositional, counterfactual and causal roles of attributes, and because not enough attributes are thereby supplied to guarantee classical analysis), and modern suggestions that some abstract sets coincide with aggregates of their individual members (inadequate because aggregates have different properties from abstractions, e.g. the aggregate membership-part relation is transitive, but set membership is not).

Given the failure of such reductions,

1. Abstractions do not have spatial locales.

But, by the spatial criteria,

2. Objects exist only if they have a spatial locale.

Therefore,

3. Abstractions do not exist.

The argument exactly parallels Meinong's argument for the nonexistence of higher order objects.[1] And of course the arguments can be connected, by connecting the criteria used, e.g. as follows:

an object x has a place in the domain of reality (with the OED "place" now taken literally) iff x now has a spatial locale, i.e. iff x is an ingredient of the physical world.

But these connections also serve to remind us that the account, pleasant though it is in treatment of abstractions and indeed of nonparticulars generally, encounters difficulties which transfer over from difficulties for group 0 criteria. And there are other problems as well.

A first problem is that of the definiteness use of such terms as "location" "locale", etc. tends to suggest. Consider criteria 11 (the criteria for sometime-existence). The location mentioned obviously need not be *completely determinate*, that is, such that for

[1] The main case for the nonexistence of abstractions is much elaborated in the material on universals, namely there are no good reasons for saying they do exist and reasons for saying that they do not; see 8.9, and for a fuller discussion 9.9.

any point in space and time one can say definitely whether or not the item occupies it. Indeed it is doubtful that even the *relatively* spatiotemporally determined items such as furniture that philosophers usually consider could meet such a condition, especially given the temporal indeterminacy which arises as a result of problems about identity over time; but it is plain that many natural items which certainly exist, such as forests, lakes, clouds, and waves, do not meet it. What is intended then is that there should be some location in space and time, the item must occupy some spatiotemporal location, *some neighbourhood* (in the topological sense) even if it cannot be specified completely determinately. Similar points apply in the case of microphysical particles.

Here a second problem arises however. The criterion must be qualified to "occupies a position in actual (or real) space and time". For fictional items for example may occupy a position in fictional space-time, for example, Sherlock Holmes lived in Baker Street$^{\#}$ (the fictional Baker Street that is, not the real Baker Street), geometrical objects may occupy positions in high-dimensional spaces, and visions and illusions and hallucinations, e.g. mirages or after-images, may occupy positions in perceived space and time (may be "presented in space and time" in Kant's terminology). Such items are not entirely located in real space and time, so that if independent checks are conducted to locate the mirage, it is found not to be there. Thus perceived space and time, or fictional space and time, must be distinguished from real space and time, and it is plainly occupation of a position in the latter which must be used to characterise existence. The qualification "real" is therefore essential, but its inclusion seems to make the criterion uncommendably circular. For what is real space and time but *existing* space and time,[1] the spatiotemporal coordinates for the existing world, which those things which exist occupy? The spatiotemporal criterion seems then to be of limited value as a useful limiting condition on existence.

In addition to having a strong favour of circularity, the spatiotemporal criterion may appear to be unduly narrow and to wipe out many things which in any ordinary sense of "exists" are taken to exist, particularly certain structured groupings of spatiotemporal individuals such as corporations, nations, universities and armies.[2] And while it might be pleasant to resolve the problems created by corporate domination by having such things not exist, we should also wipe out communities, ecosystems, associations and

[1] In general "real f" and "existing f" cannot be equated, neither implying the other; but in certain contexts the equation is permissible.

[2] Complexes in Meinong's sense. These complexes, though usually composed of individuals, are also particulars.

other organisations as not existing, in short structured groupings of individuals which have a spatiotemporal location. But in the ordinary sense of "exist" some such structured groupings surely do exist, have existed at some times, and cease to exist at others. Some nations, armies, communities and ecosystems exist in contrast to others which do not, have never existed or no longer exist. The East India Company for example did exist, but no longer does; the Rio Tinto Zinc Corporation exists, whereas certain fictional companies employed by con-men do not. It seems that in the ordinary sense of existing some such structured groupings must be allowed to exist and others not. There are, however, problems about the assignment of a specific spatiotemporal location to structured groupings or complexes. At which particular point in space and time does one find a corporation, at its headquarters, its branches, its mining location, its place of incorporation or registration (which may be Liberia)? Clearly such complexes can operate in space-time and physically affect the actual world, e.g. through the individuals these objects are partly made up from. But it is often – not always – difficult to see them located at a point at particular places in space; they may have multiple locations and the boundaries of their regions are often vague.[1] Furthermore the biggest of these structural groupings, the actual world (in the sense of the totality of things that exist in their relations) does not have a spatiotemporal location: on some relational accounts it *is* space at a given time.[2]

Even if in some of these cases there is no difficulty in assigning a spatiotemporal location – e.g. the army can be sent to Ireland, an ecosystem can be found in a particular region, and a company with headquarters and all operations in a particular city might be said to be in that city (e.g. a Detroit company) – it is still the case that such complexes frequently raise a host of problems concerning locations and the possession of a particular spatiotemporal location which do not seem to be reflected in the notion of existence itself. So, for instance, the question as to where the Rio Tinto Zinc Corporation is located usually involves a decision, an element of arbitrariness or stipulation; but there is no such arbitrariness or stipulation concerning whether it exists. Possession of a particular spatial or spatiotemporal location is not, it begins to seem, of the essence of existence: for if the account did capture the notion, arbitrariness or indeterminacy about location should show up in parallel features of existence.

[1] Nor is there a clear line between cases where there is a clear location and cases where there is not.
[2] Isolated exceptions of this sort are however easily taken care of in a general account.

However the existence of complexes such as corporations is not as clearcut as these considerations suppose; such objects as corporations, trusts, partnerships, and even universities, are sometimes reckoned legal fictions. They have it is said "an existence only in law" – which is to say that they do *not* exist but that they have properties conferred by legal institutions, such as charters, acts, etc. Thus for example Chief Justice Marshall in the Dartmouth College Case (cited in Goodman 1966, 2nd page of chapter 2):

> A corporation is an artificial thing, invisible, intangible, and existing only in contemplation of Law. Being the mere creature of Law, it possesses only those properties which the charter of its creation confers upon it.

If indeed corporations did possess only such properties they would be quite analogous to fictional objects whose properties derive from their source book (and also to Parson's objects). But the truth is that corporations possess quite a range of other properties. Though they do operate, to varying extents, within their charters, they carry out many operations not specified or detailed within their charters, e.g. placing advertisements, lobbying and bribing officials, minimizing their taxation, etc; and thus they have many properties not simply conferred by their charters. They are not "mere creatures of law", "existing only in the contemplation of Law". As for their artificiality and so on, existing things[1] can have these properties. A newly synthesized gas may be artificial in the sense that it does not occur freely or at all in nature (most of modern houses and their contents are artificial in a good sense) and it may be both invisible and intangible – though of course it can be detected in other ways: but so then (if in *different* ways) can a corporation and its power. A gas is a certain physically constituted and bonded collection of its molecules, a corporation is a certain legally constituted and related collection of its members. Are the differences enough to count one sort, gases, as existent, and the other sort as not existing?

It seems likely moreover that explicit broadening of spatiotemporal location criteria would enable most of these difficulties to be avoided. For example, to expand criterion 12, take existence to be either possessing or occurring in or operating in – or more comprehensively functioning in – particular (spatial) neighbourhoods. Then even if we cannot easily say where RTZ is we can certainly say that it operates in Chile, and there

[1] With gases and suchlike the word "object" becomes a little strained: most words have their limitations.

is no decision problem about that. The solving of some problems leads to others: it has to be explained, for example, that being instantiated in neighbourhoods is not a sort of occurring in neighbourhoods, else the criterion designed to admit complexes, which are particulars, admits what is very different, universals such as properties. Then too it is not difficult to see how the characterisation could be widened to admit properties, and the question "Why not do so?" is raised, along with underlying worries as to the apparent arbitrariness in deciding – what ought to be one of the hardest of properties – what exists, or what counts as existing. But most important, the broadening of criterion 12 does not get around the problem of circularity, the need to appeal to real space.

Another criterion of group 1, which initially looks promising, but fails to escape the circularity difficulties is the Kant–Moore suggestion: *to exist is to be met with* (encountered) *in space*. The criterion is however incomplete; we want to ask: Met with *by whom*, and how, in *what space*? Presumably we receive the answer that it must be met with by an *entity* in *real* spaces. For otherwise Dr. Watson would satisfy the criterion since he is met with by a fictional character, Sherlock Holmes, in fictional space. And similarly a host of other nonentities would be met with under the criterion, e.g. regular 23 dimensional figures are to be met with in 23 dimensional space. Once the requisite qualifications are introduced the sort of circularity that infects other spatio-temporal accounts reappears. The criterion not only appeals to an entity, but also to the notion of real or existing space. The criterion seems in fact to combine the simple spatial criterion with the perhaps different criterion of being suitably related to an entity, and thereby leads on to relational criteria.

The logical structure of many accounts of what it is to exist will be becoming evident by now: the general form emerging is as follows:

RE. $\quad xE \;\text{ iff }\; xR\rho,$

where ρ is some paradigm existent, such as as Reality, the World, Space on realist accounts, and as the subject, the perceiver, oneself, on more idealist accounts, and R is a specific relation or type of relation. The existents are then the things suitably related to a (or some) paradigm existents. Accounts of this type may well be called *relational* accounts, in contrast to *cluster-of-property* accounts which endeavour to explain existence in terms of the possession of a certain cluster of properties. Both sorts of accounts

have famous logical representatives, identity in the second case and the definitions of cardinal numbers in the first. Consider the way the number 1 may be defined, namely by abstraction from the predicate "is one", symbolised 1, where:

$$x1 \quad \text{iff} \quad x \text{ corresponds 1-1 to } \rho_1,$$

with ρ_1 some paradigm unit set, e.g. $\{\Lambda\}$. This logistic definition of cardinals is indeed an attractive model to try to emulate in the case of existence, but there are again some hitches. Firstly, there is the contingency of paradigm existents,[1] a problem, if it is a problem, that is rather more severe with idealist "paradigms", such as the Self than with paradigms such as Reality or Space. For it can be argued (if mistakenly) that if Reality doesn't exist nothing does, i.e. Reality is genuinely a paradigm.[2] Secondly, in the logistic definition the paradigm can be independently defined. The trouble, as we have seen in groups 1 and 2 is that independent characterisation of the paradigm, which makes no appeal to the notion being defined, is problematic. (Of course it has been contended that the logistic account has similar faults, but it is doubtful that the criticism has been sustained.) Thirdly, there are problems in the existence definition with the relation. No simple analogue of 1-1 correspondence, it may be insinuated, has been found, or is likely to be found. But such a relation is just what we have been considering, namely the determinable relation of being spatially related to (with such determinates falling under it as being in such and such a linkage to, direction from, distance from, being in the neighbourhood of, etc.). Perhaps the logistic example is not being strictly adhered to, since spatial relations (*if* distinct from relations with such and such logically characterisable properties) do not appear definable in purely logical terms, e.g. in the framework of PM, perhaps extended to include geometry. But the logistic example, though illuminating, can be a hindrance if insisted upon in a rigid way, in particular in a way does not sanction different paradigms. The paradigms for existence are not invariants which necessarily have their paradigm-making feature: they are local objects and, since nothing necessarily exists, they have their key feature contingently. As paradigms there is thus a clear choice, namely ostensively-indicatable local entities. *To exist is to occur in*

[1] If there were necessary existents, e.g. God, this sort of problem would be removed. But plainly the problem can't be removed by appeal to necessary existents except in a question-begging way.

[2] A Cartesian might object that on the contrary there could be no better paradigm than oneself.

their neighbourhood, in the spatial network they generate, or, more briefly, *to be spatially related to them*.

The account has the great virtue that it yields the Brentano requirement, that entities cannot stand in an entire physical relation to nonentities, as a corollary. Suppose, otherwise, that an entity a and a nonentity b stood in an entire physical relation. Then they would be spatially (or spatio-temporally and so spatially) related. Thus, since b is spatially related to a which is spatially related to the paradigm, b is so related to the paradigms, by transitivity of *spatially relates*, i.e. b exists. Briefly, if something relates spatially to an object in the spatio(temporal) network, it too so relates.

The next groups all involve attempts to vary the paradigms and relations of relational-style accounts; the order is from idealistic accounts to progressively more realistic accounts.

§4. GROUP 2: Intensional criteria

The most notorious example of such a criterion is encapsulated in the phenomenalistic slogan:

21. *Esse est percipi*, to exist is to be perceived.

The defects of the criterion are well-enough known, e.g. *prima facie* it fails to accommodate the continued existence of what is in fact unperceived, or the existence of perceivers themselves, or of what is for technical reasons not open to perception at all. It is not too much better than such slogans as, to exist is to have enemies, to exist is to be fallible, etc. Initial improvements on the Berkeleyan criterion are not difficult to devise; for instance:

22. To exist is to be perceivable (or observable, etc.).

But how the *able* is to be spelt out, that is the familiar question. For *perceivable* is like *verifiable* as in the verification criterion. "Perceivable" does not mean "can (logically, or technically) be perceived" but rather "capable of being perceived", a dispositional notion which is in itself a source of difficulty for some who would adopt such a criterion. The criterion is incomplete, and filling the gap, answering "By whom or what?", reveals that the criterion is also circular. For if Dr. Watson gets in among perceivers then Sherlock Holmes exists. But if only existing perceivers count, then the account – now truly of

relational form – presupposes a prior account, if not of existents, at least of existing perceivers, or of *some* existing perceivers (since it is presumably the capacity of those perceivers that are *best* at perceiving that matters). But what exists should not have to depend on the, accidental, capacities of existing perceivers. Maybe this can be avoided by appeal to some *ideal* perceiver: but how much is *it* capable of perceiving? Is it just what exists? The circle is complete. The need for and ideal perceiver, and the ensuing circularity, comes out once it is realised how narrow the criteria which appeal to existing perceivers are otherwise even as compared to the pure spatial criterion. Though criterion 22 does not rule out material objects not in fact perceived, it does seem to exclude:

a) unperceivable physical objects such as micro-particles;

b) complexes such as corporations; and also

c) mental objects; and

d) abstractions.

Even if an ideal observer can aid in passing a), it cannot help in other cases since it is nonsignificant to speak of seeing, touching or otherwise perceiving abstractions, corporations, or the like (except in a figurative sense such as Plato's "seeing the forms".) On noneist perceptions the perception criteria are not only circular and perhaps too narrow; they are also too wide, since one can sometimes perceive what does not exist, past items, hallucinatory objects, etc. (see chapter 8).

A similar objection can be made to other criteria for existing which appeal to intensional relations to entities, namely that intensional relations (pure ones at least) enable nonentities to truly relate to entities. Suppose, for instance, someone foolishly suggested that whatever can be thought of exists, all objects of thought exist. The refutation, adapted from Brentano, is simply: one can as readily think of a unicorn as a bicycle. More deceptive than the relation of thinking is that of having. There is a strong temptation among those who use discourse as existence-committing (reference theorists) to infer from *x has y*, especially where *x* exists, *y exists*. The inference is fallacious, as appeal to earlier criteria should reveal. "St. L has a vision (dream)" does not entail visions (dreams) exist; that *M* has a thought about Pegasus or has a mind does not entail that that thought or *M*'s mind exists: that grass has the property of browning off under frost does not entail that the property, or properties, exist; and so on. *Being had by an entity* does not guarantee existence; nor does *having an entity*, e.g. fictional

characters have creators. It may be suggested that the trouble is that "has", at least in these constructions, is not transparent and so not extensional. But there is a closely related predicate "in fact has" which is, without doubt, transparent but which yields similar results with respect to existence (cf. also "is about"). Such predicates begin to cast doubt on the idea that for relational existence criteria it is enough to avoid intensional relations. For is it that "has" is intensional? Which brings us to division D*.

§5. GROUPS 3 and 4, and the Brentano principle improved

One existence criterion that can be extracted from Brentano's criterion for the mental in terms of intensional inexistence is this:

D1. x exists iff x has an extensional relation to an entity[1],

i.e. the basic qualification needed on RE is that relation R be extensional. The crucial objection to D1 (*an* objection also to Brentano's inexistence criterion) is that extensional relations can hold between entities and nonentities, one of the most conspicuous being the set membership relation, $\in$. Let a be some entity, e.g. the world if you like: then a exists, $a \in \{a\}$, but the singleton $\{a\}$ does not exist. Very controversial, given the current set-theoretic religion. However the elementary counterexample can be extended, using the acknowledged extensionality of $\in$, to prove that under D1 all objects whatsoever exist.

Proof. Consider an arbitrarily selected entity a, and let w be any set of which a is a member, e.g. $\{a\}$ or some superset. Then $a \in w$ provides an extensional relation to an entity, so w exists. Now w is included in the universal set V of all objects whatsoever, $w \subseteq V$, for $\subseteq$ (which is definable in terms of $\in$) is an extensional relation and so all its elements exist, i.e. everything exists, including all abstractions, all mythical objects, etc. The class of counterexamples to D1 is far larger than mere set-theoretic relations. For many, apparently extensional, *comparisons* can be truly made between entities and

[1] Note that use of D1 carries no commitment to the existence of relations, since D1 only says that, for some R which is extensional and some z which exists, xRz. And D1 could be rephrased nominalistically in terms of an extensional predicate.

The Brentano criterion naturally suggests – and certainly has suggested to several researchers – that the *sorts* of relations that cannot hold between entities and nonentities are extensional relations – though the connection does rely upon an intentional/intensional equation.

nonentities. For example, the Irish giant Finn was bigger than Jack Smart, Sherlock Holmes was smarter than, and has a different occupation from, Walt Disney.

Allowing arbitrary extensional relations as in D1 is therefore too permissive, the class of relations has to be further narrowed. With causal theories at present exponentiating in philosophy, why not a causal theory of existence? This suggests:

31. x exists iff x bears a (direct) causal relation to an entity;

even, if you like, whatever exists is linked by a causal chain back to a (or *the*) primeval entity. There are of course temporal difficulties for 31: x which caused y no longer exists, z which y causes does not yet exist. An attempt may be made to circumvent these by first using 31 to define *sometime-exist*, and then defining *exists* in terms of sometime-exists, e.g. as: x exists iff x sometime-exists and x is contemporary (i.e., for local x, is simultaneous with earth now, or in Prior-like terms, for some ϕ it is now true that x ϕs). What sometime-exist then are elements of the world's causal nexus, but this being so the difficulties of earlier proposals seem to recur. Other worlds may also have causal networks: Holmes may cause an explosion or a death, James Bond certainly did. But once again these difficulties do not, in fact recur, because now relation to *an entity* has been incorporated into the semi-circular account (the difficulties were eventually avoided in a similar way with the spatial criterion). Only the trouble is that such criteria no longer characterise existence independently of existents.

The causal criterion 31 is a much more generous one than the spatial and perceivability criteria, and not just because it is geared to catching sometime-existence rather than present existence; indeed, without qualifications (like those set out below), it is far too generous. Consider chains like: The Duke caused Joe's arrival, Joe's arrival caused a revision of plans. The thought of revenge caused a revision of plans. Joe's arrival caused Joe's suffering. Adversity caused Joe's suffering. Stinginess caused Joe's suffering. Stinginess caused unhappiness. Incredulity caused unhappiness. Obesity causes death. Nobody caused Joe's arrival. The proposition that ... caused a revision of plans, etc. etc. What exists then includes not only events and states, but thoughts, revisions and problems, pains and deaths, properties and attributes (including, it seems, uninstantiated ones) and propositions, and so forth.

Similar or worse results ensue upon replacing "cause" by other predicates of a like caste e.g. "act upon", "influence". Qualification of the predicates by "physical" improves

the situation, but leaves another problematic term to try to explain. Consider "physically act upon". Unless universal gravitation or a similar universal force is invoked, it would seem that some entities could be outside the physical influence of others: certainly if the world is segmentalised into isolated sections the criterion – at least under an obvious construal – fails, and this shows that if such a criterion succeeds it is a purely contingent matter, depending on the structure of the physical universe.[1] Nor is a shift to "capable of physical action upon" an entirely acceptable repair: apart from the intensional shift, physical exclusions may render one object incapable of influencing certain other objects. The intended construal of the admittedly ambiguous 31 and its variants is however not that relating x to some fixed or given entity but rather:

> x exists iff, for some paradigm entity y, x is causally related to (physically interacts with) y.

The reformulation is only one step in improving upon the causal account.

The next qualification in repairing the causal account would be to particulars; in world-relativised form 31 becomes:

32a. x sometime-exists at world a iff x is a particular which is causally related in a to some paradigm entity of a.

The assumptions are that causal networks are world-restricted and, what is less evident, that every entity of a world is in the network (i.e. system of causal connections) of some paradigm entity. The latter depends on an appropriate choice of paradigms (perhaps not such a straightforward matter, if the physical universe is ill-behaved). It is contingent that there exist paradigms, but the biconditional of the criterion is not thereby rendered a contingent connection.

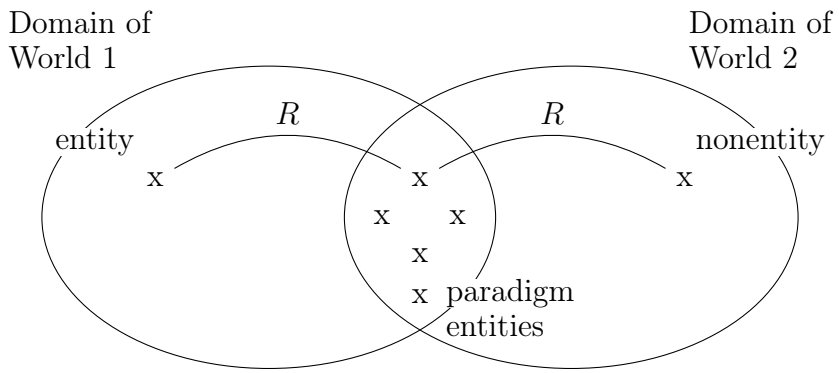
A further qualification – unless mental particulars are to be included – should be to physical or spatial particulars. The account is beginning to converge with the spatio-temporal; but only beginning to. For again, without the postulation of universal forces, two objects in a spatial or spatio-temporal neighbourhood or network may not

[1] It might be argued that there is a connected unsatisfactoriness in the causal criterion for sometime-existence if alternative futures are not excluded. The causal network branches, e.g. through some contingency or randomness into a nonreal future. Without a strong deterministic assumption, then, the causal network account is widely astray.

The short reply is that if a belongs to an alternative future that does not eventuate then a is not caused by what does happen.

physically interact. A repair in terms of "capable of physical interaction" does further narrow the gap, but does not close it unless – what does seem likely enough, and can be linguistically enforced – every object in the neighbourhood of some paradigm entity is capable of physical interaction with some (perhaps other) paradigm entity. At about this stage it may seem worthwhile enforcing the convergence.

Criteria of group 4 also take us back in part over ground we have already traversed. For prominent among criteria of this group are those that involve spatial-type relations to entities, e.g. being in some spatial direction at some distance from a paradigm entity. For such criteria to succeed a qualified Brentano principle has to hold; for if different worlds can overlap on the paradigm entities, one relating to entities by given allegedly-entity-preserving relations, and the other to nonentities such criteria fail. The (rejected) picture is the following:



Evidently then the relation R, whatever it is, must be such that it never relates entities to nonentities. Whether spatial-type relations can fulfil the role turns then on the account given of fictions generally, including theoretical items. If, for example, "Holmes lived in Baker St." were entirely true of (real) Baker St., then Holmes would at some times be at some distance from the paradigms and conversely. But any theory of fictions including relations of this sort involves seemingly insuperable difficulties (fictional paradoxes and the like, as explained in chapter 7 [Vol. 2 *—Eds.*]); and is best avoided. And so it seems that a Brentano principle can be accepted for certain spatial-type relations, and also for such favoured contiguous action relations as kicking.

Let us (for want of a better terminology) call such relations, *physical-world-constrained* relations, for short, *physical relations*,[1] or, for reasons that will become apparent, *spatially-grounded* relations. The resulting Brentano principle is accordingly:

BTP. x exists iff x has a(n entire) physical relation to an entity.

Yes, BTP involves a primitive "physical" which (while not *too* difficult to explain semantically) is undefinable in terms of the logical apparatus so far introduced, at least without appeal to the notion whose explication is sought, existence. Apart from this obvious problem, a residual problem is as to whether BTP concerns present existence or sometime-existence; and really this depends on how generously "physical" is construed. One way to cut through the main problem is to specialise physical relations, to a particular (paradigmatic) one, most obviously, in the light of previous investigations, to a spatial relation. For if a physically acts on b then a is spatially related to b; spatial relations in the relevant sense (as distinct e.g., from spatial comparisons) seem to be basic. Physical relations are spatially grounded. In particular, if it is literally true that b is at some distance from a and a exists, then b exists. Hence at least half of the biconditional,

41. x exists iff x is (now) at some (approximate) distance from a paradigm entity,

is pretty uncontroversial. Of course, even if uncontroversial, it is not assumptionless: it appears to assume that a single metric can be imposed over all entities, and that none are spatially isolated in any partitioning of the universe that isolates entities from physical interaction. And the criterion may need a little refinement to accommodate micro-objects, e.g. in terms of being in some bounded region at some (perhaps zero) distance. Refinement can however be had. Consider, as a first step, "is at some (approximate) distance from", which can be so read that no metric is supposed; for instance it is replaced by "is in a spatial region at some remove from". This suggests in turn an improved purely topological characterisation:

BTPS. x exists iff (it is entirely true that) some spatial neighbourhood (now) includes both x and some paradigm entity,

[1] The abbreviated term "physical relation" used in earlier chapters, is rather misleading, since many relations ordinarily counted as physical (and of physics) are dispositional, and so intensional.

Physically related to differs, almost needless to say, from *physically interacts with*; the first includes the second. But not necessarily vice versa. Again replacement of physical interaction by capability of physical interaction narrows the gap almost to vanishing point.

Note that it is often taken for granted in these contexts that the physical relations concerned are *entire*.

i.e. the spatial relation in question is reduced to that of being in the one spatial neighbourhood. Nor is the account now so far removed from formalisation; for the logic of topological space may be captured in part by the introduction of an interior operator I which behaves in main respects like an S4 modal functor (cf. McKinsey 1941). With the shift to the special Brentano principle, BTPS, many problems are solved. The *if* clause remains pretty uncontroversial; micro-objects are now accommodated, no metric is presupposed, what of topologically inaccessible parts of the physical universe? There simply are no such parts; if there is no topological connection then the unconnected parts are not part of the physical universe but belong to separate worlds.[1] If the *only if* clause of the special principle remains in doubt it is presumably because it is supposed that nonentities such as fictional objects can be spatially connected to entities, e.g. Holmes can live in London and walk down Baker St. No such entire relations obtain (to repeat points from chapter 7 [Vol. 2 *—Eds.*]): the keeper of records of inhabitants of London would not list Holmes, the registrar of births and deaths would have no record of him, the watching eye on Baker St. would never discern him, nor would his feet leave any marks or stir any dust.

Criterion BTPS extends straightforwardly to a criterion for existence at world a. The existent objects of each world form a spatial network, part at least of a topological space. Just as nothing prevents an object belonging to different topological spaces, so nothing stops one entity from existing in two different worlds. The prohibitions on spatially-grounded relations apply not merely with respect to the real world T, but also as regards other worlds. For example, Mr. Pickwick, unlike Watson, cannot encounter, bump into, or be in the same neighbourhood as Holmes. (Of course a new Hollywood movie might be billed as including both Holmes and Pickwick.) The failure of such spatial inter-relations does not preclude other physical properties, such as size, mass, etc., and comparisons based on these, e.g. Pickwick was undoubtedly fatter than Holmes since Pickwick was portly while Holmes was spare.

[1] Here lies part of the reason why that view of possible worlds that Kripke claims (1971, p. 147; also 1972, p. 267ff.) makes D. Lewis's view "most reasonable", that of possible worlds like "a foreign country or distant planet way out there", is so *un*satisfactory. For then all the inhabitants of possible worlds, including those we know do not exist such as Sherlock Holmes, do exist. And since these worlds can be sighted, so Kripke supposes, through powerful enough telescopes, physical relations such as radio-telephone hook-ups can in principle be made with the inhabitants.

Given BTPS and an appropriate definition of "spatially-grounded" (i.e. "physical" in this sense), BTP can be derived. Let a relation be *spatially-grounded* if it implies a topological connection. Contiguous action relations such as kicking, colliding, hanging, and so on, do. Since implication is reflexive and the spatial connection relation of BTPS is thus spatially grounded, the *if* clause of BTP follows. Conversely suppose that for some spatially grounded relation R, x R-relates to a paradigm entity. Then x is topologically connected to the paradigm, and so by BTPS, x exists.

Even if some group 4 criterion is accepted the problem is not finally resolved, because of reliance on paradigm existents or (given the assumption that all entities are topologically connected) a paradigm entity.[1] It might be claimed (an idea already floated) that such reliance is inevitable. There is the idea, implicit in some of Russell's earlier writings, that the actual world is a particular that can only be pointed to, and not something selected by characterisation, especially logical characterisation. "Exists" is, so to say (and in striking contrast to the doctrine of PM), a pure primitive; so paradigms are inevitable. But it is by no means obvious that something as fundamental as picking out elements of the actual physical world has to rely on ostensive starting points. It may be that by a Leibnitzian approach ostension can be avoided. Until such alternatives are exhausted, the limits of language – at least as regards defining "exists" – have not been reached.

§6. GROUP 5: Completeness and determinacy criteria

The basic criterion of the group, from which others are obtained by modifications or explication, is the following.

51. an object exists iff it is consistent and complete in all respects.

One important restriction, already remarked, is to extensional properties; for an item's existence is not upset by the incompleteness or inconsistency of some creature's attitudes towards it. An important explication is of object consistency and completeness through the coincidence of sentence and predicate or, in the material mode, of (propositional and property) negation. So results the formally attractive:

[1] The paradigm may, especially if ostensively defined, be given an egocentric bias, and so combined with group 2 criteria), e.g. it may be oneself, one's neighbourhood, etc. The contingency of all existence becomes thus manifest (cf. §7).

52. x exists iff, for every extensional f, $x{\sim}f$ iff ${\sim}xf$,

the criteria adopted in 1.19 [Vol. 1 *—Eds.*] and temporally relativised in chapter 2 [Vol. 2 *—Eds.*]. There are variants on 52 designed to get the modal features of existence right (e.g. that it is logically necessary that inconsistent items do not exist but always a contingent matter that what exists does exist), but rather than look at these somewhat problematic variations let us reconsider the basic criterion, its rationale and its adequacy.

Determinacy criteria emerge historically from the work of Meinong and of Russell (as explained in 1.19 [Vol. 1 *—Eds.*]). According to Meinong, objects which exist are determinate in every respect (see Mög, p. 169, and the discussion in Findlay 1963, p. 156 and p. 166); furthermore indeterminacy is seen as reflected in the failure of excluded middle (in predicate form). Strictly then, Meinong furnishes us with only a one way conditional.

5M. if an object exists then it is fully determinate.[1]

Both halves of the biconditional 52 may be found however in PM *14.32 (at least in the case of definitely described objects, and every object can be definitely described, at worst by connections such as $a = (\imath x)(x = a)$, i.e. PM *14.2. Determinacy criteria are not supported merely on historical grounds: these grounds promise a case, which can be made out. Considerable support for determinacy criteria has already been documented, notably in 1.19 where 52 is defended as a provisional account of existence.

Like other criteria for existence, determinacy criteria have, despite their appeal, their drawbacks, as already observed in defending 52. The first problem with determinacy criteria is that many objects that exist are not fully determinate. It is not necessary to go as far afield as quantum indeterminacy of micro-particles to find cases of indeterminacy. Natural objects such as clouds and waves and gases, forests and mountain ranges and waterfalls, are indeterminate in various respects, especially as regards their boundaries,

[1] On Meinong's theory the converse implication fails because higher order objects which obtain but do not exist are also fully determinate. But such objects only appear determinate, so it can be argued, because features that would cause indeterminacy are written off as not significantly applicable.

Note that cases of significance failure also produce, through T-covered statements a sort of indeterminacy. Consider a predicate f, such as "weighs 10 kilograms", which is not significant of numbers, e.g. of 7. Then, where "$-$" reads "it is not true that", i.e. "${\sim}T$", both $-7f$ and $-{\sim}7f$. That is logical indeterminacy appears in higher order objects. However the same sort of non-significance-produced indeterminacy affects bottom order objects, whether existing or not. Such "indeterminacy" has no ill-effect on determinacy accounts of existence, for $-\ldots f$ and $-{\sim}\ldots f$ do not yield matching predicates of the form g and ${\sim}g$.

lengths, and numbers of components. Ask yourself:– Where does the forest end? How many peaks are in the range? How many clouds are in the sky? Is this the next wave? Etc. (Compare again chapter 3 [Vol. 2 *—Eds.*]). The indeterminacy features of quanta certainly appear to fit neatly within the framework of a theory – such as a noneism can be – which allows for and takes due account of indeterminacy. To see the existing world as completely determinate then goes against not only the facts of language but the apparent facts of physics.

The indeterminacy of entities is not exactly news; it was pointed out by Wittgenstein 1953, and amplified by Wisdom 1952 and 1953, who both saw such indeterminacy, quite rightly, as showing the inadequacy of simple empiricist or reference style theories of truth (and a meaning), according to which all the properties of an item are simply properties of a *reference* and are all determined by simply examining referents, all are simply given (empirically).[1] Some properties of an entity are not simple observationally determinable features, are not determined just by the reference, but depend – if indeterminacy is to be reduced – upon *decisions* being made about whether a given property applies or not, for example the question of where exactly the forest ends. No matter how many observations you make of the forest, how many more things you find out about exactly how the trees and cleared land stand in relation to one another, what the distance is between them, etc., that *itself* will not tell you where the forest ends, for an element of decision is involved. And even if you decide on this feature, there will always, according to Wittgenstein and Wisdom, be another such property of the item which has not been decided. It is quite unnecessary however to insist on indeterminacy everywhere (in a way that aids scepticism) to do damage to 52. Limited indeterminacy in some entities does that. Because some entities are indeterminate in some respects it does not follow that all are in some (or all) respects. That was not Wittgenstein's way, which leads towards linguistic conventionalism. The applicability of description was seen by Wittgenstein as governed by rules (these he saw as linguistic conventions but they might alternatively, for the purpose of the argument, and better, be seen as semantical rules); but there cannot be rules to cover all contingencies or situations (as is clearly recognised in any system of

[1] Predictably Quine has announced (in 1975) that indeterminacy is no problem: really, or seen properly, there is no indeterminacy (or indeterminacy is an epistemic matter, not a genuine logical or ontological problem). He is bound to take this line. Otherwise the Reference Theory is in deep trouble: entities lack sharp identity criteria, so there are entities without (full) identity, etc. Moreover he has no logical apparatus for representing indeterminacy satisfactorily.

legal rules), so that indeterminacy arising from this source is not an occasional but an inevitable feature; no matter how many decisions are made there will always, so it was claimed, be further indeterminacy arising from areas where the rules or their applications have not been decided, and this applies to entities as well as nonentities.

The question is, decision about what? Wittgenstein and Wisdom thought that these were decisions about *language*, about words or about *what* to say. But this does not seem right – we are after all, not in doubt about the meaning of "where", "the", "forest" and "ends", and it is not the meanings of these expressions which we are deciding but where the forest ends. (Of course some decision issues may be purely linguistic – the point is that not all are.) If such issues were only linguistic, only about the use of words, they would be very much more arbitrary and conventional than they appear to be. It is how to locate the boundary *properly*, we have to decide, where the forest ends, not meanings of words.[1] So although they correctly emphasised that these indeterminate features of entities meant that the empiricist and referential accounts of entities as having their properties given and referentially determinate, and in base cases simply determinable by observation, must be wrong, they in fact tended to replace the account by a nominalistic or conventionalistic one which saw the further elements as *linguistic*. Their criticism and rejection of the Reference Theory and associated empiricism was not then sufficiently far-reaching. What is shown by the indeterminacy (i.e. incompleteness in certain respects) of certain entities is that reference alone does not determine even all the *extensional* properties – some still remain to be decided or resolved or, as in quanta cases, left unresolved. That is, some extensional properties of entities are not settled referentially, or even through admitted referential adjuncts, such as linguistic convention.

How can such decision gaps arise, on a non-referential, nonlinguistic account? What indeterminacy, as well as the applicability of intensional properties to entities, shows is not that some properties are essentially linguistic, but that there are non-referential ways of talking and making true claims about *entities*, items in the actual empirical world $\underline{\underline{G}}$. Naturally indeterminacy is *by no means* confined to entities or to the actual

[1] The properties concerned, specified by predicates like "contains twenty peaks", "ends at the gate", "will have precise position p", etc., have something in common with intensional properties, since they are typically relational properties and their correct application requires in certain cases further decision. Can such properties be treated as implicitly intensional then, and objections to 52 avoided in that way? No, no world shift is called for in their semantic assessment; nor are the requisite indicators of intensionality operative, e.g. there are no intensional connectives to be extracted by linguistic transformations.

empirical world: it is *much* more characteristic of nonentities. A case of indeterminacy in fiction, for example, is that where numbers of people are indeterminate; for example the old woman who lived in the shoe, the number of whose children is unspecified but presumably exceeded two but was less than 500.

The sort of indeterminacy thus apparent with entities does indeed seem to be of the same type as the indeterminacy already noticed in the case of nonentities. For example, all Quine's famous complaints arising from the indeterminate features of nonentities transfer to similar indeterminacy in entities (of chapter 3 [Vol. 2 *—Eds.*]). In many cases concerning entities the grounds for decision appear to be similarly arbitrary, e.g. "How many waves are there in that pond?" seems to be as little decidable in a non-arbitrary way as the celebrated question of the number of angels standing on the head of an imagined pin. The indeterminacy of the number of waves in the pond, which may be somewhere between 3 and 8 but is not determinate as to which exact number, resembles that of the number of children of the old woman. Of course the *grounds* of indeterminacy and the ways of resolving it may differ in the case of entities and that of nonentities. In the case of entities indeterminacy commonly arises from individuation problems, whereas in the case of nonentities not just these grounds arise, but other grounds also, for instance it simply may not be specified what the property or relation is, e.g. what colour the round square is, who the mother of Hecuba was, and there are no non-arbitrary grounds for settling the characteristic.[1] The critical point is however that the logical characteristics of such indeterminacy appear to be the same for entities as for nonentities – it is false that n was the number of children of the old woman, just as it is false that n is the number of waves on the pond and false that it is not, for any n between 3 and 8. In certain cases then, entities will have extensional properties such that both they and their negations are false. The logical apparatus which enables us to deal with nonentities also then enables a more sensitive, flexible and satisfactory treatment of *entities*, one that can take account, without further complication, of the indeterminacy of features emphasized by Wisdom and Wittgenstein, and does not have to assume they are all invariably complete

[1] There may be important identity differences also in case of nonentities that do not change over time. The forest is not a new forest when its boundary is (further) determined, the electron not a new electron when its position and momentum are subsequently precisely measured. For an item can change over time in extensional respects, without becoming a new item at each stage. But in a static world a nonentity cannot have its extensional properties further resolved, without being superseded by a different nonentity with different properties.

or determinate in every respect. Again, the payoff of a logic for nonentities then is an improved logic for *entities*.

The message is beginning to get through that classical logic is inadequate for reflecting the way we talk in natural language about nonentities. What is insufficiently appreciated is (as argued in the case of direct realism) that the same features which make it inadequate for the treatment of talk about nonentities also makes it inadequate for talking about the actual world and about entities. The point has already been argued as regards classical logic's treatment of intensionality, which makes it inadequate for the commonsense treatment of observation and perception concerning *entities*. Another area in which classical logic's impoverishment prevents it giving an adequate treatment of entities is that of indeterminacy. For it is not just in the area of nonentities that indeterminacy occurs – entities are also sometimes indeterminate in some of their properties.

Recognising the indeterminacy of entities not only raises various problems for classical logical theory; it also causes difficulties for Meinongian orthodoxy. It is not just that existence cannot be defined in terms of determinacy, without further qualification; existence is not even a necessary condition for determinacy in the way Meinong supposed (in 5M). However, several options remain open, as regards the relation of existence and determinacy, namely:

(1) Modify the characterisation of existence, and the thesis that no entity can be indeterminate in any (extensional) respect.

(2) Discount the case for the indeterminacy of entities.

(3) Recognise the indeterminacy of entities, but try to account for it in some other way, e.g. through classing it as a different *sort* of incompleteness.

(4) Make use of what remains intact in the relation 52.

Option (2), writing off the case for the indeterminacy of entities, or simply dismissing it as not of importance, might fit well into those sorts of theories that are prepared to ride roughshod over the data presented by natural language on what can be truly said – as in (con)temporarily fashionable theories – but it is at odds with a basic motivation of noneism, which is an attempt to account for this data with the minimum of reconstruction, to give the data priority, rather than to reshape it to fit in with a prior theory. Option (2) then is not a live option.

Option (3) would not ignore or discount the indeterminacy of entities, but would treat it as a different kind of indeterminacy or incompleteness, and thus not require the abandonment of complete determinacy as a necessary condition for entities. What is the case, though, for recognising a different sort of indeterminacy here? The cases appear to have similar logical features, even if indeterminacy sometimes arises in somewhat different ways, and may be resolved differently. The indeterminacy of time on the sun (Wittgenstein's example) is in principle *resoluble*, resulting as it does from the failure to establish a convention for temporal measurement, but until such a convention is established on acceptable grounds the logical features of assertions concerning time on the sun are similar to those concerning the baldness of the present king of France. Unless some clear difference can be shown, the proposal for isolating the indeterminacy of entities as different in kind seems ad hoc, designed to maintain the thesis of completeness of entities in the face of confounding evidence. Unless good reasons emerge for postulating a different kind of indeterminacy in terms of an important difference in logical behaviour, methodological considerations weigh in favour of treatment of the indeterminacy of entities using the same logical apparatus as that designed to treat the indeterminacy of nonentities.

Only options (1) and (4) remain. The evidence is that determinacy cannot be regarded as a *necessary* condition for existence, since entities as well as nonentities may be indeterminate with respect to some properties: determinacy is not – at least not without further ado – what distinguishes entities and nonentities. For can it be treated as a *sufficient* condition for existence? Is the converse of 5M, namely:

5P. If an item is consistent and complete in all extensional respects then it exists,

correct? 5P would enable option (4) to be pursued (as in §8); for it would furnish paradigm entities. Whether 5P is correct is a sensitive and difficult issue. It might seem, on first reflection, that counterexamples could be obtained by appropriate complete specification of a nonentity. For example, proceed as follows:– Assign to each extensional property ψ and its negation $\sim\psi$ a (real) number; then employ a numerical function which determines for each numbered property whether the item has it or not. If the predicates concerned were taken as part of an item's *description* for use in the Characterisation Postulate, such an item would be *completely* specified, through the Characterisation Postulate, and would thus be completely determinate. Such a method of determination could be applied to nonentities, and their properties could thus be completely specified, but in

a way that is very *arbitrary*. Such items would not thereby be conjured into existence – that such properties *can* be determined in such an arbitrary fashion reveals that the items do *not* exist. The method can be used to determine in a similar arbitrary way the properties of some impossible items as well as possible ones, and also to completely specify possible worlds, by assigning functions which determine for each proposition and its negation which of them holds in the world. Worlds which do not exist can thus be completely specified. But such worlds are not therefore *made* to exist merely by being completely specified, any more than objects are. Or again, consider consistent objects of a categorical logical system: they may not exist but they are completely determined (up to isomorphism). The completeness criterion, taken as a sufficient condition gives, then, quite the wrong sorts of results, results furthermore incompatible with the spare ontology of noneism – so it is contended.

The case is very far from conclusive, as an attempt to fill out details of the sketch soon reveals. Consider the alleged completely specified object. There are two major obstacles in the way of any such specification being appropriately complete. Firstly, the specification is made by way of predicates, but properties far outrun predicates (and indeed there are more extensional properties than real numbers). Secondly, not all predicates are reliable, so appeal to the Characterisation Postulate is strictly inadmissible. Consider next categorical systems. The objects of such systems are invariably very incomplete (their categoricalness depends on this), with respect to all sorts of ordinary characterising features. So it is also with worlds. We may have the idea that we are specifying some sort of variant on the universe we live in, but in practice it is never like that, and the models designed and used are very incomplete as to properties,[1] and lack the detail of the worlds of major works of fiction.

A further related objection emerges from the complete specification objection to 5P, the other-worlds-duplication objection, which, if it worked, would be a general objection to all class-of-properties criteria for existence. It is that whatever criterion is invoked to separate entities from nonentities can be applied in other worlds to separate entities

[1] There are also some large and dubious partist assumptions at back of the idea that a world can be completely specified atomistically, from atomic wff by (transfinite) inductive clauses – even supposing a suitable well-ordering of atomic objects and their initial attributes could be obtained to begin from.

Much of the trouble derives from the platonistic assumption that other worlds exist and are pretty much variants on the actual one. The picture is mistaken – no other worlds exist – and here seriously misleading.

from nonentities there. The intended conclusion is that the actual world cannot be pinned down qualitatively, but only relationally, by relations to entities in it. The premiss is true ($A \leftrightarrow B$, yields through $(A \leftrightarrow B)(T)$, $A(a)$ iff $B(a)$, for deductively normal a), and unproblematic, but it does not support anything like the intended conclusion. For the actual world $\underline{\underline{T}}$ can be separated from other worlds (as in 1.24 [Vol. 1 *—Eds.*]), truth can be determined, and class-of-properties criteria applied in terms of what is true (for the actual case, as opposed to some alternative). There is no need to proceed beyond what holds in $\underline{\underline{T}}$, since all objects are in the domain of $\underline{\underline{T}}$.

Given that condition 5P stands, option (4) is viable, and option (1) is not closed. For option (1) turns on narrowing the class of features admitted to some subclass *dt* of extensional properties. Thus if 5P were counterexampled so also would be the new criterion

53. x exists iff for every f in dt, $x{\sim}f$ iff ${\sim}xf$.

The problem, to which no plausible solution has been found thus far, is how to characterise *dt* features. Classes in the vicinity of physical properties, for example, will not serve, if quanta are indeterminate. Nor will classes distinguished by such notions as verifiability or decidability by investigation help. For some of the troublesome, non-*dt*, properties are of this sort on many occasions. Moreover the notions invite the question, by whom?, and look like bringing unwanted observers (who have to be entities) back. Nor will notions such as detailability or refinability – features properties of *non*entities characteristically lack – do this job: but they do suggest a different approach.

§7. GROUP 6: Qualified determinacy and genetic criteria

It is not then, as the classical theory would have it, that entities are totally determinate and nonentities are totally indeterminate. It is just as erroneous to hold, as the standard Meinongian approach does, that entities are totally determinate and nonentities are only partially so. For, as we have seen, entities can share some of the indeterminacy usually seen as the exclusive attribute of nonentities and (in this case) the difference in determinacy between entities and nonentities seems to some extent be a matter of degree. It can hardly be satisfactory however to see existence as a property possessed in greater

measure by some things than others: existence is not a matter of degree, a comparative feature, but an absolute one.[1]

This does not mean that there is nothing in the incompleteness idea. The idea that entities and nonentities can be distinguished through completeness fails for completeness characterised in terms of all extensional features, but can still be correct for a subclass of such properties. That is, the distinction can be made in terms of "partial completeness", so to say, either through a class of properties for which is true either that entities are complete and nonentities not so but have at best only some such properties, or else through a class for which entities are partially complete (i.e. they have some or many of them). The first alternative has already been considered (in §6). The second alternative also offers promise, for it does seem that there is a class of properties for which it is true that entities, even it not completely determinate with respect to them, at least do have some or many of them, whereas nonentities do not have them at all. These are certain referential features such as empirically determined or ostensively-discerned features. Many well-known examples can be invoked: what were the songs the Sirens sang, and who was the mother of Hecuba? If Hecuba and the Sirens existed the questions would be answerable in principle and suitable details forthcoming. Similarly with such questions as: how often did Sherlock Holmes eat turnips? How long were the lines on his cheeks? etc. If Holmes existed, even if we could not (for technical reasons) ascertain the facts, the questions would have determinate answers. Such data is part of the orthodox case for the claim that nonentities are totally indeterminate. But of course it does not show this at all; if only shows that there are certain sorts of questions about them that lack determinate answers. The orthodox case involves a some-to-all fallacy. The argument does not show that one can say nothing true about nonentities – only that what one can truly say about them is more limited than with entities. In the case of entities we can go on to *detail* such further features, to find out in principle at least by further investigation much more about their independently possessed properties: their features are detailable and refinable.

In the case of nonentities we almost always come to a rapid halt, to a barrier beyond which no more detail can be provided; even in principle questions seeking more detail

[1] In the popular sense of "exists" where "exists" means "alive" (an extension of OED sense 3) existence can have degrees. Full existence is had only by the really alive. In this sense, in *contrast* to sense 1, existence is like perfection in admitting of degrees.

cannot be answered (i.e. given determinate answers), and there is no way of establishing the truth even in principle of such questions. These are the facts which motivated the idea of the distinction between entities and nonentities lying in completeness. But they are just as well taken up in terms of partial completeness, the total incompleteness of nonentities with respect to a *sub*class of properties. The leading idea is of course that there are ways of finding out about entities that are not available in the case of nonentities, ways that are somewhat independent of (for present purposes, question-begging) observational features, such as detailability, and refinement of detail, ways that are logically tied to tests for distinguishing what exists from what is only imaginary, etc. (and analogous tests, sometimes applied in courtroom procedure for distinguishing truth from lying, consistency in the elaboration of detail).[1]

What is the class of properties with respect to which nonentities are indeterminate? One answer can be given in terms of the way in which nonentities, in contrast to entities, *acquire* their properties. Nonentities acquire their extensional properties in virtue of their characterisation, their *Sosein*, that is in a non-referential way. Thus there appear to be two (classes of) ways only for nonentities to acquire (nonconsequential[2]) properties – first through assumption and characterisation (e.g. through the Characterisation Postulate and through source books) and secondly through intensional determination. But with entities there is a third way, which is missing in the case of nonentities. Entities can be ascribed properties in virtue of *Sosein*, but they can also, unlike nonentities, acquire properties from *Sein*, i.e. (referential) properties, which they acquire as a result of their behaviour in the real world $\underline{\underline{G}}$. Because for nonentities there are no corresponding referents in the real world, they are totally indeterminate with respect to their class of referentially acquired properties, i.e. properties which they would only have if there were corresponding referents. This explains why nonentities are determinate with respect to some properties, assumed and intensional properties (and their closure under consequence), but are nonetheless indeterminate in many respects. This much might be thought to be evident, and hardly informative: to exist, analytically, is to have a refer-

[1] The availability of more and more further detail is not a completely exclusive feature of entities, though it is a very important one. It is also a feature, but to a lesser extent of past objects. What complicates matters is that *method* is important as well as detailability; for deductively closed nonentities of mathematics satisfy certain detailability conditions.

[2] The contrast term "consequential" has to be construed in a generous way, to include more than just logical consequences, also (what might be accounted) probable consequences and, perhaps, empirical consequences.

ence, and something which does not exist cannot have referentially acquired properties but can have non-referentially acquired properties. *Something exists iff it has referentially acquired properties.* The method is not circular and uninformative however because there are clear independent tests – verification methods, *but* taking us back to perceptual methods, spatial location, etc. – for whether a property is referentially ascribed or not. The question is whether *Sosein* or *Sein* methods are essential in determining its truth. If *Sosein* methods are used essentially, and if all the extensional properties of an object are determined through *Sosein* methods and *Sein* methods cannot be applied then the object does not exist. If *Sein* methods are essential then it does exist. Whether something exists is a matter of how its properties are determined. The test then is in terms of the way the properties *originate* and are *justified*, the methods used essentially to establish the property. This genetic criterion is a (historico-)semantical one rather than an epistemological one, because the test is not in terms of how we come to know, but in terms of the basis of the truth of statements and how truth originates. Similarly it is not syntactical; and there is no invariant class of predicates, e.g. spatio-temporal predicates, which must always apply to entities and can never apply to nonentities. Likewise there is no stable class of referential properties, though properties may be referentially acquired on a given occasion. For, as we have seen, there are comparatively few properties – except properties of the (higher) order of the quarry, existence – that cannot hold of nonentities. The outcome, that existence is a genetic semantical and partly theory-dependent property, that it is not an epistemological or a purely syntactical property, should not be so very surprising. It accords with the conditions of adequacy sketched out earlier.

To sum up:– There are essentially three modes of determination of the nonconsequential properties of items, both entities and nonentities – two non-referential (*Sosein*) ways and one referential (*Sein*) way. The two *Sosein* ways are, first and most basic, through assumption and characterisation and especially through the Characterisation Postulate, which gives logical and analytical truths, and secondly, through the attribution of intensional properties. In neither case is truth of the attribution of a property determined by reference, in contrast in the *Sein* way there is the attribution of a referentially acquired property to an existing item and truth is determined by reference. There is a striking, if perhaps limited, correspondence between these distinctions and the Kantian classification of knowledge into analytic *a priori*, which corresponds to the first non-referential mode, synthetic *a priori*, which corresponds, to a limited degree to the in-

tensional mode of non-referential determination, and synthetic *a posteriori*, which seems to correspond somewhat to the referential model. The comparison is limited but is more convincing when it is reflected that prime candidates for synthetic *a priori* judgements were firstly things apparently true that could not be fitted into the other categories and secondly moral judgements. This second class at least is certainly intensional in character.

Appealing though the genetic approach is, it is not unproblematic. Firstly, there is a latent circularity: the account is (perhaps despite initial appearances) relative to existents. This emerges in several ways; for example in the appeal to world $\underline{\underline{G}}$, whose objects are existents, in distinguishing referentially acquired or empirically-determined properties; in the implicit assumption of entities who can track an entity's origin (origin-trackers). The latter assumption can be brought out by considering another world than the actual, described perhaps in fiction, where origin-trackers are at work to determine the entities of their world, what has a good root of entitlement to exist. If their methods are the same as ours, how do we tell in terms of the methods applied – which may be very or just like ours – that it is our "entities" that exist and not theirs (which include, let us say, Pegasus). To appeal to ourselves – as paradigms – takes us close to ostension again. Secondly, the genetic approach does not satisfactorily distinguish purely past and future objects from entities.[1] For empirical techniques of the sort the approach suggests apply straight forwardly to past objects, indeed sometimes a past object's entitlement to existential status may be more easily traced than a present object's entitlement. True, it might be objected that we cannot go and inspect purely past objects, so there is a difference; but this response leads into all of the, best avoided, difficulties of verification principles over verification-in-principle. The second objection is not very telling however. Let the criterion deliver present or past existents, and then filter out past entities. Thirdly, the genetic approach fails entirely to mark an evident distinction in fiction between objects that exist within the fiction (or fictional world), e.g. Mr. Pickwick, Scrooge, and objects that do not exist within that fiction, e.g. an afterimage of Mr. Pickwick, the Ghost of Christmasses Past. Whereas spatial criteria seem to work well, the genetic account fails, since both Scrooge and the Ghost have only *Sosein* features and no *Sein* features. Again the objection is not damaging. Neither Scrooge nor the Ghost exists, neither have referentially acquired features, put all derive from their source book. But within the story,

[1] Len O'Neill made this point and the next, as well as several other valuable comments on Group 6 criteria.

Scrooge has, but the Ghost does not have (unless the Ghost *does* exist), such features. In short, the genetic account can draw the requisite distinction. Fourthly – to be mentioned because it happened and can stand as a warning – there is a danger that a genetic approach will open the way to empiricist reductions, e.g. of truth about Mr. Pickwick to truths about their originators or authors. But it has already been seen that such reductions have no better prospects than, for example, reductions of propositions to linguistic origins: the threat of a reduction is not a real or worrying one.

Thus the philosopher who, like Descartes, takes her own existence as paradigmatic, can confidently apply the genetic method, and distinguish what exists by what has referentially acquired properties, e.g. by careful empirical methods.

§8. Convergence of the criteria that remain

No rock-hard criterion for what exists has appeared. Nor was such expected. For but little in philosophy is rock-hard, certainly nothing as controversial as criteria for existence (or even the idea of such criteria). Nor is there any prospect of harder criteria, upon which there is broad consensus, while the Ontological Assumption is commonly taken as correct. But for some of us, free from the powerful grip of the Reference Theory, something has been achieved.

The picture at the outset, of various competing criteria giving widely different results, has been removed. It has emerged that some criteria are much firmer, and more defensible, than others, for instance spatial criteria than perceptual criteria; and that mistaken criteria abound. (Along with the latter go bad theories that have allured philosophers into claims that all sorts of things that do not exist, really do exist. Rarely by comparison – unless theism be correct – has the opposite happened, with philosophers claiming of what exists that it does not exist.[1]) What is especially interesting is that the criteria that remain after mistaken and doubtful criteria are put aside, converge. In part this convergence is made possible by the very problems of the remaining criteria, the endemic circularity of the relational criteria and the breakdown of biconditionals in the case of class-of-property criteria.

[1] Genuine scepticism is rare. The comparison suggests that a conservative principle with respect to what is *said* to exist is warranted.

To indicate the criteria adopted and the convergence:– *All the criteria that remained standing are adopted* within the limitations already elaborated. In particular, the modified spatial criterion BTPS – *the topological criterion – and the genetic criterion are both adopted*, subject to the production of suitable paradigms, and this they themselves provide *in combination with the determinacy condition* 5P.[1]

Apart from the genetic criterion, there are two basic criteria, two poles, to which other criteria converge, and the basic criteria can be integrated. The first basic criterion is the modified spatial. But the success of the criteria that converge on this pole, depends on the successful determination of paradigms (perhaps not merely local paradigms). The criteria converging on the other pole, determinacy conditions, can however be put to work in delimiting paradigm entities. Once some paradigms are established – and we know quite well enough what they are and what will serve – criteria that converge on the modified spatial criteria can be (re-)applied.

The spatial criterion, 12t, (xE, t) iff x has a spatial locale at t, specialises to give, since $(xE, 0)$ iff xE, xE iff x has a suitable spatial locale. Under criticism these criteria are adjusted, replacing spatial locale by spatial relations with paradigm entities. This criterion, after repair tends to the topological characterisation BTPS, filling out criterion 41. Now, as already explained, both group 3 and group 4 tend to such a criterion upon rectification of difficulties with them, e.g. in appealing to causal relations. Thus groups 3, 4 and 1 tend to converge. Group 2 criteria are rejected – even so a linkage is afforded through certain choices of paradigms, e.g. as oneself. Once such entities as oneself and other origin trackers are delivered by the criteria, the genetic criterion is woven into the synthesis without incompatibility. Also group 0 criteria can be worked in at no extra cost, and no need to check for compatibility, for, as indicated, the criteria are analytic (on suitable definitions which are easily supplied).

The synthesized criteria arrived at have several important corollaries, some of which are drawn out in subsequent sections. An immediate corollary of the convergence is Brentano's criterion. Another outcome is Meinong's theorem [i.e. nothing necessarily exists $_{Eds.}$]. The contingency of all existence is due to the contingency of the paradigms. An allegedly necessary existent, such as God, could not be a paradigm because of the contingency of paradigms, and also because the paradigms are spatially located; but

[1] It may even be that one can work back to a characterisation of the unspecified class dt of criterion 53.

nor could a necessary existent be merely another particular spatially related to some paradigm.

Also forthcoming are various tests for existence, e.g. the qualified completeness and consistency of what exists, features that emerge as before from the determinacy pole.

There is a further convergence on the criteria arrived at, a limited convergence on which not much weight can be imposed, an historical convergence among those who did not allow the Ontological Assumption to dominate what they took to exist, namely nominalists and those who distinguished what exists as a subclass of objects, or differently beings. Among the latter was the earlier Russell, according to whom (in 1904, p. 211)

> We tend to ascribe existence to whatever is intimately related to particular parts of space and time; but for my part, inspection would seem to lead to the conclusion that, except space and time themselves, only those objects exist which have to particular parts of space and time the special relation of *occupying* them.

Relations such as equality, Russell at that time contended, are "essentially incapable of existence" (p. 207).[1] Similarly Meinong. Rather similarly many nominalists.[2] Thus what exists according to the accounts of Hobbes, Bentham and Goodman, for example, differs only marginally from what the converging criteria disclose. But they do differ; for instance Bentham tried to restrict what exists to objects of acquaintance by one of the five senses, or more narrowly still, the tactual sense. This would exclude not only many aggregates but most micro objects; and it is far too homocentric to be acceptable without modification.

The upshot is a qualified "nominalism", what was called to emphasize the difference from standard referentially-based nominalism, "nnominalism". According to nnominalism, only particulars exist – but particulars include not only individuals in a narrower sense, but also aggregates, corporations, ecosystems, etc. What is important is that many things that are not particular, that hence do not exist, can, often profitably, be thought about, reasoned about and spoken about.

[1] Moore's fluctuating views on what exists sometimes tended to a similar result (cf. 1953, p. 134, p. 300): e.g. to exist is to be a constituent of the Universe.

[2] Compare too Boethius: *Omne quod est, eo quod est, singulere est.*

§9. A corollary: the nonexistence of abstractions. In particular, (abstract) classes do not exist

Anomalies in familiar philosophical approaches to universals, such as numbers, have not passed unnoticed. An important anomaly lying behind the "problem of the existence of universals" is this:– On the one hand there is a preparedness to say that universals exist, since they certainly have properties and statements about these properties appear uneliminable. But on the other hand criteria of existence are adapted according to which universals do not exist (especially group 3 and group 4 criteria). The anomaly is of course removed with the removal of the Ontological Assumption. But what is wrong with trying to remove it in the platonistic way, by saying universals do exist? There are many reasons for resisting this suggestion. None of them is conclusive inasmuch as each involves premisses or assumptions that a hard-line platonist could – though often not very credibly – reject.

A first, and basic argument against the existence of abstractions appeals directly to criteria for existence that require locatability (group 3) – so that the argument could be called the argument from the unlocability of abstractions. Whatever exists has a spatial neighbourhood. Abstractions however do not. So abstractions do not exist. Hence also many of the traditional difficulties for the theory of forms, deriving from the fact that forms are not ingredients of the physical world. Both Reid and Meinong argue against the existence of universals, appealing in effect to group 3 criteria; Meinong in a way we have seen, Reid as follows (1895, p. 374):

> ... where is the circle? It is nowhere. If it was an individual and had real existence, it must have a place; but being a universal "it has no place" and so "no existence".[1]

A similar argument is elaborated in Russell (1912, pp. 153–4): the relation "north of",

> like the terms it relates, is not dependent upon thought, but belongs to the independent world which thought apprehends but does not create. This conclusion, however, is met by the difficulty that the relation "north of" does not seem to *exist* in the same sense in which

[1] Reid goes on to argue that universals are distinct from mental conceptions or constructions, because they have quite different properties. Similar arguments appear in Meinong's work and in Russell 1912, p. 155.

> Edinburgh and London exist. If we ask "When and where does this relation exist" the answer must be "Nowhere and nowhen." There is no place or time where we can find the relation "north of". It does not exist in Edinburgh any more than in London, for it relates the two and is neutral between them. Nor can we say that it exists at any particular time. Now everything that can be apprehended by the senses or by introspection exists at some particular time. Hence the relation "north of" is radically different from such things. It is neither in space nor in time, neither material nor mental; yet it is something.

It is, Russell concluded (among other less satisfactory things) *a something that does not exist*.

Other conditions for existence, which blend with group 3 criteria, also underpin arguments for the nonexistence of universals. For example, the requirement that what exists is capable of acting physically on an entity, likewise excludes universals which are timeless, changeless and so unable to act in the requisite entire way (the point is elaborated in §3). One cannot kick an abstract set or be hit on the head by a property.

The tests for existence also provide bases for arguments. Consider for example, consistency. Some abstractions are impossible objects, e.g. the Russell set, the impredicativity property. They cannot exist. But if they cannot exist nor it seems can several other items, e.g. the anti-Russell set $\{x\colon x \in x\}$ and every set of which it is a part, e.g. the universal set. So far the consistency requirement only shows that *some* abstractions do not exist; but it leads on to two connected points. Firstly, how can the abstractions if any that exist be suitably distinguished from those that do not? Secondly, since we have apparatus for talking about those that do not exist, why try to draw some more or less arbitrary line separating off those abstractions that do not exist? On the theory of items one is let out entirely of the "problem" of trying to draw a line between abstractions that exist and those that do not: one can say the commonsensical almost obvious thing, that none exist. But, consider the first point, it has often been supposed, at least in the case of attributes, that a satisfactory line can be drawn: attributes exist iff they are fully instantiated by entities (thus Mill, Wittgenstein, NE, Armstrong 1978), e.g. f-ness exists iff there exists an x which instantiates f-ness.[1] But why say that entity-instantiation is

[1] Cf. too Reid's explanation of *exist in*. Under the instantial criterion of NE, $fE =_{\mathrm{Df}} (Px)(xf \,\&\, xE)$. Thus $\vdash fE \leftrightarrows (\exists x)xf$.

existence, when the requisite distinction is adequately marked out in the terms already given, i.e. as entity-instantiation? The main reason appears to be the appeal of the thesis that if there exists an x such that xRy for some relation R then y exists, i.e. of an unqualified Brentano thesis with R the instantiation relation. But, as we have seen, only a much more sharply qualified Brentano thesis is correct. Furthermore, application of the required Brentano form, using the instantiation relation, would lead to collapse of the supposed distinction of attributes into existing and nonexisting. For let U be a universal property that everything has, e.g. self-identity. Then U exists, since an entity instantiates it. Also subproperties of U presumably exist, since the subproperty relation transfers existence if the instantiation relation does. But all properties are subproperties of a universal property, so all exist, contradicting the instantiation condition. Again, impredicativity is instantiated by properties that are instantiated, such as roundness and redness. So impredicativity exists, contradicting the consistency requirement.[1]

The main reason for the temptation to equate existence and entity instantiation thus breaks down. There are also other reasons for rejecting the equation. First, there is the following dilemma:– If the instantiation is by entities that exist in the ordinary sense then since they come to exist and pass away, so will properties, e.g. the property of being a passenger pigeon used to exist but no longer does. But properties are not time-dependent in this sort of way. If, on the other hand, instantiation is by sometime-existents, then other serious results ensue. For example, the properties that will solve all our problems exist, if ever in the future property-solutions are applied. It may become the whim of a scientist whether certain properties exist. And so on. But properties are not so dependent on scientists' desires and ambitions. Secondly, there are difficulties, generated by series arguments, for any criterion that tried to draw a nonvacuous line, such as the instantiation condition. Consider numbers, which are properties and which form series. Where do the numbers start and stop existing? On the face of it, applying the instantiation test, 0 does not exist, but 1 does. Yet 0 and 1 seem so like one another that their existence should stand or fall together. Similarly with the higher cardinals. There will presumably be a point in the cardinal hierarchy where cardinal numbers cease

[1] The latter argument can be broken by distinguishing individuals and properties and requiring instantiation by existing individuals, *and* by restricting the significant use of the non-applicability relation defining impredicativity to properties.

to exist because no instantiators exist,[1] yet as regards the features that have important links with existence, there appear no relevant distinctions between those just above the line that do not exist and those below that do – unless the line is so drawn, implausibly, as to rule out all infinite cardinals. If the Ontological Assumption is accepted, as it commonly is by those who endorse the instantiation condition, then the condition is liable to rule out much of mathematics, in particular analysis is in much doubt, and its truth depends on accidents about what exists, about whether enough things will at some time exist to jointly instantiate big properties. A corollary, which only a good deal of fast talk can avoid, is that many of the central truths of mathematics are contingent, e.g. that for every prime number there is a larger prime. This is surely wrong: the truths of calculus, for example, are necessarily true, not contingently so. Thirdly, if properties exist the corresponding sets, the sets of objects or the sets of entities that have the properties, should also, it seems, exist; for their logical behaviour is very similar to that of the properties, indeed there is an isomorphism preserving important logical features. But sets do not exist.[2]

Another important test for existence is determinacy. Some abstractions certainly do not satisfy this test, e.g. the anti-Russell set (the set of all sets which are members of themselves) is indeterminate as to whether it is self-membered or not. Consistent classically-formulated set theories will be incomplete at many points, as limitative theorems and independence results show. But what is incomplete in the way that sets are, does not exist. Again, the argument only shows that some sets do not exist. The indeterminacy phenomenon would be much more widely realised were it not that the abstractions have been *shielded* from extensive indeterminacy in their features by a significance filter. Consider, for example, the predicate "dislikes dancing". It would yield incompleteness since "the number 7 dislikes dancing" is not true, and nor is its negation, "the number 7 (does not dis-) like(s) dancing". The incompleteness so produced vanishes, however, when both are ruled nonsignificant.

A final important test for existence which abstractions fail is defensibility. If sets, for example, do exist then they should be fully assumptible. But if they were then,

[1] Realists about sets may deny this; but they store up other difficulties for themselves, e.g. Cantor's paradox. However they have good reasons to deny an instantiation condition.

[2] This claim will no doubt be hotly disputed: it is defended below. Interestingly, proponents of properties (e.g. an early Russell, Armstrong) held that though properties do exist, sets, which can be contextually defined in terms of properties (cf. PM, *20), do not.

classically at least, triviality would result. Also if they were, then, since a stronger set abstraction axiom would follow, any theory of sets would be inconsistent. Since these results do not hold, sets do not exist. The argument of course takes sets *en bloc*, and really it is only some sets that lead to trouble. So the argument can be deflected by saying, for instance: the following sorts of sets exist, where follows a list of postulates such as those for Zermelo–Fraenkel set theory, ZF.

But the different claims of rival set theories as to which sets, if any, exist leaves a problem. For instance, is set existence merely relative, so that the universal set exists according to Quine's ML but does not exist according to ZF. Surely not? For back of the various modern theories which *attempt* to explicate set theory in a consistent and complicated fashion is an absolute (presumably inconsistent) notion of set, the intuitive notion, properties of which are still examined in elementary courses on set theory, and in terms of which much thinking about sets is carried on.

If sets (which are thoroughly transparent objects, at least in orthodox logical settings) exist, it should be easy enough to tell, at least outside infinitary cases, which ones do. It isn't: the matter is vexed by rival existence tests. For consider sets some of whose elements do not exist. Surely a set cannot exist unless its members exist, *all* of them. Thus a definition of class existence such as that in PM *24.03, according to which a class exists iff an element of it exists, $\exists!\alpha =_{\mathrm{Df}} (\exists x)(x \in \alpha)$, is defective. For a class some of whose members exist and some do not (not a possible case on the intended theory of PM), e.g. the class {J.J.C. Smart, the round square}, has at best a part overlapping reality, and so has no claim to exist. Whitehead and Russell are surely right however – as opposed to other set theories – that the null set does not exist.[1] For its existence would be existence *ex nihilo*. Existence cannot be manufactured out of nonexistence by the magical process of set abstraction (putting braces around nothing as with { }). For similar reasons none of the sets of the favoured model of ZF set theory exist; for all the sets involved are constructed from the null set.

Among abstractions sets are often singled out for special consideration, e.g. because they are taken to be extensionally clear and distinct objects. And certainly they are fundamental in mathematics and in order to make due applications of many other

[1] Although this is so on the official definition of class existence in PM, in another perhaps less misleading sense the null class does exist. For $(\exists x)(x = \Lambda)$, and, more generally, Λ is a term that can be existentially generalized upon (cf. PM, p. 196).

abstractions. The thesis that sets do not exist is a longstanding one. What is more, there are several arguments, beyond those considered generally for abstractions, and beyond the paradox arguments, for the thesis. None of these arguments is conclusive, but they add to unease about the platonist assumption that classes are perfectly coherent objects which exist. In the first place,

> arguments of more or less cogency can be elicited from the ancient problem of the One and the Many.*
>
> *Briefly, these arguments reduce to the following:
> If there is such an object as a class, it must be in some sense *one* object. Yet it is only of classes that *many* can be predicated. Hence, if we admit classes as [existent] objects, we must suppose that the same object can be both one and many which seems impossible. (PM, p. 72).

The argument were it cogent would show not just the classes necessarily do not exist but that such objects are impossible. The argument is characteristically defeated by a distinction of predicates: a multi-element class *is* one object which *contains* many objects. It is as well the argument is so defeated, for a parallel argument would appear to show that there could not be aggregates, such as flocks of sheep or senates. More favoured nowadays are arguments against classes based on their excessive numbers and their excessive multiplicative capabilities; for example, what exists cannot be multiplied up exponentially in the way that sets are by the power set operation (cf. Goodman 1956,[1] repeated by Armstrong 1978, p. 31).[2] Thus according to Armstrong – to take an excerpt from a passage that is strong in rhetoric but weak in argument –

[1] Sadly, celebrated nominalists like Goodman are seriously short on arguments against taking classes as values of variables. Apart from the indicated worry about power set multiplication of objects, the case in Goodman 1977 reduces to these points (p. 25ff.):

1. Classes are "essentially incomprehensible";
2. Classes "people" the "world with a host of ethereal, platonic, pseudo entities";
3. Classes differ where there are no differences in content.

Point 2 is no more than old-fashioned positivist abuse, and carries no weight once the Ontological Assumption has been abandoned; point 3 depends on a restrictive account of *content*, and fails on a different appealing account that set theory can itself supply; and point 1 is unpersuasive, unless the verification principle is still persuasive; for parts of naive set theory and leading properties of classes are readily comprehended even by those in elementary school.

[2] Similar points apply against properties, some of which Armstrong thinks exist. Just as exponentiation of properties can be restricted (though with serious costs to mathematics; see §10), so exponentiation of sets can be restricted, and is restricted in ZF set theory, though at rather large numbers – an example of Russell's limitation of size, concerning which Russell asked astutely (what makes perfectly

> The extraordinary and incredible proliferation of entities which results when we countenance both objects and classes of objects in our ontology has been emphasized by Nelson Goodman ... . One starts with individuals, forms all the possible different classes of these, which yield many further entities, and then one goes on to classes of classes and so on upwards to infinity. A sober Empiricist must be appalled by the way entities are so easily manufactured. By comparison, one can only be astounded at the moderation displayed by, say, the supporters of the Ontological Argument.[1]

Unchecked reproduction in *some* natural populations, e.g. blowflies, similarly exponentiates the numbers of the population in a series that diverges (towards infinity). (The sober empiricist is presumably appalled at the way blowflies are so easily reproduced.) Exponentiation in numbers, or varieties, does not tell against existence. A more telling objection (one the intuitionists make) to classical set theory is that it applies power set exponentiation to infinite sets: but in order to get started on this enterprise, it has, at least in currently certified set theories, to postulate the existence of an infinite set. It is not unreasonable to dissent from this postulate; it is hardly – certainly on noneist perceptions it is not – logically necessary.

These arguments are plainly somewhat condensed; and the obvious filling in of steps leads back to presupposed assumptions about what does exist; in particular, what exists is limited in number and is not a matter that is amenable simply to logical or other manipulation. These assumptions are correct; but their defence takes us back over ground we have already travelled, to criteria for existence.

If many of the rather few arguments to be found in the literature against the existence of classes are somewhat feeble, some of those in favour of the existence of abstract classes withstand even less scrutiny, notably those based on the Ontological Assumption and on the alleged need for classes in theoretical business. There are however two arguments of rather more substance to consider first. One of these is an argument

good noneist sense, though Russell found it paradoxical): where do the numbers stop existing? One might also ask why they stop existing where ZF – but not extensions of ZF – has it?

[1] Armstrong has however correctly discerned a theological aspect of modern set theories. Both standard set theories and the Ontological Argument depend upon Characterisation Principles which mistakenly assign existence to the objects yielded by assumption. The apparent moderation of the supporters of the Ontological Argument would soon vanish if the supporters were to apply their excessively powerful Characterisation Postulate elsewhere.

from the existence of elements of sets, beginning with individuals, to the existence of all sets formed by set composition from these elements; the other is an argument from the existence of aggregates and natural classes to the existence of abstract classes.

If sets do not exist, how is set theory possible? In a neutral fashion, with sets objects that do not exist. But surely sets of entities can be formed? Yes, of course. But they must exist. Not at all; let a be such a set, and entity b be a member of a, i.e. $b \in a$. The crucial point is that the membership relation, which is extensional, does not transfer existence from b to a. Set theory (and similarly attribute theory) with nonexistent abstractions is possible because membership is not a Brentano-relation.

The second argument tends to go like this: You admit the existence of flocks of sheep, squadrons of airplanes, parliaments, and (once anyway) herds of buffaloes. But then you have already granted that some classes exist. The evident reply is that the assumed equation of aggregates and collections with abstract classes is unjustified; for the objects are different in kind and have different sorts of properties. For example, aggregates are typically transitive, sets corresponding to aggregates are not transitive. For example, an aggregation of flocks of sheep is a flock of sheep, but a set of sets of sheep is not a set of sheep (cf. also Prior's sheets of paper example which he uses in explaining mereology, 1962, p. 299). Aggregates behave, as the example indicates, more like the objects of Leśniewski's mereology, mereological-classes as they are sometimes called, than sets – more like but not the same as, for natural aggregates may change over time, they may change membership, they may be disbanded, etc. Furthermore, the appeal to natural collections, even if it succeeded, would yield very few of the classes considered – or needed? – in analysis.

Which takes us to another familiar argument. Discourse about classes is essential for one purpose or another, e.g. parts of higher mathematics and (more important in these latter enlightened days) the physical sciences; being essential the statements of this discourse are true (that amazing pragmatist assumption);[1] the objects of this true discourse must exist; so classes exist. But, once again, the existence of classes is not required; neutral mathematics can undertake all the genuine work involved. On the other hand, since valid, the argument becomes a powerful one against anyone who accepts the premisses. It is powerful against those who, like Armstrong, accept the Ontological As-

[1] This pragmatist assumption is avoidable. Truth of the discourse can be argued on other grounds. Then the argument becomes just a direct application of the Ontological Assumption.

sumption, and the truth (or, more strongly, logical necessity) of mathematical statements (see Armstrong 1978, vol. II, p. 167), yet deny that abstract classes exist (1978, p. 34, p. 128). For it is certainly the case that a great many mathematical statements, e.g. of analysis and algebra, concern abstract classes of one sort or another. In fact Armstrong's first philosophy, and more generally scientific realism, is in very serious trouble with mathematical truths (see §10).

A corollary of the fact that sets do not exist is the following:

Proposition. *Most things do not exist.*

Proof. No sets exists. There are at least nondenumerably many sets, by Cantor's theorem neutrally formulated. There are at most denumerably many existent objects. Therefore, there are more sets than existents, in fact more by a very large order of magnitude, as reiteration of Cantor's theorem through higher cardinalities shows. Hence most objects do not exist.

There are some minor philosophical problems about the number of entities. For although the number is, presumably, countable – no analogue of Cantor's argument works for particulars, which are not combinable into further particulars by any analogue of the power set operation – there are not always sharp criteria for individuating particulars. Thus, for example, how many clouds are in the sky today matters for how many entities there are; but this may not be settlable without some arbitrary decisions. The actual number of entities is however not of great interest (unless of course it is said to be, what we know it is not, some surprisingly small number, such as the one of monism or the six of Meyer's "sixism"[α]): more important is the order of magnitude involved, in particular whether the number is a very large finite one or aleph zero. Resolving the latter issue includes much that is no longer accounted philosophy, e.g. settling between finite and infinite theories of the natural universe.

What does raise serious philosophical problems is the question of the number of objects. The problem is compounded by the logical paradoxes. The blocking of Cantor's paradoxes on the usual set theories at the same time blocks an answer to such significant questions as, What is the number of objects? What is the number of numbers? On dialectical set theory the problem disappears (or reduces to the "problem" of isolated

[α] Ed Mares informs us that "Bob used to jokingly claim that there are only six objects in the world and this explains why one keeps running into the same people over and over again". —*Eds.*

inconsistencies). The set of all objects U $(= d(\underline{\underline{T}}))$ is what it appears to be, and is demonstrably on naive set theory, an inconsistent totality. The cardinal number of U is both less than the cardinal number of the set of subsets of U, i.e. of the power set $P(U)$ of U, by Cantor's theorem, and also not less than the cardinal number of $P(U)$ since $P(U) \subseteq U$. That is, the argument of Cantor's paradox is simply accepted as a fact about the universal set and its cardinality. The number of objects is $\overline{\overline{U}}$ (i.e. the cardinal of U) and is the same as the number of numbers, the largest number. For as numbers are objects,[1] there are at least as many objects as numbers. But the numbers of objects cannot exceed the number of numbers, for then some number would be larger than the number of numbers.

The main conclusion reached is that abstractions, such as sets, do not exist. Nor do they subsist or have some inferior or weaker form of being: they have no being at all. But of course sets may be classified in other ways, e.g. as corresponding to existing aggregates or not, as consistent or not (a beginning is made in investigating such a distinction in UL [Vol. 4 $_{\text{—}Eds.}$]).[2]

That abstractions do not exist is an important part of the case for Meinong's thesis that nothing necessarily exists. For logically necessary existents would be expected, if anywhere, among abstractions. But now, as no abstractions exist, logically necessary existents must be looked for among particulars. Every *particular* that exists, exists however contingently. The arguments for the latter claim derive, like those for the nonexistence

[1] There is a separate question as to the number of bottom-order objects (i.e. *objecta*), the answer to which turns in part on the axioms for objects admitted.

In his 1980, Parsons discusses two global issues. The first under the heading "are there too many objects?" is an analogue of a paradox about propositions (Russell 1937, Appendix B). The paradox, which is something of an embarrassment for Parsons' theory, does not arise in the present theory, because two crucial assumptions used in the argument fail, namely, the assumption that every plugging-up of a nuclear predicate with a term yields a nuclear predicate (which appears certainly false), and the correlation of objects with sets of nuclear properties. Russell's paradox is, by contrast, a semantical "paradox" and its conclusion is simply accepted on the paraconsistent theory. The second issue, "are there two few objects?", concerns nonsignificant terms, and is easily accommodated in the significance enlargement of the present theory (in the way already explained in Slog, chapter 7).

[2] Similarly different criteria for the possibility of properties can be investigated, much as criteria for attribute existence were studied in a preliminary (and ultimately unsatisfactory) way in NE. For example, possibility of properties may be defined thus: $f\langle 2\rangle =_{\mathrm{Df}} \Diamond(Px)xf$, or more plausibly: $f\langle 1\rangle =_{\mathrm{Df}} (Px)(xf \;\&\; x\Diamond)$. Hence $\vdash f\langle 1\rangle \mathrel{\varepsilon\!\!\!\!\!\!\rightarrow} (\Sigma x)xf$; $\vdash fE \mathrel{\rightarrow\!\!\!\!\!\!\rightarrow}$. $f\langle 1\rangle \;\&\; f\langle 2\rangle$; $\vdash f\langle 1\rangle \mathrel{\rightarrow\!\!\!\!\!\!\rightarrow} f\langle 2\rangle$, but not conversely. Since Meinong's squound has the property of squoundness, (squoundness $\langle 2\rangle$), but $\sim$(squoundness $\langle 1\rangle$); so $\sim(Uf)(f\langle 2\rangle \mathrel{\rightarrow\!\!\!\!\!\!\rightarrow} f\langle 1\rangle)$. Other different definitions of possibility may be proposed too, for instance $f\langle 3\rangle =_{\mathrm{Df}} \Diamond(\exists x)xf$. Under this proposal nonexistence is impossible; $\vdash \sim[(\sim E)\langle 3\rangle]$!

of abstractions, from the criteria and tests for existence. For example, it is a contingent matter that anything is located where it is, or located at all in the actual world; existence of a particular, like the location to which it is tied, is contingent.

§10. Further corollaries: the rejection of empiricism in all its varieties, as false

Empiricism comes, it is often said (e.g. Hospers 1956, p. 87), in two forms: as *concept empiricism*, according to which "all the ideas, or concepts, which human beings possess come from experience", and as *judgement empiricism*, or simply *empiricism*, according to which, in *one* initial formulation, "experience and experience alone enables us to know ... that our judgements are true" (1956, p. 90). Judgement empiricism is commonly taken to imply concept empiricism, the assumption being the Lockean one – ensured by traditional logic – that judgements are built up from concepts (hence the deletion of the qualifying term "judgement"), But the converse inclusion does not hold since a statement all of whose concepts are empirical may not be empirical, but may be analytic or inconsistent.

The orthodox connection between judgement empiricism and concept empiricism has however been challenged by some empiricists, notably by Armstrong 1961 on the questionable ground that the Lockean picture would do damage to his theory of perception. Other grounds however support the challenge: judgements cannot be construed simply as strings of concepts (as is explained in Slog, p. 62ff.). Given rejection of the Lockean picture

> What becomes of the Empiricist contention that all our concepts are derived from *experience*? ... it will have to be translated into the contention that all our concepts are derived from the acquisition of knowledge of particular facts about the world gained by means of the senses (Armstrong 1961, p. 126).

This modified concept empiricism has concept empiricism rest upon judgement empiricism rather than vice versa. Even so the modified form falls with judgement empiricism (since it presupposes it) just as the unmodified form does (since it implies it).

The connection of the two forms of empiricism is accordingly not undone. For suppose concept empiricism is false. Then there is some concept c not derived from experience or not derived in the modified way. Let a be an object which is significantly

c (there must be such an object if c is a significant notion). Then either "a is c" or "a is not c" is true. Take whichever is true; call it s. Statement s can be known: for it can be believed, since anything (true) can be believed; and there can be reasonable grounds for it, since it is true. But s is not derived from experience (alone), since c is not. Hence judgement empiricism is false.

To turn this hypothetical argument into a categorical one it suffices to show that concept empiricism is false. Then empiricism is false in both forms. Concept empiricism is false, firstly because creatures[1] have concepts acquired not through experience but by genetic inheritance. Infant animals reveal this, they know how to do various things without observation or learning; e.g., a baby bird upon leaving its nest knows how to perch, it does not need to learn this in the way it learns to be frightened of humans; a chicken can recognise given shapes (cf. Dröscher 1969, p. 4) without any teaching. Nor is there any reason why a creature should not have concepts programmed in, so to speak. Inherited concepts are by no means the only ones that appear, *prima facie* at least, to refute concept empiricism. Logical and mathematical concepts that have no basis in sensory experience provide further counterexample: e.g. the Ackermann groupoids of interest in the algebra of relevant logics do not derive in any evident way from experience. Examples are easily multiplied.[2] Conceptual empiricism is sometimes stated in such a way as to allow for this, e.g. Locke is said by Pap (58, p. 63) to hold that "all simple ideas originate from sense perception and/or 'reflection' (i.e. introspection)", which would, as first sight, appear to allow for nonempirical mathematical concepts. However given Locke's famous model of the mind as a *tabula rasa* before any experience, Pap's interpretation is in doubt. By "reflection" Locke meant reflection on ideas already supplied by the senses. Locke does not then qualify his concept empiricism in the way Pap has suggested.

The typical arguments for concept empiricism, presented by empiricists from Locke on, are quite inconclusive. They consist of but a few examples of concepts not supplied by observation, usually broadly fictional concepts such as dragon and winged horse, with an indication of how these derive from experience as compound ideas compounded from

[1] Notice that a beginning has been made on removing the human chauvinism that is embodied in typical formulations of empiricism, e.g. the dubious restriction to "concepts possessed by human beings" and the emphasis on "our judgements" in Hospers' formulations. Of course this is a mild form of chauvinism compared with the view, that would be bizarre were it not so often taken seriously, that things depend for their existence or character on the sort of faculties humans are equipped with.

[2] It can no doubt be said that these notions arise from logical or mathematical experience. But in the sense in which this is correct it does little to show that they derive from observational experience.

simple experiential ones. The selection of samples is not however varied enough to provide even the beginnings of a good inductive argument. In short, the case for concept empiricism is, and always has been, seriously flawed. There is no good reason to suppose the doctrine true, and reason to think it false.

Refuting empiricism by refuting concept empiricism does not explain why empiricism is so tenaciously adhered to, or get to the bottom of what is wrong with empiricism. To explain these things, and to enlarge on the case against empiricism, a different more direct approach is better.

The traditional thesis of empiricism, i.e. judgement empiricism is, to use the commonplace (though, it is sometimes correctly said, excessively simplifying) slogan, that *all knowledge is derived from experience*. Modern, or logical, empiricism has qualified the thesis from the above form (the form Kant criticised, and modified, in his theory of mental addition and emendation; see 1929, B1) to exclude analytical knowledge, i.e. knowledge of analytic statements. Thus

> the fundamental tenet of modern empiricism is the view that *all non-analytic knowledge is* based on experience (Hempel 1950, p. 163, emphasis added),

a thesis Hempel calls "the principle of empiricism". Evidently logical and traditional empiricism coincide given the modern thesis, supported by linguistic and conventionalistic theories of analytic truth, that analytic knowledge also derives ultimately from experience. However such a thesis is very controversial and no doubt false: it will not be presumed.

Both the thesis and the principle are *epistemic* doctrines, as to the source of knowledge or, as is sometimes said, of certainty. Yet it is evident enough that these principles are linked with, and admit of, *semantic* reformulation, reformulation in terms both of truth and of meaning. Such reformulation would also have the decided advantages of making noneist assessment of empiricism rather more straightforward (since noneism is presented primarily as a semantic theory, and not in epistemic terms: but epistemological corollaries have already been derived and applied and will be considered further subsequently). Fortunately semantical reformulations of empiricism are not far to seek, an initial formulation being obtainable from the OED definition of "empiricism" as the doctrine that

EO. The sole criterion of [nonanalytic] truth is experience,

which is expanded to the thesis that truth and knowledge are based entirely on observation and experiment. Traditional and logical (positivist) semantic versions of empiricism thus take the respective schematic forms:

truth (of declarative statements) $\underset{\sim}{R}$ *experience*; and nonanalytic truth $\underset{\sim}{R}$ *experience*

where $\underset{\sim}{R}$ is a relation of basis, derivation or accountability, and experience, represents a certain class of methods, of this worldly observation and experiment. Thus, for example, the latter forms expands to principles such as

TEO. Nonanalytic truth can be entirely accounted for experientially,

i.e. at bottom in terms (of certain sorts) of experience; or in brief: *Nonanalytic truth is a matter of experience.*

The epistemic formulations (in terms of knowledge and certainty) and the semantic formulation (in terms of truth, and also of meaning) are logically interconnected through analyses of knowledge. To illustrate the connections let us apply Russell's analysis of *x knows that A* as *x believes that A and x has good (reasonable) grounds for A and that A is true*,[1] i.e. roughly knowledge is true grounded belief (not too much hangs on the specific choice of analysis however, as the argument works with other, perhaps superior, analyses). Firstly, if knowledge entails truth and truth is always based on experience then knowledge must be likewise based; that is, the semantic formulations yield the corresponding epistemic formulations given only that *x knows A* entails that *A is true*. For the converse, the argument is like that connecting concept and judgement empiricism, and involves an assumption to the effect that whatever is true can be known.[2] Suppose that knowledge is always based on experience, that is, true grounded belief is so based: the object is to show that the truth of arbitrary statement A is also so based. Now A, since true, can be believed; for whatever is consistent can be believed. Moreover there can be reasonable grounds for this belief, e.g. in terms of a theory about things like those A is about. Call an appropriate believer who has such reasonable grounds, God. Then God knows A. Hence, by the hypothesis that knowledge is based on experience, A is so based, completing the equivalence argument. An examination of empiricism can proceed then, without loss, in semantic terms.

[1] The analysis is an analysis of knowledge *that*, not knowledge *simpliciter*. This simple point alone removes some recent criticisms of the analysis and of such analyses in terms of qualified true belief.

[2] The assumption concerns *each* statement that is true, not the sum totals of truth and knowledge.

It is important, in getting to grips with empiricism, to clarify both the experiential basis, experience, and the accountability or derivability relation, $\underset{\sim}{R}$. The relation $\underset{\sim}{R}$ need not be a reduction relation: empiricists are not stuck with the implausible proposition that all nonanalytic truths are translatable into, or replaceable by, classes of observation statements. No Baconian empiricism is called for: hypothetico-deductive and other methods are open to empiricists: Baconianism and operationalism are optional, and very dubious, extras. How then is the relation to be explicated, the basis-metaphor spelt out? The matter remains obscure. The more promising proposals – all of which have broken down – can be discerned in attempts to state the connected empiricist criterion of meaning in a satisfactory fashion. They are:

1) The relation is one of deducibility or testability (cf. the principles discussed in Hempel 1950, pp. 45–50).

2) On a more syntactical approach (initiated at a time when syntactical expression of semantics was still favoured), satisfying the relation is converted into expressibility or partial expressibility in a suitable empiricist language (cf. Hempel 1950, p. 50ff). Indeed the mistake is sometimes made of redefining *empiricism* in terms of this proposal: e.g.

> empiricism [is] ... the thesis that a uniformly observational language is capable of expressing all of our scientific system of beliefs (Scheffler, p. 187).

The mistake is like that of reformulating positions on universals in terms of what is quantified over.

3) A newer approach where accountability is taken up through a recursive truth definition.

The syntactical approach, which was elaborated by Carnap and Hempel (1950, and references cited therein), had of course some of the inductive features the *derived form* relation of the commonplace slogan suggests, e.g. in the formation rules of the empiricist language which inductive rules of truth typically copy; and it presupposed a semantical basis through restrictions imposed on the underlying empiricist logical language. For example, the empiricist language contains as extralogical constants only referential subject terms and observation predicates (cf. Hempel's discussion in 1950, pp. 51–2, and of Carnap's translatability criterion on p. 43). On the other hand, the semantical approach requires the introduction of some syntax, of the language to which the sentence A whose

truth conditions are to be given belongs. For the account takes some such form as the following: The truth conditions for a statement A of language L are determined through the truth definition for language L. Since, however, truth conditions can be so provided for many nonempirical statements, it is important either to narrow the class of languages permitted (as in approach 2) or to curtail the basis of the recursive definition, i.e., in effect to characterise at least partially, in a restrictive way, *experience*.

Restriction is essential to exclude such experience as religious experience, mystical experience, aesthetic experience, moral experience, and so on for other "experiences" which deliver information of a nonempirical sort. The thesis of empiricism must be restricted to empirically admissible experience, to what might be called *pure* experience; that is, the intended thesis is

(TE) Nonanalytic truth is a matter of pure experience.

But what is pure or empirically-admissible experience? There are two assumptions as to the character of empirically admissible experience that are invariably made, the first of which is taken to imply the second.

EO. Pure experience is observational; and

ER. Pure experience is referential;

or, in semantical terms: observation and experiment – or evidential methods – never proceed beyond the confines of the actual world of entities. Such an assumption is ubiquitous in the empiricist literature. It appears, for example, in the assumption that any empiricist language in terms of which nonanalytic truths are expressed is a referential language, an extensional language with only existentially-loaded quantifiers, such as classical quantification logic, ZF set theory or PM2: compare the artificial languages Hempel 1950 and Carnap 1936 chose and the logical frameworks – canonical languages – Quine and Davidson and others have argued for and tried to defend. It appears, in semantical form in the tirades against alternative worlds, possible world semantics, and the like; cf. Mackie, Smart, Armstrong and many others. It appears in the heavy opposition to talk of nonentities, against which verification principles are brought to bear. Thus, for instance, Shapere (1965, p. 4):

> ... there is a long tradition in philosophy [empiricism] that has looked with suspicion on the entities purportedly referred to by such terms;

> for science is supposed to be concerned only with what is observable, not with any "metaphysical" entities that may or may not exist behind the scenes of experience but that cannot in any case be observed. And besides, as Hume pointed out, how could such terms have any meaning beyond what can be said in experiential terms?

The observational qualification of EO is taken to imply ER, because observation is equated with veridical observation which is taken to be transparent and of what exists and to be purely extensional, to yield information only about the actual world of entities.

One example, the latest model of empiricism, will serve to illustrate the main points, and to remind the reader of all the other, many other, sources of the empiricist prejudices represented in TE. We are asked to envisage a truth definition – a very considerable elaboration of that supplied by Tarski for certain formal languages – for natural language, e.g. English – or, to take away again much of what was apparently being offered, the empirically significant part of English. In terms of this truth definition all other semantical notions, meaning in particular, can, it is supposed, be duly explained. The truth definition is to be given within the framework of a referential formal language, ideally quantification theory, which contains only observational predicates and, as subject constants, classical proper names. Thus quantification is always of what exists, and Leibnitz identity holds without qualification in the underlying logical theory: the underlying language is, that is to say, referential and conforms to strict empiricist standards, those of logical empiricists (such as Hempel and Carnap) already mentioned. The expression of the rest of English – the empirically significant parts that is, the rest being written off in one way or another – is (to be) achieved by way of reduction (cf. Carnap's reduction sentences), philosophical analysis (cf. Davidson's paratactic analysis), and/or linguistic analysis, i.e. transformation into the deep structure represented by the referential formal language. The semantical theory itself is of course referentially pure, it involves no extra parameters that can be interpreted as worlds, and indeed nothing over the one world semantical frame that suffices for the semantical theory of the underlying formal language. The result of a successful semantical theory would then be the provision of truth conditions, measuring up to empirico-referential standards, for every empirically significant sentence of English.[1]

[1] Including, in a way that *may* provide no sharp separation, the noncontingent statements. The truth definition approach connects naturally, that is, with traditional empiricism, rather than logical

The latest model of empiricism appears, at least when looked at closely, no more likely to succeed than its predecessors. The reason is simple: intensional discourse, which semantically involves transfer to other worlds, cannot be extensionally rendered, i.e. so that no transfer to other worlds is required; and discourse about what does not exist, which semantically involves essential use of a domain $d(\underline{\underline{T}})$ much bigger than the domain of entities $d(\underline{\underline{G}})$ (i.e. $e(\underline{\underline{T}})$), cannot be reduced to discourse about what does exist, which can be evaluated in terms of $d(\underline{\underline{G}})$. There is an escape hatch in the latest model, as in earlier models: discourse which resists rendition, such as some discourse about nonentities, can be written off. But although it may well be written off as not empirical, it cannot be satisfactorily written off as unintelligible or meaningless (see the basic theses, chapter 1 [Vol. 1 *—Eds.*], p. 18ff.).

The less sweeping thesis of empiricism, TE, when reflected upon soberly, is also a most unlikely assumption – what a sweeping restriction on truth and its varieties it would impose, if taken as normative or regulative principle. Like many unlikely theses it is false. The thesis is false because it implies, in particular, a restricted form of the Reference Theory, namely

RTR. Nonanalytic truth is a matter of reference.

For TE and ER yield at once such a restricted form of RT. Traditional empiricism implies the full Reference Theory: logical empiricism, though its thesis TE implies on its own only the restricted form of the RT, characteristically takes the full RT for granted.

The restricted theory, RTR, is, so it has been argued at length, false. Many of the counterexamples to the Reference Theory (given in chapter 1) yield counterexamples to TE. It is perhaps enough to recall some of the sorts of examples from theory, fiction and intensionality; e.g. contingent extensional statements about nonentities such as "Pegasus is winged" and "George is square" where "George" names the round square; intensional statements about nonentities such as "Pegasus is commonly believed to be winged"; and intensional statements such as those of counterfactuals, dispositions, lawlike connections, etc. There are many other ways of locating the trouble noneism finds with empiricism. One is through the clash of empiricism with noneism. The theoretical reason for the clash is this: empiricism yields the Reference Theory; but the Reference Theory implies exist-

empiricism; and it can go along with rejection of the dogma of *logical* empiricism (not of empiricism, as Quine FLP has it) that there is a clear and sharp separation of analytic and synthetic statements.

ence and transparency requirements incompatible with noneism, and also with noneist positions such as direct realism. A direct simple argument in terms of hallucinations is this: one may see an object which does not in fact exist and know that it does not exist. Such objects, important for direct realism, are anathema to empiricism.

The argument to the Reference Theory relied on is, in the case of traditional empiricism, in essence this: truth is a matter of experience. Experience is limited to the observational and so the referential. So truth is a matter of reference. Part of the trouble undoubtedly comes from the limitation principle ER. Can things be modified by avoiding ER and not restricting experience? Not without giving away essential features of empiricism. For what is central to empiricism is not experience *unqualified*, but *observational experience referentially construed*.[1] The Reference Theory is at the heart of empiricism; and so empiricism fails with the failure of the Reference Theory.

The converse breaks down. The Reference Theory (or complications thereof such as the Double Reference Theory) is part of many positions other than empiricism, e.g. forms of traditional rationalism, platonism (e.g. positions of Plato, Frege and Popper, and other further-realms-beyond-the-empirical positions), marxist and soviet materialism (according to which social classes are real and unanalysable into empirical individuals).

The key feature of empiricism in addition to the Reference Theory is the restriction of initial subjects and predicates to the observable or (more generously but less justifiably) the scientifically given. This restriction is commonly imposed by a definition of existence in terms of what is observable (though this leads to serious difficulties for empiricism over the existence of "theoretical entities") or, according to weakened empiricism, what is scientifically supplied. Indeed *the leading features of empiricism can be derived from Reference Theory together with a theory of existence* – as to what exists, which is *experientially determined*, and emerging therefrom, what extensional features entities may have, and how, if at all, entities are related to other objects.

The main argument given against empiricism is but an elaboration, obtained by replacing "existential judgements" by "referential statements" of Meinong's argument against empiricism and in favour of its traditional contrast, rationalism: namely

1. Empirical knowledge is confined to existential judgements.

[1] In a parallel way, the referential character of science and methodology is fundamental to empiricist conceptions, and invariably insisted upon by empiricists.

2. The theory of objects furnishes much knowledge not confined to existential judgements.

Therefore

3. Empirical knowledge is not exhaustive of knowledge, and so empiricism is false (cf. Stell). The argument is valid and the premisses are, so it has been argued, true.

But the rationalism so supported is not traditional rationalism (which like empiricism invested in Reference Theory), nor does it imply other theses often cited as those of rationalism, e.g. that reason is the foundation of certainty (OED), that causal connections are necessary connections, etc. Both the traditional contrast between empiricism and rationalism and the usual contrast these days (as presented in elementary textbooks such as Hospers 1956) are yet further false contrasts, premissed on a mistaken theory (once again elaborations of the RT).

Other formulations of empiricism depend upon those already assessed. In particular, it is a corollary of TE that:

Every true statement is either analytic or empirical, i.e. there are no synthetic *a priori* truths;

and that:

Every statement is either noncontingent or empirical.[1]

For simply define true empirical statements as those conforming to TE, and false empirical statements as those whose negations are true empirical statement. Thus an empirical statement is one which is nonanalytic and whose truth conditions are given at base in terms of pure experience. The counterexamples to TE already indicated apply, for the most part, equally against the corollary.

[1] The theses that (a) Necessary statements say nothing about reality and (b) Analytic statements are trivial and uninformative – sometimes associated with the corollary and often presented as a, or the, thesis of empiricism (e.g. Pap 1958, p. 91) – neither entail nor are entailed by the corollary. Though indeed theses of logical empiricism, they are consequences of the strict accounts of content and informativeness that logical empiricism has offered, not of TE. The accounts are mistaken, and can be replaced (in a way that has little bearing on TE) by improved accounts; see UL.

A worthwhile survey and critique of the main theses of logical empiricism (including (a) and (b)), especially as they feature in – and dominate the methodology of – mainstream economics, is given in Hollis and Nell 1975, especially chapter 1. (The survey is considerably better than the critique, which misses some of the main points.)

Judgement empiricism, as so far presented and criticised, is not relativised in any way to individuals, groups, or classes of experiencers. The account criticised is one that begins with observation statements – it matters not whether they are theory-laden or not – and aims to account for all (nonanalytic) truth and knowledge in terms of these. The criticisms made apply equally to individualistic theories of knowledge, and to holistic theories of knowledge, such as marxist accounts which present knowledge as a group production of some kind (cf. PT, p. 38ff.). In fact the relativised account, though plainly applicable to the epistemic formulations of empiricism, hardly applies to semantical formulations. For this reason accounts of empiricism that relativise knowledge to types of knowers are insufficiently general, and fail to get at the deeper troubles with empiricism.

The attempt to recast empiricist as an essentially individualistic position is illustrated by the shift Lukes makes (1973, p. 107) in presenting empiricism as a type of epistemological individualism, according to which "the source of knowledge is within the individual":

> ... the paradigm epistemological individualist is perhaps the empiricist, who holds that (individual) experience is the source of knowledge, that all knowledge arises within the circle of the individual mind and the sensations it receives (p. 117).

Note how "individual" is first introduced – the introduction is illegitimate – in brackets, and then the bracketing is almost immediately removed and aspects of an indirect account of perception infiltrated. Without these unwarranted shifts Lukes' objections fail to apply against modern presentations of empiricism.

> The crucial objection to empiricism, and to epistemological individualism generally, has taken two related forms: first, an appeal to a shared public world, and, second, to a shared, "intersubjective" language, as preconditions or presuppositions of knowledge (p. 109).

While these are serious objections to phenomenalism, they carry no weight against empiricism, when empiricism is formulated (as for example by Carnap, Hempel and other logical empiricists, or differently by Armstrong, Mackie and Smart) in terms of the "thing" language, which is public shared language about publicly observable entities. The source experiences of empiricism can, in principle, be public or group.

This procedure of illegitimate redefinition (to suit ideological objectives) is carried much further by Chalmers and Suchting (PT, p. 79ff.), who begin, like Lukes, by recharacterising empiricism in individualistic terms, and then extend empiricism so defined, firstly, to include its standard exhaustive contrast, rationalism and, secondly, to include scepticism (or rather Feyerabend and Kuhn). Thus they arrive at their

> ... central and defining characteristic of empiricism. . . . Empiricism embraces all epistemologies based on *the personal experiences of the individual subject or knowers*. This is what is common to all empiricisms (p. 36).

Different forms of empiricism are said to result by varying the class of "experiences", traditional empiricism limiting experience to "outer" sense experience, rationalism admitting as well certain "inner" experiences, intuition and the like, and scepticism rendering all experiences "extensionally subjective". Neat certainly, but historically and semantically inaccurate. Mainstream characterisations of empiricism make no essential reference to "personal experiences" or "individual subjects" (cf. the characterisations given above, the slogan, Hospers, Hempel, TE, etc.). What is at issue vis-a-vis empiricism is not who, what class, the experiences come from or the knowledge accrues to, but the semantic character it has, what are the types of knowledge. Chalmers and Suchting's criticism of empiricism accordingly misfires: as with Lukes, some main targets, such as scientific realists, can easily avoid all fire. Furthermore, when the inaccurate individualistic adjuncts are removed from the characterisation of empiricism, the production theory of knowledge, which Chalmers and Suchting advance (following Althusser), looks, insofar as it can be clearly discerned, very much like a variant on empiricism.

Incorporating individualism into the characterisation of empiricism is not the only piece of redefinition Chalmers and Suchting engage in: they also commit empiricism to a sharp distinction between observational and theoretical knowledge. But, once again, recognition of such a distinction is no part of mainstream accounts of empiricism: it is an optional extra, certainly adopted by many empiricists, but by no means adopted by all, and not essential to empiricism. Here is how the slogan, all knowledge is derived from or ultimately justified by observation, reappears after Chalmers–Suchting transformation (p. 30):

> (iv) [and (i)] Theoretical knowledge is derived from or ultimately justified by reference to [what is distinct], basic, untheoretical knowledge

> [which is observational][1]
> (ii) and (iii) Basic, observational knowledge, [which] does not involve theory, ... is available or given to individual observers (or knowers or subjects).

While empiricism does presuppose some derivation or justificatory machinery, nothing in the characterisation requires that the machinery (which can naturally take the form of a recursive enumeration) incorporates what Chalmers and Suchting have assumed, the idea of a theory-free base in terms of which theoretical knowledge is based. The recursive build-up can be, as with a truth definition (or with empiricist languages), through logical connectives: then nothing about theoretical knowledge or a theory-free base is presupposed. The objections that Chalmers and Suchting make to empiricism on the ground that it includes such a theory/observation distinction,[2] like the objection to empiricism that it assumes an indefensible individualism, is an objection that applies only to certain traditionally important versions of empiricism, but by no means generally.

For empiricism has been progressively widened, and weakened, as stronger forms of the position prove to be untenable. A really pure empiricism, of traditional vintage, would no doubt be phenomenalistic, would begin with theoretically uninfected observations, would be operationalistic, would be nominalistic and individualistic. But such purity renders it difficult or impossible to account for – what empiricism is designed to account for, and to *restrict* knowledge to – "genuine" scientific knowledge. Scientific realism, acclaimed as a form of empiricism by Armstrong, Smart and others, strikingly illustrates the extent of deviations from purity. Such a position is doubly realistic, in its announced rejection of phenomenalism, and in its (reluctant) rejection of nominalism. It is scientific in its restriction of nonindividuals to those thought necessary for science (usually equated with modern physics); but the position splits over which universals really are required in science – properties (Armstrong, Tooley, ...) or sets (Smart, Quine, ...). But whichever way the position is elaborated, it is mistaken, not only because of its commitment, in common with all empiricism, to the Reference Theory, but because its enlargement of purer empiricism to include certain universals commits it to the existence of objects which do not exist. There is a further serious weakness confronting such impure empiricism, namely in the explication of the derivability relation $\underset{\sim}{R}$. How, in particular,

[1] In the case of "rationalism" it includes also intuited knowledge.
[2] In chapter 11 Chalmers' case for rejecting this distinction is examined and rejected.

are statements about universals and their interrelations to be accommodated, without exceeding empiricist bases in experience?[1] Scientific realism has given no satisfactory answer. It is unsatisfactory to appeal back to science – all that has so far been offered – for science may (indeed *does*, so it will be argued) transgress empiricist, and referential, restrictions.

Pure (or *fair dinkum*) *empiricism*, that is empiricism which adopts – what would be *expected* with empiricism – an observational criterion of existence, avoids or mitigates several of these problems for scientific realism (though not without heavy costs when it comes to showing science empirical). Pure empiricism does furthermore what critics such as Lukes and Suchting expect of empiricism, limits objects to individuals, since only individuals (in a wide sense) are observable objects. Pure empiricism, that is, implies individualism, and is accordingly open to criticism on that score. In short, although empiricism need not involve individualism in the way common supposed – neither scientific realism nor marxist materialism do so – empiricism does yield individualism given characterisations of existence of the type which it itself typically supplies and tends to force, that is characterisations in terms of observability (so leading into §12).

§11. An interlude on the destruction of mathematics by scientific realism

Scientific realism comes in different varieties, differently packaged. Any variety that conforms to usual nominalism – the position to which empiricisms naturally tend – is, as is well-known, very destructive of mathematics: most of it is removed with other non-nominalistically-accountable-for rubbish. Modern scientific realism departs from usual nominalism just far enough, such at least is the intention, to enable "science" (meaning usually, entrenched physics) to function: the rest is dismissed with various grades of scorn or abuse that change over the years as empiricism changes its garb. The rest includes, however, a good deal of mathematics and logic. For what enables science to function (its discourse to be significant, some of its theses true, etc.) does not enable many branches of

[1] There is a parallel problem for concept empiricism. What is the derivation relation by which universals derive from experience? And how can such a relation conform to the demands of empiricism? In concept terms, it is easy to see how far scientific realists are removed from the traditional empiricism of Locke, Berkeley and Hume.

mathematics to function. Just how destructive of mathematics modern scientific realism can be will be brought out by considering Armstrong's new variety (of 1978).[1]

Given empiricist principles, no properties or relations can be shown to exist by (purely) *a priori* methods (Armstrong 1978, II, pp. 7–8). Since pure mathematical relations are typically determined *a priori* and much of mathematics revolves around the logic of relations, Armstrong's empiricist principles have an immediate and devastating effect on mathematics. Some examples will illustrate the extent of the damage. Firstly, no relations are reflexive (see the detail of 8.10), and hence no relations are equivalence relations (i.e. reflexive, symmetric and transitive). But many important mathematical constructions depend upon the formulation of equivalence classes, or partitioning by equivalence relations. Familiar constructions of the higher numbers such as negative, rational and complex numbers all proceed in this way. Armstrong is committed to the rejection of all these constructions using equivalence relations by his effective rejection of reflexive relations (1978, II, p. 143)

> ... we rejected the view that there can be states of affairs having the form Raa. In consistency, it seems that we must deny states of affairs having the form $R(P, P)$, where R is a higher-order relation relating a property (or a relation) to itself.

So far Armstrong's theory has not even delivered a minimal account of the non-negative integers which satisfies the Peano postulates (cf. 1978, p. 73). Unremarkably, Armstrong hopes that the account he sketches of natural numbers in terms of possible structural properties can be carried through, but even this is in doubt for two reasons; firstly it is unclear (once the "possible" is duly removed from "possible structural properties") that enough properties will exist; and, secondly, since unions cannot be generally formed (as disjunctive universals are rejected) addition and multiplication will not be everywhere defined. Beyond the positive integers, the situation is even worse. An account of negative integers, in terms of properties, appears ruled out entirely, because of Armstrong's rejection of negative properties. In a similar way property analogues of those central parts of modern mathematics, the algebra of classes and relations and Boolean algebras, are ruled out by the rejection of negative and disjunctive universals; modern mathematics is crippled. With analysis the situation is worse again: the theory eliminates

[1] The trouble with Smart's impure scientific realism – impure because it appears to admit a good many classes not needed in science – has already been considered briefly in 8.8.

all the usual means of defining the central notions and proving the fundamental theorems. Is this really "scientific realism", which destroys much of pure science and also substantial parts of theoretical science which applies mathematics?

In contrast to scientific realism, noneism can account for all of mathematics, without ontological commitment (see chapters 10 and 11).

§12. The roots of individualism, the strengthened Reference Theory of traditional logical theory, and the rejection of individual reductionism and holistic reductionism, and of analysis and holism as general methods in philosophy

Individualism divides, in terms of disciplines, into economic individualism, political individualism, ethical individualism and epistemological individualism (for such a classification see Lukes 1973, where the various disciplinary-confined positions are described); and readily extends to other disciplines, e.g. logical individualism, physical individualism, biological individualism, psychological individualism, etc. etc. – the proliferation indicating a failure to get to essentials. For behind all these positions runs a common theme (you guessed it again), the Reference Theory as circumscribed by a characterisation of existence which limits what exists at least to individuals. That is, the common assumption is that truth, and also knowledge and meaning (in each discipline), is a matter of, and so reduces to (transparent features of), individual entities (recognised by the given discipline).

It is often supposed that empiricism or positivism is the source of individualism of various sorts, in particular of what may be called *individual reductionism*, according to which everything resolves into individuals, a little more exactly is a logical construction – using abstract classes if need be, so the position may be wider than conventional nominalism – from (abstract) individuals of a given sort. This strikes close to the mark, and calls for but minor qualification and some clarification of the *sorts*. Though *pure* empiricism does indeed yield *empirical individualism* – what is often called *theoretical individualism* – it is not required for a wider, but equally insidious, position, *referential individualism*, according to which objects have no features other than those that are constructions from referential (extensional) features of individual entities. This form of individualism – narrow forms of which are at the base of the discipline-confined positions

– is sufficient to wreak most of the intellectual damage that has been attributed to theoretical individualism. It is moreover open to many of the objections that have been lodged against theoretical individualism (for some of these see J. Burnheim in PT). The classical characterisation of theoretical individualism, in the context of social theory was given by Mill:

> Human beings in society have no properties but those which are derived from and may be resolved into the laws of nature of individual man (1947, p. 575).

The basis, to which all other features are resolved, comprises individuals and their empirical features, since laws of nature were exclusively empirical according to Mill. Extend the thesis beyond social theory to all entities, and empiricist individualism is the result. Intensional relations, such as social interrelations, dissolve under the reduction. Examples are all too familiar: not only society but all social organisations are logical constructions from individuals comprising them and certain of their extensional features. Thus economics is a matter of individuals with certain revealed preferences and with private interests (which translate into profit and other maximization motives); value reduces to certain extensional features of individuals (without constraining relations between them); hence the genesis of political individualisms, classical economics, and utilitarianisms.[1]

The drive to remove intensional and inexistential features that leads in social theory to the socially-impoverished private individuals of classical and neo-classical economic theory and to the self-contained and isolated individuals of "liberal" political theories, is fundamentally the same drive as that which leads, when followed through, to the pure atomic entities of classical logical theory, to the ideas of traditional epistemology, and also to the disinfected epistemological objects of fair-dinkum empiricism and of scientific realism which are stripped of all intensionally-affected internal relations, and also perhaps of secondary qualities. The differences lie in the sorts of basic entities admitted, which turns on the sorts of features the entities (are allowed to) have. The crucial point is that an individualist position may restrict features of individual entities to a narrow subclass

[1] It is a short route from referential individualism, as based on the strengthened Reference Theory, to capitalism. But the route runs through the foundations of economics and exceeds even the bound of this venture (see, however, for some of the route, ENP2). Very briefly, such referential individualism involves the reduction of knowledge, skills and technology and more generally of the means of production to individual, and monopolisable, products, which however – the exclusive individual control of the means of production – is the genesis of capitalism.

of transparent attributes: thus, for example, Mill's restriction to empirical properties; the limitation in leading versions of scientific realism to primary qualities; the reduction of economic individuals to entities with only certain preference ranking on commodities; etc.

A striking example of the restriction of features well within referentially required limitations is provided by traditional empiricism, which excludes all but a very few of the relations in which objects can stand, as not features of entities or as at best derivative features (see, e.g., Hume's sparse list of relations "comprised under seven general heads" in Hume 1888, pp. 14–15). Indeed, the restrictions result in what may well be called the *Strengthened* (or *Traditional*) *Reference Theory* of traditional empiricism.[1] The Strengthened Theory arises primarily from the combination of the Reference Theory with the assumption of traditional logic that every judgement can be (adequately) represented in subject-predicate form – an assumption that had a disastrous effect on metaphysics and so on the remainder of philosophy. As to the effect consider, for instance, the impact of Brentano's thesis that all judgements are existential in form, either assertions of existence, "There exists an S which is P", or denials of existence, "There does not exist an S which is P", a thesis obtained by reducing subject-predicate forms syllogistically represented to particular forms and applying the Ontological Assumption. The thesis rendered impossible a satisfactory theory, not only of relations, but of the nonexistent, of fictions, and even had a damaging effect on Meinong's theory of values, in the assumption that values and "value-feelings are all cases of concern with *existence* and *nonexistence*" (Findlay 1963, pp. 267–8). A more familiar example is provided by the striking impact of Kant's assumptions as to the completeness of various of his classifications (e.g. of categories) on his philosophy.

According to the Strengthened Reference Theory, the truth of statement A, which is of the form "ξf" (the subject may be plural, as in "Men are always mortal") is a function [just] of the reference of "ξ" (e.g. men). Thus the truth – and similarly knowledge and meaning – of A is independent of anything but the reference of "ξ", and can be determined just through ξ without considering anything else. Relations between entities (individuals or aggregates) thus have none but a derived role. It is for this underlying reason that relations vanish, and have to vanish, into complex properties, as for instance in Hume's

[1] It could be alternatively said, perhaps less accurately, that it is not so much that the Reference Theory is strengthened as that, in applications, the Theory – because of narrow construal of referents – becomes more powerful and destructive.

theory into complex ideas, namely mental comparisons (properties of minds) of qualities of objects (Hume 1888, pp. 13–15). Hence too the prejudice against relations, observed by Russell 1900 and later by Austin (1939, p. 49n.):

> A pretty anthology might be compiled of the phrases found by philosophers to express their distrust and contempt of relations: "entia semi-mentalia" and what not. I suppose it goes back to Aristotle, who assumes, with the plain man, that "what is real is things", and then adds, grudgingly, "also their qualities", these being somehow inseparable from things: but he draws the line at relations, which are really too flimsy. I doubt if there is much more behind the prejudice against relations than this: there was not in Leibniz's case, and few have hammered relations as hard as he.

But certainly there was much more behind it: the whole weight of traditional logic in combination with the Reference Theory, which obtained almost classic form in Leibnitz's case. This accounts too for the prejudice being seriously weakened, and becoming visible, with the replacement of traditional logic by classical logic which incorporated the Boole–Schroder algebra of relations and Russell's theory of relations.[1]

What emerges from the Strengthened Reference Theory is a picture of separate entities, with certain referential properties, but not interconnected. It is the picture not only enforced through traditional logic, but adopted, with considerable initial success, in classical physics, where the basic units, from which all else is supposed to be constructed, comprise elementary particles which have just a small number of primary properties, mass, position, velocity (vector). Position – like time in terms of which velocity and acceleration were assessed – was construed as a property, as an absolute theory of space permits. Moreover, the basic interaction relation on this model, collision, could be construed, through juxtaposition, in terms of properties. Into this pretty picture, which served to explain many physical phenomena, gravitational relations did not fit, despite repeated

[1] There was, however, another, likewise referential, influence which may have been at work in Aristotle's theory and certainly figures in modern antipathy to relations. It is this: immanent theories of universals, such as Aristotle's, which locate the universal in each thing which instantiates it, lose much of their appeal when applied to relations, which have to be shared out between two or more things in each instance. For example, *north of* can be located neither in Edinburgh nor London, but has somehow to be assigned to the ordered pair ⟨Edinburgh, London⟩, considerably complicating the theory and committing it to a (rudimentary) theory of classes.

efforts to reduce them.[1] Nor, it eventually turned out, was gravitation the only problem. The theory of solids could not be included either, as Boscovitch showed. Any by the end of the nineteenth century it was evident that much else could not be accommodated.

The success of classical particle physics (despite the outstanding problems of gravitation, of solid bodies, etc.) together with the philosophical reinforcement of its methods meant that every other science, or putative science, would be launched upon a similar individual reductionist research programme. And so for the most part they were, and within that unfortunate pattern they have remained largely locked, though the holistic heritage from nineteenth century German philosophy has had some, but a relatively minor, influence in the social sciences, and more recently in the biological sciences. In particular, under the method copied (though quite inappropriately) from classical physics, copied with the encouragement of positivists and empiricists from Bacon and Hobbes, on through Comte and the Mills, we arrive at social sciences based on private self-contained individuals units (e.g. the firm, the nuclear family) whose interests and revealed preferences are egoistic – at a fragmented world of self-interested referents with their approved empirical properties. Instead of colliding, they compete, a model also imposed on evolutionary biology; they are not interrelated nor do they cooperate unless such relations can be reduced to properties in their own respective self-interests; and even the apparent relation of competition is eliminated by such devices as the capitalist market, where each individual unit simply buys or sells commodities or factors anonymously, and relations dissolve – it is all well regulated without relations, as if by an "invisible hand".

The classical physical picture, which proved inadequate in the case of physics itself, has not really been abandoned in the social sciences where it continued to flourish. Nor has the change in the physical picture been sufficiently far-reaching: the introduction of fields forced by electromagnetic phenomena need involve no more than the assignment of extensional relations between referents, so it represents logically only an advance from traditional logic, and does not really move beyond the confines of classical logic. But, by and large, the social sciences have not even advanced this far. Nor it the inclusion just of extensional relations within the physical picture sufficient (as will be argued in the next chapters): how less adequate then would such a shift be in more highly intensional sciences such as social sciences. Furthermore, with a change of framework, various of the "conceptual difficulties" of quantum and relativistic physics and their combinations,

[1] See, e.g., the discussion of the corpuscular philosophy in Harré 1972.

which appear to be primarily problems generated by the transference of much of the classical physical picture, can be expected to dissipate.

These referential pictures at the base of mainstream modern sciences are no more satisfactory than the Reference Theories which they presuppose, and fail for the same reason. In particular, since the Strengthened Reference Theory entails the Reference Theory, it is refuted with the Reference Theory, and the case marshalled against the latter applies against it, along with the arguments of Russell and others against attempts to eliminate relations (especially Russell's early logical work). It is a serious but common error to jump from the failure of individual reductionism as a general method to some sort of holistic position (as do, e.g., Lukes 1973, Chalmers and Suchting in PT, and many Marxists). Holistic reductionism is no more satisfactory than individualistic reductionism, but rather the dual of it and open to essentially the same style of objection (see ENP2). The correct position, emerging from noneism is a nonreductionist position which includes both individuals and (social or biological) wholes, neither of which reduce, in general, to the other.

An interesting example, within philosophy, of the false dichotomy between individualism and holism concerns the conflict between analytic methods of empiricist-inclined philosophies (including "ordinary language" philosophy and pragmatism) and holistic methods of leading continental philosophies. The method of analysis supposes that an item or notion can be taken in isolation and its nature revealed by exposure, in one way or another, of its components, that an item may be characterised purely on its own independently of its network of relations to other items (and its place in the whole, as holists would say). The assumption that analysis can always succeed is premissed on stronger versions of the Reference Theory, that all truth about an object is characterised internally and cannot be characterised through its relations. And analysis fails generally as a method with the failure of the Reference Theory.

The general failure of the method does not imply that it cannot often succeed. To draw such a conclusion would be to accept the false dichotomy frequently offered between separable individuals on the one side and nonanalysable wholes on the other, and to omit consideration of richly-attributed individual items which fall outside the dichotomy and break it (see further ENP2). Analysis can sometimes succeed, objects can be considered in isolation, because they have as well as relations, properties of their own, which make

them distinct individuals. (The more general rejection of analysis as a method, that no thing can be considered in isolation from the totality to which it belongs, depends on rejection of such basic, and correct, logical principles as $A \,\&\, B \rightarrow A$. Truths about a whole imply truths about parts which can be separately assessed.)

§13. Emerging world hypotheses: qualified naturalism, qualified nominalism and the rejection of physicalism and materialism

The account of existence given is an almost minimal one. Nothing exists but particulars – just as nominalism says. The only controversial objects admitted under the synthesized criteria for existence are microentities and complexes and aggregates; but the latter can hardly be avoided given that all their parts exist. All the particulars that exist are spatially locatable. Then, for appropriate senses of the ambiguous term "world", the following are true:–

(1) The world contains nothing but particulars;

(2) The world is nothing but a single (all embracing) spatio-temporal system.

Thesis (1) is what Armstrong (1978, p. 147) calls "the nominalist world hypothesis",[1] and thesis (2) he calls "the hypothesis of 'Naturalism'". Both (1) and (2) concern the world as the totality of *entities* – not objects, at least in so far as they are true – but concern it differently, (2) implying certain interrelations of the elements of the world. Thus (1) can be more accurately expressed in terms of the entity domain $e(\underline{\underline{T}})$ of the real world $\underline{\underline{T}}$, as

1R. Every element of $e(\underline{\underline{T}})$ is a particular,

i.e. more simply, in English, every thing that exists is particular.[2]

But nominalism and naturalism as usually understood – both of which are referentially-based, assuming at least the OA, and typically the IIA as well – discern no distinction between objects and entities. According to nominalism,

[1] At least he calls it this when the apparently redundant (since the nominalist does not mean "bare particulars") proviso, "particulars which are nothing but particulars", is added. The proviso is not included in his earlier exposition, Armstrong 1977, but is no doubt added with a view to separating nominalism from his own position which takes particulars as the bearers of properties and relations. Noneism accepts both thesis (1) *and* the thesis, 1A below, that Armstrong contrasts with (1).

[2] Once again, in presenting universally formulated theses of nominalism, we have trangressed – as we may – the limits of usual nominalist discourse.

OR. *Every object is an entity* (the *object reduction thesis*)[1]

whence, since every entity is an object, $d(\underline{\underline{T}}) = e(\underline{\underline{T}})$. Hence, too the usual nominalist thesis

1N. Every element of $d(\underline{\underline{T}})$ is a particular,

i.e. every object is a particular. Thus appropriate expansions of "world", as a totality of objects versus a totality of what exists, separate noneism from (usual) nominalism – and similarly from naturalism. While 1R is true (and argued for in previous sections), OR and 1N are both false (and many counterexamples have been given). The qualified nominalism of noneism (the nominalism of p. 11) is that (acclaimedly true) position which asserts 1R but, rejects OR and 1N.

By contrast, Armstrong (1978, p. 126ff.) rejects thesis (1), and both theses 1R and 1N, in favour of his own hypothesis (of Aristotelian realism), namely

1A. The world contains nothing but particulars having properties and related to each other.

Here "the world" is either $e(\underline{\underline{T}})$ or $d(\underline{\underline{T}})$: on Armstrong's philosophy they coincide. The domain $e(\underline{\underline{T}})$ contains, according to Armstrong, as well as particulars, attributes (those fully instantiated by sometime-existents of $e(\underline{\underline{T}})$ and also crucially – though the form 1A does not allow for it, a *serious* omission – certain properties of the relations relating these properties and relations, i.e. certain higher-order attributes, such as causation and lawlike connection which are said to be relations of properties and relations. Even if higher order attributes are excluded, Armstrong is obliged to reject his hypothesis 1A, on pain of inconsistency otherwise. According to Armstrong's version of realism, certain properties and relations exist. By the Grand Dilemma (the main argument of his 1977 and the final chapter of 1978, vol. 1, with the examination of which much of this section will be concerned), these attributes must be spatio-temporal objects. This is problematic enough, as will emerge. But worse, attributes are not particulars, yet by thesis 1A , only particulars having attributes exist, so attributes do not exist. Thesis 1A will have to be abandoned if Armstrong's realism is accepted. The trouble can be located alternatively, without appeal to the fallacious Grand Dilemma, as follows:– If a particular exists having

[1] In what follows in this section $e(\underline{\underline{T}})$ is generally to be construed as the domain of *sometime*-existents.

properties, then by the Ontological Assumption, the properties exist. But these properties are universals, not particulars (or particulars having properties), so 1A is false.

Thesis 1A only contrasts with (1), i.e. 1R , in the way Armstrong supposes given the referential assumption (an instance of the OA) that the having of properties and relations implies the existence of the attributes thereby attributed. It does not. Particulars *have* properties much as some individuals *have* minds. That does not imply that properties exist, any more than the having of minds implies minds exist, or having of second thoughts implies that second thoughts exist: *having* is not a Brentano-style relation. 1R and 1A are accordingly reconciled in noneism: both are true. Even so no attributes exist, or can be legitimately included in $e(\underline{\underline{T}})$. So much is scarcely news; but little has been said heretofore on naturalism, materialism and physicalism.

Naturalism, like nominalism, decomposes under noneist scrutiny into different theses, some of which are acceptable, and some of which are not. The situation is also complicated by competing characterisations of naturalism. Consider first thesis (2), which, insofar as it is correct, says that the elements of $e(\underline{\underline{T}})$ comprise a single spatio-temporal system, i.e.

2R. Everything that (sometime-) exists is an element of a single spatio-temporal system.

Just as the having of properties by particulars does not imply the existence of properties, so the belonging of entities to a spatial-temporal system does not imply that this spatio-temporal system exists, i.e. is real (in one sense of that term). Whether the spatio-temporal system exists depends on how "spatio-temporal system" is construed; and the same holds for the world (e.g. the actual world construed as the set of true propositions does not exist). If the spatio-temporal system is a relational structure of a certain sort, representable as a set carrying relations, it is an abstract object, and so does not exist. If however the spatio-temporal system is simply the aggregate of sometime-entities in their spatio-temporal relations then it is a complex object, which does exist. The usual nominalist, if he asserts thesis (2) is committed to a construal of the latter sort. For (2) implies, by the OA, that the spatial temporal system exists, and therefore that the world exists, and were the system an abstract object nominalism would be contradicted. To say that the spatio-temporal system, construed as an abstract object, does not exist, is not real, is not to say that it is illusory (Armstrong's suggestion, 1977, pp. 411–2). "Illusory"

is only of the one contrasts with "real": another somewhat more satisfactory contrast is "ideal".

Thesis 2R is a thesis about what sometime-exists, and it follows from the account given of existence.[1] Thus, while it is controversial, it is no more so than the account of existence. But naturalists usually intend to assert, with (2), a much stronger and more controversial thesis than simply 2R – indeed one which would put an end to theories of objects – namely the $d(\underline{\underline{T}})$-version of (2),

2A. Every object is an element of a single spatio-temporal system.

But of course, given the object reduction thesis OR, *they* do not distinguish 2A from 2R.[2]

As a result they are at once committed to an enormous reduction programme, of all those objects which they are forced to admit (by the Ontological Assumption) exist, but which do not conform to 2A, to entities which do conform to 2A. Moreover, almost every stage of the reductions proposed thus far looks shaky, at least to philosophers not committed to 2A. In advance, however, of satisfactory reductions usual naturalists are in serious difficulties in stating and defending their theses (these difficulties are exacerbated in the case of materialism and physicalism, next stages of advance beyond naturalism, which countenance even narrower classes of objects). These difficulties are a generalisation of the problem of negative existentials (and also reminiscent of problems in stating type theory). In trying to show that objects outside their scheme of things do not exist, usual naturalists (and physicalists) appeal to features of these objects, e.g. that they do (or do not) interact with spatio-temporal entities: yet if the objects do have these features used in refutations of them then they exist (by the OA), and accordingly falsify usual naturalist theses. Furthermore, in stating their position usual naturalists make use of objects, such

[1] It is not a thesis of geometry, though it gives a small piece of information about the geometry on $e(\underline{\underline{T}})$. Still less is it a claim that a reduction to spatio-temporal features can be effected. Even as regards physical properties such a thesis is false – unless the dubious thesis of geometrodynamics should be correct. For the sometime-existent spatio-temporal objects also have many physical properties and behave in ways governed by physical laws: there is much more to the spatio-temporal world of entities than Minkowski geometry.

[2] This is evident enough in Armstrong, who accounts nonexistent objects entities, i.e. things that (are postulated) to exist (1977, p. 412, p. 417).

Once again the Ontological Assumption lies behind this equation, behind OR. The use of the OA is quite conspicuous in Armstrong's work, and has already been remarked upon. To give just one more, relevant, example (from 1977, p. 412); Men and other organisms have purposes: this is a plain matter of fact. Therefore, Armstrong infers, without even noticing the transition, purposes exist, also as a plain matter of fact. Hence the problem for usual naturalists of trying to give an account of purposes within the confines of 2R.

as propositions and the like, which their theses do not admit; similarly in defending their position they make use of further objects, namely arguments and principles (e.g. Occam's razor, the verification principle) beyond their scheme of entities. For example, Armstrong, whose world, by 1A, contains no propositions states his position propositionally, and goes on to defend it by appeal to principles like Occam's razor, and by *a priori* argumentation, though "as an Empiricist ... [he] rejects the whole conception of establishing such results by *a priori* argumentation" (1977, p. 412).[1]

Armstrong's way of trying to dispose of objects beyond the pale, without attributing any properties to them, is in fact through intensional coverage of statements apparently about them.[2] Philosophers *postulate* such and such objects in addition to those usual naturalism allows: but it is *implausible* to do so, and there are severe *difficulties* in doing so.[3] The list of objects philosophers are said to postulate that naturalism excludes is long. Here is part of Armstrong's list:

> ... philosophers and others have postulated a bewildering variety of additional entities. Most doctrines of God place him beyond space and time. Then there are transcendent universals, the realm of numbers, transcendent standards of value, timeless propositions, non-existent objects such as the golden mountain, possibilities over and above actualities ("possible worlds"), and "abstract" classes, including that most dilute of all entities: the null class (1977, p. 413).

But

> despite the incredible diversity of these postulations, it seems that the Naturalist can advance a single, very powerful, line of argument which is a difficulty for them all (1977, p. 413).

[1] Armstrong is well aware of these difficulties for his position (see 1977, "Remarks read at the conference"), but suggests no resolutions of them (in his 1977 the problem is likened to Wittgenstein's problem in the *Tractatus*, and left at that). Smart 1978 has, however, faced the difficulties, in the case of physicalism and attempted to take the obvious way out, a physicalist reduction of the theses of physicalism. (The obvious way is really the only way, a Tractarian throwing away of the theory after it was reached by means exceeding the theory would never do; nor would exceeding what physicalism countenances at some metalevel). But the reduction proposals Smart outlines are singularly unconvincing, and unpromising: we have seen too many times before how and where such proposals break down.

[2] In the course of the arguments the intensional covers slip off; but at the cost of considerable complication in statement and a (desirable) increase in exactitude the covers could, perhaps, be restored.

[3] Which necessitates in turn further reductions: the theses *are* implausible, *have* difficulties; so implausibilities and difficulties exist, but not in any obvious way in space-time, so reductive analysis is inevitable.

This argument is the Grand Dilemma:

> Are these [objects], or are they not, capable of action upon the spatio-temporal system? Do these [objects], or do they not, act in nature? (1977, p. 413; but Armstrong has "entities" where "objects" has been inserted, to avoid prejudice).

The way the theory of items will meet this dilemma, which threatens it too when the argument is tightened up, is, to begin with: "it depends, in particular, on how the relation of *acting on* is spelt out, e.g. whether it is an entire physical relation or a causal relation or what", and then: "Some do and some do not".

Consider, first, the horn of the dilemma where it is assumed that objects do not act in nature (Armstrong's "blazing fire", which he advises anti-naturalists not to try). Since nonentities do not physically act upon entities[1] it is this horn that has, it seems, to be faced at least in the case of possibilia, possible worlds, and the like. The argument is said to be simply this:

> If any [objects] outside the [spatio-temporal] system are postulated, but have no effect on the system[2] there is no compelling reason to postulate them. Occam's razor then enjoins us not to postulate them (1977, p. 415).

There are two steps that maybe faulted in this argument, and both should be faulted: namely

(a) there is no compelling reason [theoretical necessity] to postulate objects (such as nonexistent objects) which do not physically act upon spatio-temporal entities.

(b) One ought not (or whatever other injunction Occam's razor is taken to include) to postulate objects for which there is no compelling reason [theoretical necessity].

Step (b), Occam's razor, has already been criticised (early in chapter 3 [Vol. 2 *—Eds.*]), as being a referentially-based principle (e.g. it presupposes OR), which incorporates various muddles, especially the assumption deriving from the OA that what one chooses to talk about or include in one's theories has an important bearing on what exists. But there is a point in examining the middle term of the argument and its key expressions "postulate" and "compelling reason", to ensure that equivocation, upon which Armstrong's

[1] In the relevant entire sense. The issue of reduced relations falls under the other horn.
[2] Note, what will become important subsequently, the shift to causal talk of "effects".

argument *does* rely, is removed. Armstrong undoubtedly means by "postulate", "take (postulate) to exist" but in that sense, his case falls on its face against anti-naturalists such as noneists who do not take nonexistent objects to exist; for these philosophers do not postulate any objects beyond those naturalism postulates. Let us instead employ "postulate" in its ordinary neutral sense, "take for granted" (see OED). Objects including propositions may be taken for granted whether or not proof or argument can be supplied; what does not exist may be similarly taken for granted. Postulation is an intensional inexistential relation. Consider the special form: x postulates that A, x Pt A for short, then the relation is intensional in the second place, since x Pt A and $A \equiv B$ do not imply x Pt B. And the relation is inexistential because x Pt yf does not imply yE. Further "x postulates ys" and "x postulates ys to exist" (equivalently, x Pt ys exist) are not equivalent. For compare "Meinong postulates nonentities", which is true (in the take-for-granted sense), and "Meinong postulates nonentities to exist", which is false (in the same sense of "postulates").

But now, what is wrong with taking for granted, for one purpose or another, objects for which there is no compelling reason or no theoretical need (e.g. esoteric mathematical objects or assumptions, for reasons of entertainment)? Nothing, it seems, at all. (b) is mistaken. There is good reason, however, for taking for granted many of the objects a theory of objects includes (much of this book has consisted of a presentation of these reasons). Whether these reasons are compelling is another matter (in one sense there is nothing compelling about working out philosophical or other, theories, a sense that converts Occam's razor, (b), into a complete theoretical annihilator): but philosophers as various as Bentham and Vaihinger, Reid and Meinong have thought they were compelling. But replace "compelling reason" by – what Occam's razor in its more customary, and less unsatisfactory formulation would have – "necessity", meaning "theoretical necessity",[1] and the noneist claim is that many of the objects it takes for granted are theoretically necessary, in a range of theoretical disciplines; that is, (a) so formulated is false.

The weakness of the "simple" argument quickly becomes apparent when mathematical objects, such as numbers, are considered. They are not elements of the spatial-temporal system and they do not act physically upon it or its elements; but they are theoretically indispensable and there is excellent reason to postulate them (or, better, define them). Armstrong has reserve arguments designed with the object of removing

[1] Or, alternatively, as Armstrong himself subsequently puts it, "intellectual necessity".

such countercases. He is worried by fashionable pragmatist justifications of abstract objects, such as abstract classes (Armstrong's *bête noire*): briefly classes are necessary for mathematics which is necessary for physics, so classes are required "to explain the workings of nature".[1] But mathematical objects such as classes

> do not *bring about* anything physical in the way that genes and electrons do. In what way then can they help to explain the behaviour of physical things? (1977, p. 416)

Armstrong suggests that "they explain nothing" unless they are endowed with "this-worldly powers", that

> we must insist ... that statements about possibilities, numbers, classes, etc. be given a this-worldly interpretation (1977, pp. 416–7),

i.e., strictly, a naturalist interpretation. Firstly, this argument from lack of explanatory power conflates explanation with causal explanation, explanatory power with causal power.[2] While ideal nonexistent objects, for example, lack causal power, they may possess explanatory power. Ideal objects of physical models do not bring about anything physical (they are physically powerless), but they are of much importance in explaining the behaviour of physical things. This is possible because, secondly, explanation is not a Brentano-style relation and so can truly relate what does not exist to what does. Thus too ideal objects can explain much even though they are not endowed with this-worldly power in the narrow sense Armstrong intends (which excludes classes as this-worldly objects.) It is simply false, then, that objects outside the usual naturalist ken, and irreducible to it, can explain nothing actual. They can, and do, explain much concerning the natural world, and given the character of explanatory relations, no naturalistic interpretation is required. A consequence is that the following corollary Armstrong draws by no means ensues:

[1] In fact only a relatively small part of mathematics, and of class theory, is required for these purposes: recall chapter 8, §4. Without a restriction of mathematics to some physical-required part there is, by Tarski's theorem as explained below in the text, no (classical) prospect of doing what Armstrong thinks must be possible, giving "an explanation of the truth-conditions of mathematical statements purely in terms of the physical phenomena which they apply to" (1977, p. 416).

[2] This conflation appears to be systematic in Armstrong 1977 and 1978; in particular it figures also in the other horn of the Grand Dilemma. A related systemic error is the assumption that all relations are Brentano-style relations, that if x exists and y is related to x (or x to y) then y exists. Thus it is regularly assumed that if x explains, or has explanatory power as regards y, which exists, then x is causally related to y, and related to y by a physical causal relation (physically acts on y), so x exists. The assumptions are all mistaken.

> . . . there surely must be [a naturalistic] account [i.e. interpretation, of the statements of mathematics]. The incredible usefulness of mathematics in reasoning about nature seems to guarantee this (p. 417).

It affords no such guarantee; for the usefulness does not result from Brentano-style relations such as those of physical action or causal power. A theory is not in general reducible to, or interpretable just in terms of, the data it explains. In particular, an interpretation of the statements of mathematics, which would include a truth definition for mathematics,[1] cannot be given in the usual naturalistic terms with a domain merely of spatio-temporal entities. For such an interpretation would include a truth definition for analysis (so far the most useful part of mathematics for physics). But by limitative theorems (the general Tarski theorem) such a definition cannot be classically expressed within analysis. Analysis is not exceeded however in its resources by the naturalistic domain (the spatio-temporal manifold is of no greater power than the real line). Thus a truth definition for analysis cannot be naturalistically supplied (since the logic of usual naturalism is classical), and hence an interpretation of mathematics in usual naturalistic terms is impossible.

The conflation of different sorts of power persists in Armstrong's final reserve argument, which relies on the following principle

> ESM. if a thing lacks any power, if it has no possible effects, then, although it may exist, one can never have any *good reason* to believe that it exists (1977, p. 417).

The argument is this: if objects do not act on or in *the* spatio-temporal system, then they lack power; hence by ESM there is never any good reason to believe they exist. Or, in Armstrong's more sweeping form:

> if it is only spatio-temporal things that have power, the principle bids us postulate no other realities (p. 417).

[1] An interpretation is intended as a semantic interpretation which includes an explanation of truth-conditions: see Armstrong 1977, p. 416.

Of course, by Skolem–Lowenheim theorems interpretations of mathematics over naturalistic domains can be provided, given (what is however doubtful) that there are denumerably many spatio-temporal entities. But a Skolem–Lowenheim theorem is insufficient for naturalistic-reductionist purposes; for the interpretation has to be given in naturalistic terms, so the truth definition must be included within the theory.

The argument carries no weight against a theory of objects or against an existence-free mathematics, since existence of relevant objects is not postulated. Indeed noneism can adopt the stronger principle,

ES. if an object lacks (physical) power then it does not exist,

of the Eleatic Stranger, from which Armstrong obtains ESM, *provided* that the requisite qualification of power to physical power, i.e. ability to act physically, is imposed. For if an object exists then it stands in entire spatial and physical relations to other entities. In short, the argument supports *qualified* naturalism.

But both principles fail where both power is construed as explanatory power (or theoretical power), and effects correspondingly as consequences, and the Ontological Assumption is accepted (as by Armstrong). For ideal objects and mathematical models, for instance have explanatory power; hence they have (at least through their consequences) properties, and so, by the OA, they exist. Accordingly Armstrong's reserve argument fails against most important opponents, those who peddle fashionable pragmatist justifications of the existence of mathematical objects, provided they take the elementary precaution of distinguishing physical and explanatory power.

The Grand Dilemma does not then establish its intended conclusion; in particular, it works neither against noneists nor against others such as pragmatists. It fails because one horn of the dilemma fails. The other horn of the dilemma is worth exploring briefly. For while one of the main points can be picked up in the discussion of the case made out for physicalism where the dilemma is repeated, namely the "appeal to natural science", still the interesting complexities of the relation of *acting upon* are there submerged.[1] The horn concerned is produced by the assumption that *transcendent objects act upon the spatio-temporal system.* There are, Armstrong argues, logical and conceptual difficulties about *such* relations, indeed there are difficulties about transcendent objects having any relations at all to spatio-temporal particulars. The latter is, as we have seen, not so: despite Brentano and Parmenides, many relations between higher order objects (and nonentities more generally) and spatiotemporal particulars are unproblematic, e.g. Armstrong belongs to various abstract sets, has various properties, is the object of sundry propositions, quantum theory explains black bodies, etc. The

[1] A useful and relevant discussion of *acting upon* may be found in Reid 1895, p. 300.

relations Armstrong is chiefly puzzled by are action relations of a causal sort.[1] How, he inquires, can a transcendent object have causal power? How can it, as an unchanging object, or as an object outside the spatio-temporal network, work causally in the world or effect change? Armstrong anticipates negative answers, but prematurely. What becomes apparent is that Armstrong is operating throughout with a severely restricted notion of *cause*, which rules out many of the connections that would ordinarily count as causal. Given these connections the question to which he anticipates the answers "It can't", "they can't", obtain positive answers. On the face of it, all the following sorts of transcendent objects can stand in causal relations: objectives, states of affairs, propositions, properties, universals. Consider a few examples: "The chair's being exposed to sunlight caused it to fade", "That the cover was vinyl accounted for its deterioration", "The proposition caused much discussion", "Wetness causes fungal rots", "Poverty caused their suffering", "Stress caused her skin complaint". *Prima facie*, such examples refute Marty's thesis that nonreal objects have no causal efficacy. Worse is to come for the physicalist: motives, beliefs, purposes, and so on, all can be causes; even ideas can be causes. While it is true that there are ways of paraphrasing out many examples of the sort indicated, it is doubtful that all can be (indeed Armstrong, who takes causal connections to involve "relations between universals", explicitly rejects a first-order reduction, p. 425). Therewith the initial invulnerability of the thesis that no transcendent objects can act causally is shattered.

Furthermore, the argument tends to backfire on Armstrong's scientific realism. For the case Armstrong mounts from physical incapacity to act on things in the world applies equally against properties. For properties are, like abstract classes, changeless, timeless, etc. They are thus not capable of physically acting upon particulars, ..., and accordingly are dispensable and ought to be dispensed with. Armstrong's assumption that properties somehow escape his argument depends on confusing properties with cases where they are instantiated (his application of thesis 1A indicates this). It can no doubt be claimed, on Armstrong's behalf, that while causal relations are (often) relations between universals, it is instantiated or particularised universals that act causally upon spatio-temporal particulars. But if the dilemma argument did work, universals would still be

[1] This *may* be to contract consideration to a subclass of action relations, and so to turn the dilemma into a false contrast.

ruled out, unless they somehow *reduce* to their instances; but even an immanent theory of universals cannot somehow pull off that impossible reduction feat.

The Grand Dilemma is repeated, though with some variations, in the defence made of physicalism (Armstrong 1977, p. 417ff.). *Physicalism* – equated by Armstrong with contemporary materialism, though (as Armstrong is aware) it is very different from materialism – is the thesis that:

3A. The world contains nothing but the entities recognised by physics,

the[1] *true* physics, obviously, which is *complete*. The physics must be – what is remote from any scientific theory we have – complete (in an appropriate sense), else entities may fail to be recognised.

Armstrong's argument for physicalism (in his 1977, and also elsewhere) is the following gappy but nonetheless instructive one: Turning the onus of proof entirely about, it is enough to consider, without further ado, the main difficulties in subscribing to the thesis.

> The main difficulties proposed for contemporary Materialism, at any rate by contemporary philosophers, are those of the apparent *irreducible intentionality* of mental processes, and the apparent *irreducible simplicity* of the secondary qualities (p. 418).

However "the contemporary materialist can argue against" these features, much as against transcendent objects with the Grand Dilemma, using the *Supplementary Dilemma*: Do such features as intentionality and secondary qualities bestow any causal power?

The argument thus far presupposes of course the success of the case for naturalism: otherwise nonentities also present a difficulty. And if the argument for naturalism fails as that given *did*, so does the case for physicalism; for physicalism is included in naturalism. Nor are nonentities the only omissions for Armstrong's select list of main difficulties. Items from the biological sciences, especially ecology, and from the social sciences, make severe difficulties for physicalist reductions, as enough contemporary philosophers have pointed out. No matter: the question of the Supplementary Dilemma can be expanded to include all such items. Moreover Armstrong's argument is not at all sensitive to the features of items so included (which is enough to engender suspicion).

[1] By Occam's Razor, it will be the smallest: it is the intersection of all true and complete physical theories.

Horn 2. The features do not bestow causal power. The argument is said to be exactly the same as that horn considered in the Grand Dilemma; if so it is defective for the same reasons. The argument cited is simply this: if they do not bestow causal power, then with regard to the rest of the world, it is as if they did not exist.[1] Not at all. Many interrelations do not bestow causal power, e.g. intensional relations and features of explanatory relations; but they make a difference to the world, to what is true, and to how it is explained. Consider e.g. the relations and functions of economics: very few of these bestow causal power in a significant sense.

The additional arguments Armstrong marshalls against epiphenomenalism,[2] when validly formulated, beg the question against the position in their first premiss. Consider the argument (after Medlin; cf. Armstrong 1977, p. 420):

> Causes of movement are always purely physical.
> Purposes [beliefs] are sometimes [always] causes of movement.
> Therefore, purposes [beliefs] are sometimes [always] purely physical.

Just what is at issue is whether causes of movement, such as beliefs, are always purely physical. And counterarguments, which are question-begging in the other direction, can easily be adduced, e.g.: Psychological phenomena are not purely physical. Purposes are psychological phenomena. Therefore, purposes are not purely physical. The issue generalises:

(1) Purely physical phenomena are extensional [referential].

(2) Psychological phenomena are intensional, i.e. nonextensional.

(3) Intensional phenomena are not in general reducible to extensional phenomena.

Therefore

(4) Psychological phenomena are not in general reducible to purely physical phenomena.

The argument is valid. Premiss (2) is demonstrable using commonsense statements about belief or thought. Premiss (3) is demonstrable: roughly, intensional phenomena involve for

[1] According to noneism they do not exist anyway, if they are properties. The next step of the argument to "The world goes on exactly as if such properties never truly applied", is a non-sequitur. They may, like physical properties, which are similarly situated, make a *big* difference.

[2] Generalised epiphenomenalism admits features which do not bestow causal power.

their semantical assessment world transfer, but extensional phenomena do not. Premiss (1) is accepted by all leading physicalists, including for example Smart and Armstrong.[1] In fact, physicalism as usually conceived is part of a programme of referential (and so extensional) reduction. Hence, detaching, psychological phenomena resist reduction. Thus physicalism is false.

Horn 1. The features of items do bestow causal power. The features will, so the argument goes, be emergent features which satisfy further laws beyond those of the true and complete physics $\underline{\underline{P}}$: otherwise $\underline{\underline{P}}$ will account for the features (whether they have causal power or not presumably: the premiss of horn 1 has not been used). To admit such emergent features is, says Armstrong, scientifically implausible. Is it? With *present-day* physics, it is by no means implausible, as plenty of biologists and social scientists will confirm. In the case of a physics as remote as $\underline{\underline{P}}$ (and unless the field of $\underline{\underline{P}}$ is illegitimately extended), do we really know that? "The [physicalist] seems to be placing a good scientific bet if he bets against these emergent laws" (Armstrong 1977, p. 420). Again very dubious. With regard to $\underline{\underline{P}}$, would the bet be at all "scientific"? Yet that's all the argument. There is no dilemma, because there is nothing even remotely puzzling or unfavourable to the opposition, nonphysicalists, adduced under horn 1.

The status of the thesis 3A of physicalism is then as follows: As a statement as to the domain $d(\underline{\underline{T}})$ of reality $\underline{\underline{T}}$ it is false. As regards the entity domain $e(\underline{\underline{T}})$ of $\underline{\underline{T}}$, there are two cases:

1. Physics is taken, as by Armstrong (cf. the partist model on p. 419), as extensional. Then the thesis is false, by the arguments given.
2. Physics is not confined to what is extensional (or existential) – as indeed it is not.

Then thesis 3A is, on the basis of present *limited* knowledge, very difficult to assess. It would require a considerable act of faith to believe it. More important, to believe the truth of the thesis is *unscientific*, for there is insufficient reason to believe it.

Suppose, however, 3A is reformulated with "science" in place of "physics". As regards $d(\underline{\underline{T}})$, the thesis is still false; but concerning $e(\underline{\underline{T}})$, the thesis is true, indeed it is analytic, given what the (smallest) true and complete science would undoubtedly include.

[1] Premiss (1) is false, so it will be argued in the next chapter. It is falsified, for example, by materials with "psychological" properties such as memory or *telos*. However, replace "purely physical phenomena" by "purely physical phenomena in the sense of Armstrong" and the argument goes through with correct premisses.

More difficult is the question of the status of naturalism, or, to reorient the perspective, of the extent to which noneism supports naturalism? Naturalism, that is, in the commonplace philosophical sense, not in the sense, already considered, that Armstrong gives to it. *Naturalism*, in its philosophical sense, the OED reports, is the "view of the world that excludes the supernatural or spiritual". With the removal of referential assumptions, this doctrine splits into various different theses. On noneism one sort of naturalism follows, another does not, and one important issue is left slightly open. Since spiritual phenomena and things are not genuinely spatially or spatio-temporally located, they do not exist (by "spiritual" is meant "purely spiritual"). Hence

N1. $e(\underline{\underline{T}})$ contains no spiritual objects; i.e. no spiritual objects exist.

But spiritual objects may be perfectly good objects, thus

N2. $d(\underline{\underline{T}})$ contains spiritual objects.

Naturalism ordinarily understood, which includes referential theses, rejects N2. With supernatural objects the situation is a little more complicated, and turns on how much "nature" can account for (OED again). If "nature" accounts for all objects within the space-time manifold, then the situation is like that for spiritual objects; supernatural objects do not exist, but nevertheless may have legitimate properties and occupy explanatory, but presumably not narrowly causal, roles. But if "nature" does not account for all such objects, and supernatural objects, e.g. phenomena or occurrences have, as they are alleged to have, rough spatial locations, then such objects exist. The question is then an empirical one to determine whether such putative supernatural objects do indeed have a spatial location. If they do, the confirmed naturalist is bound to try to say: they are "natural" objects which naturalist scientific theory has not yet accounted for, but it *will* – the great act of faith on the "scientific" side of the naturalism debate becomes conspicuous.

The spatio-temporal criterion for existence, which yields thesis N1 does not imply that the commonplace thesis of materialism, that "nothing exists but matter" (OED), is correct. For that materialist thesis to hold a range of objects, which are not spiritual objects, with satisfactory spatial credentials but no matter (or mass) have to be somehow discounted, e.g. holes, shapes, gaps, wormholes, photons. By contrast, materialism in the tradition of philosophers like Hobbes, implies not just the commonplace thesis, but referential reduction, and accordingly is to be rejected.

The noneist rejection of extensional and existential reduction can provide the basis for a *rational* alternative to the mechanistic view of the world, that is the view that the world and the systems and organisms in it should be understood on a mechanistic model, as, like a machine, lacking purposes, goals and intentions generally. The logical core of mechanism is extensional reductionism; and the philosophical thrust of mechanism is – like behaviourism, physicalism, and similar – always to reduce or deny the intensional, in both the nonhuman and often the human situation.[1] Although mechanism, that is mechanistic reductionism, is only a variety of extensional reductionism (mechanism implies extensional reduction but not conversely), the rejection of extensional reductionism and the resulting recognition of the irreducible character of the intensional entails the rejection of the mechanistic account of the world. This opens the way for due acknowledgement of intensionality and intentionality, of goals and purposes, featuring in a widespread way in the world, not just in the human sphere, and thus to a thoroughgoing rejection of mechanistic hypotheses.

Intentionality is a subvariety of intensionality. Some intensional matters are concerned with intentions, with things intended or purposes (cf. OED), but many are not. Purposes and goal-directness are, like intentions, intensional matters because their semantical assessment involves alternative situations, e.g. those where the objective is realised. All the characteristic marks of intensionality are present, e.g. failure of replacement of extensional equivalents in intentional-type functors (e.g. "To show that p was the goal"), inexistentiality. As before (in 1.24 [Vol. 1 $_{Eds.}$]), it is necessary to distinguish different levels of intentionality. Intentional functors reflect a high level of intensionality. The result is important for the question of the reduction of ecology to the more mechanistic science of physics.[2] The reduction question is going to be answered in the negative, since worlds required for the semantics of goal-directness are not included in those called for in the semantics of physical theory.

[1] A common qualification of this view sees the world as mechanistic except for humans – humans (and only humans apart from gods) are allowed to have intentions. This faulty dualism, which provides a major refuge for human chauvinism, receives strong support also from extensional reductionism, through a linguistic analysis of intensionality and the attribution of language to humans alone.

[2] Almost by definition, machines of mechanistic physics do not exhibit intentional behaviour, they lack goals and purposes and do not exhibit intelligence. Insofar as machines (e.g. modern computing machines) may be said to have such features, the features are not strictly the machines' own, but programmed into them by designers or operators; they are externally-imposed, not internal. At the point where "machines" have their own internal goals and purposes, they cease to be machines.

Does denying that the world can be understood as a machine in extensional reductionist terms commit one to some form of pantheism or to mentalism, to the view of the world as containing purposes or goals which are the expression of a universal mind, an expression of the mental or of Spirit? For example, to a Hegelian or other idealistic position? Although there are (naturally) correct insights in these mentalisms, the familiar contrast between mechanism and mentalism, or between mechanism and pantheism, is a false dichotomy, and is based on a fallacy.[1] The denial of extensional reductionism does not commit one to mentalism or to any form of psychologism. The *fallacy* involved, the familiar contrast of the mind with the machine, is that *of equating the intensional with the mental* (for an illustration of this mistaken equation in operation, see p. 263). The fallacy underlies both the claim that the rejection of extensional reductionism is some form of mentalism, and the conventional argument for pantheism (and indeed for some forms of theism) which starts from the discernment of goals, purposes and meaning in nature and thus the rejection of mechanism. But examples of intensional functors which are not mental in any good sense are rather obvious; e.g. necessity, possibility, causation, implication, probability all spring to view, and demonstrate that the intensional cannot be equated with the mental.

Of more importance for questions concerning living organisms and systems, is that the concept of goal-directness, of purposiveness, of design, is irreducibly intensional; it cannot be explicated in extensional or referential terms, for reasons which should now be familiar. Nevertheless it is not "mental" in the sense of presupposing that the item having goals or exhibiting purpose has a mind or intelligence in any full or good sense. For instance, an ecosystem may be goal-directed, with such goals as the maintenance of a certain equilibrium, but we are not therefore obliged to say that it has a mind, e.g. thinks, has beliefs, etc. This is bad news for the argument from design which thus rests, among other things, upon the fallacy of equating the goal-exhibiting with the mind-exhibiting. The point is relevant also to the Gaia hypothesis, where facts taken to suggest that the planet exhibits goal-directed or optimising behaviour are taken in some quarters to show the correctness of a form of pantheism, that the planet would in that event possess a mind, and the two theses are equated. Thus one can see the universe – perhaps devoid of humans – in nonmechanistic terms as containing, among other things, nonhuman, living systems and organisms, which possess goals and purposes of an (irreducibly) intensional

[1] So too dualisms are based on an error.

character, without presupposing that such items have minds or that the system as a whole possesses a mind. This has an important bearing on the question of whether items other than those with minds can be the objects of moral consideration and respect, for the reason that the possession of intensional characteristics such as goals and purposes are significant criteria for the bestowing of moral consideration.

Chapter 10

The importance of nonexistent objects and of intensionality in mathematics and the theoretical sciences

The more comprehensive case for the importance of nonentities includes, as especially significant, their role in mathematics and their roles in the theoretical explanations of science – the whole business, that is, of appealing to ideal simplified objects, which suitably approximate real objects, in problem solving and theoretical explanation. More generally, the theoretical sciences are seriously non-referential, both in having as their primary subject matter nonentities, and in being ineradicably intensional. This thesis runs entirely counter to empiricist philosophies of science, which have long dominated the subject (to its detriment), according to which the language of science is, or ought to be, referential. Empiricist thinkers have, until very recently,[1] regarded the citadel of science as exclusively theirs: and the main goals of philosophy, as they conceive them, have been determined by the defence and extensions of the citadel to increase its power over the intellectual landscape. Thus they have taken the language of science, properly refined referentially of course, as the ideal of language, to which much ordinary language is at best a shabby first approximation; and they have characteristically seen philosophy as the handmaiden of science, as like a servant clearing away rubbish in the way of scientific progress or questioning scientific practice and values, or as a subsidiary scientific activity of conceptual analysis and reconstruction aiding the defence or advance of total science. A basic assumption in all this, without which much of the superstructure collapses, is that both the language of science and scientific theories conform to empiricist canons:

[1] With the advent of Marxist and other alternative philosophies of science, e.g. Feyerabendian nihilism. The main theses defended in this chapter and the next one are, however, as damaging to materialism and nihilism as they are to empiricism.

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the assumption is false – so at least it is now argued. The case begins by considering mathematics, which forms an integral part of much theoretical science.

§1. Is mathematics extensional?

The received answer is Yes. The correct answer is, however, No; certainly not Yes. But a satisfactory answer does not say No without some further elaboration; and really a somewhat more complicated story needs to be told.

It is a commonplace of modern texts on logic and the foundations of mathematics that mathematics is extensional. The following texts reveal the encroachment of the thesis. According to Whitehead and Russell (PM, p. 74):

> ... the functions of functions with which mathematics is specially concerned are extensional, and ... intensional functions of functions only occur where non-mathematical ideas are introduced, such as what somebody believes or affirms, or the emotions aroused by some fact. Hence it is natural, in a mathematical logic, to lay special stress on *extensional* functions of functions.

The same authors say in Appendix C of PM:

> mathematics is essentially extensional rather than intensional.

Similarly Kneebone (1963, p. 117):

> Mathematics, as it exists today, is extensional rather than intensional. By this we mean that, when a propositional function enters into a mathematical theory, it is usually the extension of the function (i.e. the totality of entities or sets of entities that satisfy it) rather than its intension (i.e. its "content" or meaning) that really matters.

The thesis appears in a different, and now too widely accepted, form in Quine (FLP, p. 30):

> Such a language can be adequate to classical mathematics and indeed to scientific discourse generally, except insofar as the latter involves debatable devices such as contrary-to-fact conditionals or modal adverbs like "necessarily". Now a language of this type is extensional, in

> this sense: any two predicates which agree extensionally (i.e. are true of the same objects) are interchangeable *salva veritate*.

This selection of texts is enough to indicate that the claim that mathematics is extensional is widespread. But neither the claim "mathematics is extensional" nor its first modification "mathematics is essentially extensional" are altogether distinguished by their clarity or entirely self-evident. So it is a bit surprising that the claim is repeatedly made, as if it were now some sort of truism, and not in need of any further detailed substantiation.

Consider first the claim:

(A) Mathematics is (essentially) extensional.

Questions which arise at once are these:–

(1) What is meant here by "is extensional"?

Isn't extensionality a property of properties and attributes? How can a discipline or subject significantly be extensional? This suggests what Carnap makes explicit (e.g. in MN) that (A) is a contraction of something like

(A_1) All the functions of functions of mathematics are (ultimately) extensional.

(2) What exactly is intended in (A) by "mathematics"?

Mathematics as actually practised – at all times, at present? Or what it might include? And mathematics as it is, or as it *could* be expressed (as it could be extensionalised)?

(3) What sort of the claim is the claim (A)? Is it analytic? Or is it empirical – then what evidence would count? Or normative – are logicians telling mathematicians what they should be doing?

It may look as if the sources quoted agree as to the extensionality of mathematics while differing as to what is meant by *extensional*. Quite the reverse is the case: they agree at base as to what extensionality is, and differ as to the claim regarding mathematics. "Extensional" is used, in each case, in that central sense selected from traditional senses by Whitehead and Russell (for a sample list of other modern senses of "extensional", which strengthen material equivalences to strict equivalence or relevant coimplication, or to identity of some sort, see in particular Barcan-Marcus 1960). According to Whitehead and Russell, propositional functions (of one or more places including

connectives and quantifiers) of propositional functions (of zero or more places) are extensional, where materially equivalent functions (of the latter class) can be interchanged preserving truth-value, i.e. maintaining material equivalence. Specifically, for one-place functors of propositions (zero-place functions):

$$\mathrm{ext}(f) =_{\mathrm{Df}} (p, q)\,.\ p \equiv q \supset .\ f(p) \equiv f(q).$$

For n-place functions of propositions (again in essentially the notation of PM):

$$\mathrm{ext}_i(f^n) =_{\mathrm{Df}} (p, q)\,.\ p \equiv q \supset .\ f^n(u_1, \ldots, \underset{\text{place } i}{p}, \ldots, u_n) \equiv_{u_1,\ldots,u_n} f^n(u_1, \ldots, \underset{i}{q}, \ldots, u_n);$$

and

$$\mathrm{ext}(f^n) =_{\mathrm{Df}} \mathrm{ext}_1(f^n)\ \&\ \mathrm{ext}_2(f^n) \ldots \&\ \mathrm{ext}_n(f^n),$$

i.e. f^n is completely extensional iff it is extensional in each of its n places. The remaining and general cases are direct generalisations of these, namely, in the one-place case,

$$\mathrm{ext}(f) =_{\mathrm{Df}} (\phi, \psi)(\phi\underset{\sim}{x} \equiv_{\underset{\sim}{x}} \psi\underset{\sim}{x} \supset .\ f(\phi) \equiv f(\psi)),$$

and in the n place case,

$$\mathrm{ext}_i(f^n) =_{\mathrm{Df}} \phi\underset{\sim}{x} \equiv_{\underset{\sim}{x}} \psi\underset{\sim}{x} \supset_{\phi,\psi} f^n(\ldots \underset{\text{place } i}{\phi} \ldots) \equiv f^n(\ldots \underset{i}{\psi} \ldots),$$

where in each case vector $\underset{\sim}{x}$ abbreviates the ordered n-tuple $(x_1, \ldots, x_n)$.[1]

Quine, with his very conservative – not to say reactionary – views as to what makes sense, cannot avail himself of these definitions, involving as they do quantification over propositions, attributes, or the like. He has to resort to a roundabout metalinguistic account – a predicate place is extensional if any predicate which agrees in extension can replace it *salve veritate* – but it comes to the same,[2] evidently enough, when the linkage to language is made. A language, or theory or discipline, is *extensional* if all functions of

[1] It is important that the quantifiers used in the standard definitions are the usual existentially-loaded ones.

[2] Of course a Quinean can't agree either that it comes to the same, since one side of the equivalence (that drawn from PM) makes no sense on his precepts.

functions which occur in it are completely extensional. And that happens if and only if all predicates meet Quine's condition, i.e. if they agree in extension they are interchangeable *salva veritate*.[1] For example, the usual languages of class theory are extensional by virtue of an explicit axiom of extensionality:

$$x \in v \equiv_x x \in w \supset .\ A(v) \equiv A(w),$$

for every scheme $A(v)$ not binding v (or w). Given the familiar definition of class identity (coincidence) in terms of sameness of reference, $u = w =_{\mathrm{Df}} (x)(x \in v \equiv x \in w)$, the extensionality axiom becomes a version of Leibnitz's Lie:

$$u = w \supset .\ A(v) \equiv A(w).$$

To say mathematics is extensional, then, is to say that all propositional functions of propositional functions occurring in its language or theory (and so all its connectives and quantifiers) are extensional. And this is to imply not only that mathematics has a language or is a theory – something intuitionists, and others who think that mathematics is not language-bound, might be less than happy about – but that however extended the language of mathematics remains extensional. Surely this is extremely unlikely: the methods of mathematics cannot be applied to intensional discourse and the application counted as mathematics? The prescriptive, legislative, character of any claim that mathematics is extensional begins to emerge. But in fact none of sources quoted *do* claim that mathematics is extensional.

The claims made concerning the extensionality of mathematics by the authors quoted are moreover each of them different. Thus Whitehead and Russell claim, first of all, that mathematics is specially concerned with extensional matters – as if the Queen of disciplines may also be concerned with intensional matters, as She may – and secondly, what is different, that mathematics is essentially extensional, which they *take as saying*

> we can decide that mathematics is to confine itself to functions of functions [which are extensional] (PM, p. 401).

The (alleged) failure to make sense of such commonplace logical notions, as e.g. intensionality defined in the fashion of PM, is a peculiarity of Quineans; it has nothing to do with the rejection of noneism. Russellians, Carnapians, and so on, can make perfectly good sense of the notions.

[1] Kneebone's formulation fits in here; for if only the extension of a function matters (truth functionally) it can be replaced by any other function with the same extension, i.e. agreeing in extension.

Thus it becomes a matter of *definition* that mathematics is extensional:

> this assumption of extensionality can be validated by definition (*ibid*, p. 401);

an amazing piece of Humpty-Dumptyism. Mathematics, whatever it is, is not something Whitehead and Russell could simply *re*define in their second edition so as to guarantee the extensionality thesis. Kneebone, on the other hand, tells us that *present* mathematics is extensional rather than intensional, as if it is a contingent feature, not an essential one. Kneebone's claim may seem a curious one, but it is nearer the mark than the Whitehead and Russell claim: there has been a fairly concerted effort in modern times to push mathematics into an extensional mould. Kneebone's elaboration of his claim is however curious, for by extensional we do not *mean* that it is *usually* the extension rather than the intension that really matters. Extensionality requires that it is *always* just the extension that matters. When repaired Kneebone's elaboration yields a claim inconsistent with his first claim; the claim that present mathematics – or better perhaps, present mathematical practice – is *usually* extensional (in character). And this claim is, it will emerge, nearer the truth than his first claim.

And interestingly, Quine does not claim, any more than Whitehead and Russell or Kneebone, that mathematics – or even classical mathematics – *is* extensional: all he says is that an extensional language *can be adequate* to classical mathematics and, later in FLP, that "no other mode of statement composition *is needed*, at any rate, in mathematics" (p. 159, my italics). Evidently some sort of reduction, and purification, programme is already presupposed – a programme the crude shape of which we already know (from WO). The canonical grammar of the canonical language, which includes as much of mathematical language as is worth bothering about, is whittled "down to predication, quantification, and truth functions". Then "one law that is easily proved by ... induction is that of extensionality" (WO, p. 231), i.e. extensionality, whether or not an initial condition of adequacy, is a criterion of what is presented as a clear and rational – and almost inevitable – choice of canonical language.[1] If some of mathematics were to be left out, it would be so much the worse for it: it would be bound to have some serious

[1] In this way too, by having extensionality as a derivative feature, Quine avoids the problem that faced Polish logicians in the tradition of Leśniewski, of explaining why extensionality is such a virtue – especially since nonextensional discourse was not at all obviously unintelligible or lacking in clarity.

deficiency, being either unclear or ill-behaved or unneeded and, most likely, all of these. Of course Quine thinks none *is* left out:

> all logic and mathematics is expressible in this primitive language (FLP, p. 89)[1]

he informs us, in one of the whopper falsehoods of modern philosophy. The argument from history is conclusive against the first of these claims: as many of us know, there have been more than two thousand years of logic, and much of what has been investigated, from forms of the syllogism (e.g. the modal syllogism) and elementary nonclassical propositional logics on, are not expressible in Quine's very primitive language. The proof of the latter is simply that these logics involve intensional functors which are demonstrably not expressible in Quinese.

An extensional language is *not adequate* to express all logic. The larger history of mathematics, the history that includes more than the success stories from a modern extensional standpoint, likewise appears to show that an extensional language is not adequate to express all the mathematics of the past (not to mention that of the future yet). What is the evidence then that an extensional language is adequate? Quine puts the conventional case nicely (FLP, p. 89):

> A fair standard [of adequacy of a systematisation] is afforded by *Principia*; for the basis of *Principia* is presumably adequate to the derivation of all codified mathematical theory, except for a fringe requiring the axiom of infinity and the axiom of choice as additional assumptions.

It all goes back to *Principia*, PM. But do we really know that *Principia*, or its basis, is adequate for the derivation of all codified mathematical theory? An honest answer has to be that we do *not*. The originally planned work in rational mechanics was abandoned; the volume on geometry was never written; and much previously codified mathematical theory was not included, e.g. not only controversial theories such as those of infinitesimals and larger transfinite numbers, but uncontroversial theories such as those of matrices and tensors. With some solid hand waving some of this material can, presumably, be got by; and some cannot. Even with the codified material which can, it is claimed, be expressed, serious questions of adequacy remain. Is *Principia adequate* for the expression of number

[1] The primitive language of FLP is equivalent to the canonical language of WO.

theory even, when on its account numbers are ambiguous as to type, and each number fragments into infinitely many different objects of distinct types? Enough people have doubted it, to make the adequacy of the whole thing questionable. Ah! but there are adequate reductions these days, in Zermelo–Fraenkel set theory and its elaborations, we are told. Is an account which makes 6 a member of 7, each number a member of all its successors, zero a subset of all sets whatsoever and element of every number, adequate? It is far from clear that an analysis which brings out some of the expected features of number theory (e.g. the Peano postulates, but again, doubtfully, the role of numbers in commercial activity such as shopping) by assigning numbers a great many properties they do *not*, or do not significantly have, should be accounted adequate.[1] Only with dubiously low standards of adequacy are the rough-as-guts methods of Zermelo–Fraenkel set theory adequate to express arithmetic.

In order to establish claim (A), or variants thereon such as

(A′) An extensional language can be adequate to express classical mathematics,

it is necessary to circumscribe mathematics, or classical mathematics (e.g. the latter conventionally as all codified mathematics up to some rather arbitrarily selected date or period). But in order to refute claim (A), or variants, it is *not* necessary to circumscribe mathematics. There is, in other words, the usual asymmetry between verification and falsification of a universal claim. It is however very much to the point to raise issues that bear on the question (question 2 above) of the extent of mathematics; in particular, the question as how the *practice* of mathematics connects with the discipline. (The question becomes even more important when the issues are generalised to science: e.g. what happens to mistaken practice and to all the false theories?) It is of course not difficult to say in a rough and ready way how mathematics links with practice: mathematics is what mathematicians do when engaged in their characteristic professional (or amateur) activity.[2] The actual practice is full of mistaken starts, uncompleted proofs, fallacious arguments, and many other things. In circumscribing mathematics much of this practice, and the discourse that issues from it, is put aside: it is not part of the finished product, not *really* mathematics it is said (though it is what gives the discipline its life). With mathematics the problem as to the place of false theories does not arise in the sharp way it does with science, since any consistent theory can be absorbed – at worst convention-

[1] With an alternative intensional analysis these sorts of difficulties can be avoided; see Routley 1965.

[2] This is simply a variation on a famous circular reply to the question: What is philosophy?

ally, as true according to its own lights[1] – put a problem as to the place of inconsistent theories does arise, a problem that has not been seriously faced by most philosophies of mathematics. It is clear enough however that inconsistent theories can take their important place in Wittgenstein's city of mathematics (remember how in Wittgenstein 1956 the idea of mathematics as family is conveyed by the appealing city and suburbs model).

A conspicuous feature of the practice of mathematics (to part of which Lakatos 1963–64 has drawn attention) is the statement of open questions, the setting of problems (some of them unsolved, some of them exercises) the making of conjectures, as well as the success stories: the verifications, proofs, solutions, and refutations. It is with the records of *successful* mathematical enterprises that the foundations have been primarily or exclusively concerned. But the rest of the practice is mathematically important, and some of it is codified in the histories and textbooks. So result direct – if controversial – counterexamples to the extensionality thesis. For example, when a mathematics text asserts that it is believed that Goldbach's conjecture is true, that is an assertion of mathematics, isn't it? The following statement is surely in order in a mathematics textbook: Goldbach conjectured that every even number is the sum of two primes? Yet such functors as "a conjectured that", "b refuted the claim that", "c verified that" are none of them extensional. The codified record of mathematical practice is littered with intensional functors. Some of the functors commonly used are in fact very highly intensional; e.g. "It is trivial that", "It is mathematically important that", "It is difficult to show that". In the extensional purification of mathematics of all this notation is seen as extraneous and is removed as inessential, by a wipeout or deletion procedure much resembling censorship. It is true that proofs, which are stuff of mathematics, and logic, do not usually depend on the intensional functors that are wiped out: so it is not quite as if the claim (A) is beginning to vanish, as it may have begun to seem, into the trivial claim that the extensional part of mathematics is extensional.

There remain, however, other classes of intensional functors, very commonly used by mathematicians, which do not succumb so readily to extensional censorship. A first class of these includes such systemic notions as consistency (is the calculus consistent?) and independence (e.g. is the parallels postulate independent?). A second closely allied class includes such intensional functors as those of possibility, necessity and implication

[1] As is shown in MTD and repeated in 1.24 [Vol. 1 *—Eds.*].

and, to move to a suburb, of probability.[1] Such functors are widely used; so, as against Kneebone, intensional functions occur in mathematics as it is practiced today.

Mathematics as historically practised, before the introduction of modern modal theories, was modal in a thoroughgoing unformalised way. It was not only full of modal terms, such as "must" and "can" and "impossible"; it was also essentially concerned with provability. Consider however, the functor "It is (mathematically) provable that". It is not extensional, since any correct theorem of mathematics is truth-functionally equivalent to any contingent truth, but claims as to the provability of the mathematical theorems are not equivalent to claims as to provability of the contingent truth. In short, the form of the argument is: ϕ (e.g. provability) is not extensional, ϕ (provability) is a mathematical functor, so mathematics is not extensional. It is the same with other functors, such as implication.

The extensionalist ways with these objections are various, but they have some important common elements. One of these common elements is the dissection of mathematical discourse into a hierarchy of languages, along the lines of a levels-of-language theory. And of course with the levels-theory *some* of the uses of modal functors in mathematics can be accounted for extensionally. Such functors as those of necessity, consistency, provability, and so on, can be reconstructed as metamathematical functors – to *some* extent: for unlike the functors they are supposed to reconstruct iteration of the functors is not defined nor is quantification which binds variables inside the functors. That is, the metalinguistic reconstruction is not adequate to the task.[2] Yet – and this is not so often noticed – the metalinguistic reconstruction is not simply an option, but something like it (e.g. analogous sorts of hierarchies, such as the orders theory of PM) seems to be compulsory. Tarski's arguments from an analysis of semantical paradoxes are commonly taken to show this (and barring an assumption or so they do). But quite elementary counterexamples to thesis (A) will serve to make the point. The extensionality of a language implies the referential transparency of all its predicates. But elementary

[1] Several notions from statistics and probability theory appear to be non-extensional, e.g. such notions as randomness.

[2] Other objections have already been marshalled to the common proposal that such functors as provability be analysed quotationally, whether directly (with, e.g. "It is provable that $2 + 2 = 4$" rendered "'$2 + 2 = 4$' is provable") or in a more circuitous fashion (e.g. Davidson's analysis, which gives the ill-formed "It is provable that. $2 + 2 = 4$", or Burdick's analysis which almost defies English rendition): see 8.1 and 1.7 [Vol. 1 *—Eds.*]. An important objection which appears to refute such quotational-type analyses on their own grounds (i.e. using only classical assumptions that are accepted), is R. Thomason's adaptation of Montague's argument: see Thomason 1977.

mathematical language contains predicates which are not transparent, as the following example (due to K. Slinn, a high school mathematics teacher) shows:

> The denominator of 2/4 is 4. But 2/4 = 1/2. So by transparency, the denominator of 1/2 is 4.

Accordingly "the denominator of ... is ---", which is clearly a mathematical predicate, is not extensional. Similar nonextensional results are yielded in almost any of the many cases where in mathematics one forms equivalence classes and identifies elements thereof though not all properties are preserved under the filtration (i.e. under the restricted homomorphic mapping). Cases where mathematics employs devices which are implicitly quotational – which is the way extensionalists try to write off counterexamples such as the denominator case – are only a special case of a much more general phenomenon in mathematics of filtration-induced opacity and intensionality. For this reason the strategy of dealing with opaque counterexamples by exiling what are said to be implicitly quotational predicates (alleged to involve use-mention confusions) to the metalanguage – where limited quotational devices can enter – is inadequate.[1] Even if it were true that opaque counterexamples could be removed by thoroughgoing use-mention debugging and summary arrest of all implicitly quotational predicates, there is something radically unsatisfactory with the contention that even elementary mathematics is stuffed full of use-mention confusions, and to be salvaged should strictly be restructured in accord with a levels-of-language theory. It is not just that there are many many objections to the levels theory, and to the proposal to restructure language hierarchically: it is, once again, that mathematics is not at all like this, that *mathematical discourse is not so structured and*, moreover, *strongly resists such restructuring*. Mathematics as practised is pretty much in order as it is. It is not full of use-mention confusions: all that is is mathematics as seen in the light of extreme extensionality assumptions. The extensionalist way becomes thoroughly prescriptive: it becomes a recommendation as to how mathematics *ought* to be extensionally restructured. But it is a prescription that can hardly succeed given emergence of quite explicitly intensional mathematics, such as intuitionistic mathematics, positive mathematics, modal mathematics, and in these enlightened days, relevant mathematics.

[1] Compare again the misguided attempts to make out that such intensional operations as those of believing, conceiving and seeking are really quotational.

Pre-twentieth century mathematics, which is often what is referred to as "classical mathematics", although much of it was codified, lacked an explicitly formulated deductive structure. The modern assumption has been that the structure when formulated will be that of extensional logic. That assumption is, even a little historical investigation leads one to suspect, entirely mistaken. Insofar as a minimal presupposed structure can be uniquely determined, it was and remains (at least where logically uncorrupted), so it seems, a logic of at least modal strength: for example, an assumption of an S4 implicational structure gives a better account of the data to be accounted for than an extensional assumption. It is immaterial, for the present argument, what specific form the intensional deductive structure of classical mathematics takes it is enough that it is not extensional. Settling even the intensional-extensional issue will not, however, be an easy historical (or purely historical) exercise.

The twentieth century has seen, and is seeing, the development of mathematical theories with explicitly intensional logical structure. Intuitionist mathematics is already a well-developed mathematical theory (it was well enough developed when Quine made his claims). There is, moreover, no reason why theories based on other nonextensional logics should not become a well-developed part of mathematics – they are already, in a good sense, part of it. The upshot is that mathematics is not essentially extensional: if it ever was extensional, that was a merely contingent matter.

It hardly suffices to claim that intensional functors which iterate such as implication, necessity, and so on, *cannot* belong to mathematics (a line Quine's philosophy may suggest). For mathematics is at least, on all accounts, the abstract science of number and space; and it includes different theories of number and space, e.g. non-Archimedean arithmetic, intuitionistic arithmetic, hyperbolic geometry, some of which may well be – there is no excluding it – intensional.

There is one line of reply left to the extensionalist, appeal to the *thesis of extensionality*, namely to the thesis much canvassed by Carnap, that for any nonextensional system there is an extensional system into which it can be translated. It is important to observe that such an appeal to the thesis of extensionality (or a mathematically relativized version thereof) amounts to *abandoning* (A) and its variants, to giving up the claim that mathematics *is somehow* already extensional, for a *very different* claim, namely

(B) Any systematisation of mathematics can be *translated* into an extensional system,

or, put differently, mathematics can be *re*-expressed in purely extensional terms.[1]

None of the earlier objections against (A) and its variants apply against (B). Indeed (B) is true, since the thesis of extensionality has been established (so at least it is claimed in US and ER).[2] But (B) does nothing to show either that mathematics is extensional, or that an extensional reformulation is preferable. Moreover the translation does not so much *eliminate* intensionality but suppresses it into unanalysed elements – worlds or the like and their interrelations – at the base of the extensional *re*formulation. Carnap is well aware that proof of the thesis of extensionality would hardly be a panacea for [apparent] difficulties of intensionality such as the antinomy of the name relation; in an important statement he remarks:–

> We should have to show, in addition, that an extensional language for the whole of logic and science is not only possible but also technically more efficient than nonextensional forms. Though extensional sentences follow simpler rules of deduction than nonextensional ones, a nonextensional language often supplies simpler forms of expression; consequently, even the deductive manipulation of a nonextensional sentence is simpler than that of the complicated extensional sentence into which it would be translated (MN, p. 142).

While the pragmatist overemphasis on technology, on simplicity and technical efficiency, at the expense of other factors which are more important in choice of system leaves something to be desired, the central point that intensional systems may be *superior* to their extensional translation – and some of the reasons therefore – comes through clearly. What does not, however, emerge is the quite fundamental point that *extensionalese is a dependent mode of discourse*, that because intensionality is suppressed into the primitives of the extensional translation, *the primitives themselves can only be explained satisfactorily by return to intensional discourse.* Applications help to reveal this, in particular the

[1] Stronger versions of thesis (A) typically reduce to thesis (B). For instance, Smart's claim that "in a sense, there aren't any intensional contexts" becomes when counterexamples are mentioned, the claim that "when they are properly analysed they turn out to be extensional after all". There is a reluctance however, especially among those impressed by Davidson's referential research programme, to step down from (A) to (B). For the Davidson thesis (sometimes at least) seems to be that apparently intensional frames when *properly* viewed (e.g. by restoring a deleted full stop or so) are really extensional.

[2] With *translation* conforming at least to strict requirements, and probably to more rigorous requirements.

serious problems of explaining and determining the primitives of extensional translations of intensional scientific theories (an expanded discussion of these points is given below).

§2. Pure mathematics is an existence-free science

The thesis, already introduced and defended in a preliminary way (cf. pp. 37–8 [of Vol. 1 *—Eds.*]), has several strands, namely:

(1) The objects investigated in pure mathematics do not exist,

(2) The statements of pure mathematics do not entail existence claims, in particular (in virtue of (1)) claims as to the existence of mathematical objects (cf. Reid 1895, p. 442). A specific existence claim is a claim of the form "... exist(s)" or of the form "There exist(s)...".

Strand (1) may be proved by the following syllogistic argument:

(a) The objects of pure mathematics are abstractions, never particulars.

(b) Abstractions do not exist, only particulars do.

Ergo, the objects of pure mathematics do not exist.

As always the proof is only as good as the premisses. Premiss (b) has already been argued for in previous chapters. Premiss (a) is a by-product of modern derivations of mathematics from foundational systems. Consider, for example, the reconstruction of most of modern mathematics within the framework of Zermelo–Fraenkel set-theory without individuals (the treatment mathematics gets is very rough and crude, but the reconstruction will serve to make the point sought). The objects the construction provides are entirely abstract, always sets in fact, and commonly complex set-theoretic constructions from the null set. Furthermore, all of mathematics that lies outside such set-theoretical recapture is likewise abstract, e.g. parts of category theory, where the objects are always functions. Thus (a) holds as well as (b) whence the conclusion follows.

Strand (2) may be argued for using strand (1).

(c) The statements of pure mathematics are about, or generalise or particularise concerning, the objects of pure mathematics. (This premiss is easily extended to more complex languages, e.g. to free λ-categorial languages.)

(d) None of the objects concerned exist (by (1)).

Hence:

(e) None of the statements of mathematics involve specific existence claims; and so neither do they entail such, since entailment is an inclusion-of-content relation (see UL). A detailed defence of premiss (c) calls for a theory of aboutness (such a theory for quantificational languages may be found in Slog, chapter 3); and derivation of the last part of (e) requires, of course, a good theory of entailment. But both can be supplied.

It will quickly be objected that it is here the noneist who is ignoring mathematical practice. For existence theorems are common among mathematical results. On the surface that is so. The noneist response looks like one that ought to be coming from the opposition; it is that either mathematics with existence theorems has been misleadingly formulated under the influence of a mistaken philosophical theory, platonism, or else such results are mistaken. Everyday mathematics with existence theorems, is, unlike much ordinary language, not in order as it is. Consider, first, some of the acclaimed existence theorems. There are interesting theorems in higher dimensional geometry which are stated in such forms as:

(i) There exists an n dimensional space with these properties: . . . . But where n is large, e.g. substantially greater than 4, who really believes there *exists* such a space? None but platonists. Yet the result and its proof will (typically) be acceptable if neutrally reformulated, e.g. as:

(ii) Some n dimensional space has these properties . . . , i.e. as a *particularity* theorem (*not* as an existence[α] theorem). Existence disappears, and acceptability increases, upon reformulation. Consider, secondly, how "existence theorems" are proved. Following intuitionistic and other investigations, methods can be divided into two sorts: direct and indirect. Direct proof proceeds by presenting an object with the correct properties (say a which has complex property f), and then existentially generalising. But by strand (1), the object a presented does not exist; hence use of EG is illegitimate. All that af validates is $(Px)xf$, *not* an existence claim $(\exists x)xf$. Indirect proofs, which are intuitionistically inadmissible, characteristically proceed by deducing a contradiction from the negation of the assumption to be proved. Such proofs break down unless reformulated neutrally. For let the assumption be $\sim(\exists x)xf$, i.e. $(\forall x)\ \sim xf$, that is (with classical restricted variables)

[α] We have inserted "existence" in place of "consistency", as we think Routley intended. —*Eds.*

$(Ux)(xE \supset \sim xf)$. To instantiate and use a premiss of the form $\sim bf$ (for some object b), b would however have to exist, again contradicting (1). In short, insofar as mathematics does contain existence theorems, it exceeds its data; it imports platonistic assumptions to the effect that its objects exist, or even that they have to exist.[1]

It is indeed sometimes claimed that mathematical items have to exist in order to have the correct properties, and so that deductions and calculations can be made concerning them and their features. Given neutrally-formulated axioms, and in particular properly qualified Characterisation Postulates, such claims lose their cogency. From them all the properties needed to cope with nonentities in deductions and calculations can be neutrally derived. In this way defective ontological assumptions can be avoided, the best of all worlds can be obtained – tractable mathematical nonentities with appropriate features, without having to assume, as standard positions require, that they exist.

§3. Science is not extensional either

The intensionality of science follows from that of mathematics and logic given a few popular assumptions, for example thus:

(f) "Logic, like any science, has as its business the pursuit of truth" (Quine 1959, p. xi);[2] so logic is a science.

(g) Intensional logic is part of logic.

(h) Intensional logic is part of science.

Ergo, science is intensional, because it is intensional in part. Such arguments are easily broken by appeal to the traditional distinction of sciences into pure and empirical. Even if

[1] Nothing of course prevents the following out of consequences of assumptions that such and such exist. But only assumption-relative existence theorems result in this way. And if the assumptions are to the effect that abstract objects such as sets exist, then they are false, and the assumption-relativity cannot be removed.

[2] The unnecessary part of the premiss, the view of science as the pursuit of truth, is of concern subsequently. The view, found in many logical empiricists, does not withstand even superficial examination. Parts of the fine arts and of mysticism and of philosophy are engaged with the pursuit of truth. Thus e.g. Pap 1962, p. 4: "if we define philosophy as an indefatigable, unprejudiced search for the truth, we fail to differentiate it from science". And all too much science is not the unbiassed pursuit of truth it is so often sold as being.

Furthermore, if science *were* the pursuit of truth, an extensional science would certainly be inadequate for there are many intensional truths to be accommodated in theory and to be explained (e.g. those of history, sociology, and psychology, as well as those of the physical and biological sciences).

the pure sciences, such as logic, have substantial intensional parts, the empirical sciences are not so contaminated.

With the refined question "Is empirical science extensional?"[1] it is still basically the same show as the mathematics show over again, only there are some scenes that were cut from the mathematics show because they are of less importance there (they could have been introduced by way of questions about applied mathematics and one of its branches, purely theoretical physics). Some of the new scenes concern of course that familiar cluster: conditionals, counterfactuals, causes, dispositionals and laws. For variety let us run the show in reverse.

In virtue of the theorem of extensionality any formalisation of a scientific theory, or of science as a whole, can be extensionally re-rendered. There are some difficult preliminary questions (which Brouwer 1975–76 also raised for mathematics) as to how much of science, as a practice and activity, admits of formalisation. After the heady days of logical empiricism when it was only a matter of time before all extant science was formalised – in fact remarkably little was ever formalised[2] – something of a reaction has set in. It is even suggested that modern physics lies beyond language, and cannot be precisely formulated (Capra 1975, chapter 3). Some of the interesting arguments for this claim do not withstand close scrutiny;[3] but others are, classically at least, irresistible. The reason is that the limitative theorems are classically correct. Let θ be a scientific theory which contains all of number theory, or, to simplify the case a little, Kleene's T-predicate $(y)\ \overline{T}_1(x, x, y)$. A correct and complete classical formal system for θ would *ipso facto* include a complete and correct formal system for $(y)\ \overline{T}_1(x, x, y)$; but by Kleene's generalised form of Gödel's theorem (1952, p. 302) there is no such system. Hence there is no correct and complete classical formalisation of θ.[4] This has several well-known

[1] There is no full answer to the question: To what extent is empirical science referential, or extensional?, without some conditions on what *science* comprises, how much of the *practice* of science science is supposed to include, and what sort of statements can get into the theories of science. Is science (as the dictionaries would like to think) a body of knowledge, or is it a collection of theories of certain sorts, and to what extent does it include practice? And applications? These questions as to the scope of science will become increasingly important, and to the point, as further questions as to the character of science are asked, e.g. How far is it value-free? To what extent ideologically uncommitted? And at the same time the substantial extent to which science is non-referential will be revealed.

[2] On its own this does not show too much. For example, it may be that all those who had the appropriate skills were otherwise engaged, e.g. in research at the frontiers, or as dropouts.

[3] For some of these arguments, see Capra 1975, chapters 2 and 3.

[4] This does not rule out a correct and complete *non*classical (in fact dialectical) formalisation of θ. But *seen* classically, by way of a translation, this formalisation will be either incorrect or incomplete.

corollaries: there is no correct complete extensional formalisation of mathematics, or of science; an extensional account of unified science is impossible, and so on.[1]

Limitations on the classical formalisation of science have been widely recognised. The limitations cannot be avoided in quite the simple way Quine proposed to skirt analogous limitations in the case of mathematics, by appeal to *Principia Mathematica*. There is no *Principia Scientia* to provide a similar standard of adequacy in the case of science; but nothing stops us from supposing that someone, Robert K. Bressan say, has written a text *Principia Scientia*, which presents, in the framework of an intensional logic, all codified scientific theory. It would be an elaborate but routine exercise to translate the text into extensionalese, so that it could be read by those who have not learnt, or are unwilling to learn, the requisite sort of intensionalese (and who sometimes go so far as to claim that intensionalese is meaningless, a claim not so different from the claim that Arabic is meaningless). The extensional translation would suffer from the sort of defects already mentioned in the case of mathematics, that it is parasitic and lacks explanatory power, serious defects Bressan (cf. PLO) has drawn attention to in the case of physics. In sum, the indirect extensional approach, the translation of intensional formalisation into extensional form (with, however, unanalysed intensional primitives), can succeed, within limits imposed by the limitative theorems. In *that* sense, science admits of subsequent extensional *re*formalisation.

In another sense, the direct extensional approach (which admits no worlds or the like), it does not. The argument in the case of mathematics does not quite prove this. For, it may be argued, even if mathematics is not extensional, that does not show that science is not extensional, since it may be that none but extensional mathematics is used, or needed, in science. That may be true of intuitionistic mathematics, but as a general proposition is very doubtful (consider again probability theory, to take just one example). But irrespective of whether mathematics imports intensional elements into science, there

For let Δ be such a formalisation. By the extensionality theorem Δ will be have a translation $t(\Delta)$ which is classical, and which will be either incorrect or incomplete. The simple explanation is that such properties as completeness and consistency are not invariant under the translation: e.g. Δ is not negation consistent but $t(\Delta)$ may be.

The classical day of reckoning can of course be postponed by enlarging upon the notion of a formal system, beyond that constructively admitted, and for instance including ω rules and other infinitary principles.

[1] Owing to an ambiguity in the word "science" these results are not as clearcut as they have sometimes seemed: in one sense, in which science implies a formalised or organised body of knowledge, the results do not apply.

are other striking features of science which make the extensionality claim more difficult to sustain than in the case of mathematics.

As with mathematics so in the sciences, the practice is rich in intensional idiom. The sciences also include much factual information expressed in such intensional forms as "It is not known that p", "It is an open question whether q", "No one has managed to confirm that r". "It is widely conjectured that s though some scientists do not believe it". The extensionalist way with such data, insofar as it admits it at all, is the way of metalinguistic reconstruction. Just as mathematics bears little resemblance to the hierarchical result obtained by extensional regimentation, so the empirical sciences would hardly be recognisable after such reconstruction, if it could be pulled off at all. They would have been replaced by something different, by rival theories; but they would not have been thereby eliminated. The extensionalist thesis is transferred to the normative claim that, even if the sciences are not in surface form like that, not hierarchical, that is how is they ought to be. That is not so; that is not necessary. But let's be generous. Let's concentrate upon published scientific theories.[1]

Even so intensional theories abound. The question is: is such intensionality *always* removable in a direct fashion or not. Let us consider examples where the intensional features appear to be essential.

The central notion in taxonomy is that of a *species*, and this notion is, and presumably has to be, defined intensionally. John Ray, a leading seventeenth century biologist,

> defined a *species*, as a group of individuals *capable* of interbreeding within the group. This criterion, with its corollary that a species is reproductively isolated from organisms outside the group, has survived more or less unchanged to the present day (PC, F32).

What has happened, as the classification of Australian frogs makes evident (Barker and Grigg 1977, p. 16ff.), is that additional criteria supplement Ray's basic test, e.g. morphological features, biochemical features, details of mating calls. A fuller account is as follows (Barker and Grigg 1977, pp. 16–17; my rearrangement):

[1] Not finished theories, or there would be little data. For actual scientific theories never really get finished: always someone would be tinkering, trying to include a bit more within the theory. In these terms the logician's ideal of complete scientific theories involves an idealisation far removed from reality. Theory-completeness for scientific theories calls for a very different characterisation from negation-completeness or the like.

> The fundamental unit in animal classification is the species. Many attempts have been made to accurately define a species but it is difficult to establish hard and fast rules. In general terms, the members of a species look alike, have similar habits and, most importantly, they interbreed. ... There are ... many examples among Australian frogs where groups of species within one genus cannot be confidently separated [by] ... clearcut features of morphology and geographic distribution ...
>
> If morphological features are insufficient to allow the taxonomist to decide the status of the "species" in question, he may turn to other criteria. The crux of the species definition lies in the idea of a species as a breeding group. That is, any member of the group can mate with any opposite-sexed member of the same group and produce normal and fertile offspring, but the group is reproductively isolated from other species.

The effect of demodalising the species characterisation – from capacity to interbreed to interbreeding – is strikingly illustrated by the case of an aboriginal tribe where members of different tokens are not permitted to intermarry: assuming the restrictions are observed, and they generally were, the totems become separate species under a mere interbreeding criterion. That only shows however, that a straightforward demodalisation fails. The idea is about – though like many assumed analyses it seems to be nowhere worked out in a satisfactory and assessable fashion – that *cans* of capacity and of disposition can, both of them, be reduced to conditional statements and that conditionals in turn are, perhaps, analysable in terms of deducibility of an enthymematic sort. The empiricist literature is full of proposals and projects of this sort. None of them succeed in showing that intensionality can be removed. This large claim is supported by the following small argument (which fortunately can be reinforced by other arguments: see RLR):– Even if capacity statements can be traded in for conditional statements, the conditionals used admit of nesting. But if conditionals in turn are cashed, somehow, in terms of deducibility or argument relations which admit of nesting, then these also must be intensional, i.e. no direct extensional reduction has been accomplished.

Conditionals and the like (e.g. dispositionals), which are essentially intensional, appear at many places in science. A first example, drawn from ecology, is as follows:–

several definitions, for example, "animal p is a predator or parasite of animal a at time t", "p is a mate of animal a at time t" take the form $C \to D$, where $\to$ represents a conditional and the antecedent C takes the form ξpa_t, namely "object p is brought into close proximity with animal a at time t, evoking (immediately) some physical, physiological or behavioural response in the animal" (Niven 1980, pp. 2–3). Were the conditional in $C \to D$ extensional, e.g. a material "conditional" such definitions would fail badly, every object not satisfying the requisite conditions being a predator, a mate, or whatever.

The social sciences are, like the life sciences, rich in notions and claims which are intensional. Consider, for example, the notion of *community*, which is important in much sociological work. The classical characterisations (e.g. that of Veblen) make use of the idea of shared goals and values among members of the community; so the notion is intensional. Or consider historical claims as to the beliefs, motives, desires and ambitions of leading historical actors and the way in which these intensional matters figure in the explanation of historical events. Again there are a variety of extensional ways and means of removing *prima facie* counterexamples from the social sciences to the extensionality of science, ranging from the tough rejection of the social sciences as really sciences, or as at best tenth-grade sciences, to attempts to analyse the intensional components away. Commonly the reductive analyses are parts of larger reduction programmes, aimed, in the grandest cases, at reduction of the social sciences to the physical sciences and ultimately to physics. It is supposed that if this programme succeeded then intensionality of the social sciences would indeed have been eliminated, since the reduction is to physics, which is extensional. Even if the ambitious programme were to succeed – there are scarcely any cases of success to examine – it faces major objections. Firstly, the requirements on *reductions* usually suggested (e.g. Nagel 1961, p. 345ff.) do not require the preservation of intensional properties; so there is no guarantee that intensional features are reduced at all. Secondly, the reduction base, physics, is not extensional.

Theoretical physics and applied mathematics are not in fact extensional; for instance, repeated use is made of such notions as property and relation (it is the physical properties of things that much of physics is about) but extensional replacements are not accepted or acceptable (cf. Thom 1979). In the face of examples of these sorts (from respected figures in the sciences) the thesis of the extensionality of science – the main thesis of North American philosophy, as Bressan astutely puts it – is amended in one way or

another. A common way is as the *requirement* that science be extensionally formulable; thus, e.g., Smart (1976, p. 15):

> ... principles of scientific parsimony will make us demand that science be formulatable in an ordinary extensional logic which quantifies only over things in the actual world ... .

Even if principles of parsimony (scientific parsimony?) did favour extensional languages – which is decidedly doubtful (cf. Carnap as quoted above) – and such selection principles were – mistakenly – taken to eliminate other theory choice principles, still the resulting demand would verge on the normative, on the claim that science really ought to be extensionally formulated.[1] But that is a claim which is readily disputable and legitimately disputed and which may tell us comparatively little as to how science is or the sciences are, to remove the assumption of uniformity (cf. the claim that weather reports ought to be presented in an extensional language).

In the quest for a defensible thesis, that bears a satisfactory relation to what actually happens in the sciences, the main thesis of North American philosophy gets transformed progressively through forms (A), (A′) and (B) reformulated in terms of science or physics (i.e. "science" or "physics" substitutes for "mathematics" or "classical mathematics"). But then objections like the objections made to analogues for mathematics apply over again. Only, to concentrate now on physics, (1) the examples are different and, (2) there is, as noted, no standard of adequacy, and no development of the extensional programme, to match *Principia Mathematica*. As to (2) consider Smart's latest proposal (following Putnam) for saving the classical paradigm, for rendering science (i.e. physics) referential, that is in effect existential and extensional:

> The view which I should like to defend therefore is that scientific theories which are confusingly said to be "about idealisations", are not about idealisations, there being no idealisations for them to be about. They are about real things and are approximately true. ...

[1] Thus too the demand ties with the evaluative thesis: only the extensional is *really science* – which is as much as to say that only those things really count as science (under the redefinition promoted) that classical extensional theory can take account of somehow. The rest of it, even if quite hard, is written off, e.g. as not really respectable enough to be science. This is just more theory-saving. The data the theory is going to admit and take account of is specified in a circular way; for the theory is adopted as a criterion of what is worth bringing out. Only a respectable class of truths is admitted, where the test of respectability is conformity to the theory.

> What is needed to avoid modal logic [or counterfactuals] is a theory of approximate truth (1976, p. 14).[1]

But the programme has scarcely any of the requisite development: it is no fit basis to support the large metaphysical load it is expected to bear. There is not even a viable definition of *approximate truth* of a duly extensional variety (or likely to be?). There are but few illustrations even of how the programme is supposed to apply in physics, and it is apparently not clear how to carry it through even for elementary examples from classical particle mechanics – cases where it can be conceded that extensional formulation of the theory is possible.

The heart of the case that (A) and (A′) are false for physics, that physics is intensional, not just as a matter of fact, but in an essential way, lies in examples. As with mathematics there are two important (though not sharply separated) types of examples, firstly competing theories, like intuitionistic mathematics which are somewhat outside the mainstream, and secondly theories which belong to the mainstream or which, like category theory, add to the mainstream. A good example of the first type is classical particle mechanics according to Mach and Painlevé. According to Bressan, who has presented a rigorous formulation of Mach–Painlevé mechanics (in Bressan 1962, p. 142ff.), "essential uses of causal implication and postulates of causal possibility are made", i.e. "the theory of classical mechanics according to Mach–Painlevé is essentially intensional" (Bressan PLO, p. 254).[2] Another theory of this type is furnished by the thermodynamical theory of Zemansky 43 (e.g. in the definition of temperature).

As to the second type, causal implication and physical possibility functors occur essentially in classical and relativistic theories of materials, especially in constitutive equations. Bressan explains the matter as follows:

> When such a law [as the second law of motion] ... if at the instant t, $\underset{\sim}{a}$ is the acceleration of the mass-point M, of mass m, and $\underset{\sim}{f}$ is the force acting on it, then $m\underset{\sim}{a} = \underset{\sim}{f}$ ... is asserted, a physical interpretation of it requires a causal implication, I think. However as far as

[1] The motivation is: of course the Reference Theory, as is evident from Smart's further presentation: see especially p. 13.

[2] All the examples from physics which follow I owe, in one way or another, to Aldo Bressan. Quotes from Bressan which are not otherwise referenced are taken from a long and informative letter to me dated November 9, 1978, which also includes a more sophisticated classification of physical theories than that relied upon in the text.

> many deductions from it are concerned, this is not essential.[1] However it is essential in constitutive laws when these are used to define constitutive equations in general or referring to a particular material. Hence causal implication is essentially involved in conditions (a) and (b) [of Bressan 1978], p. 77, in numerous other similar conditions [in 1978[2] and] in some textbooks of mathematical physics ..., and in the (intuitive) definition of constitutive assumptions written in [Noll 1973], p. 85.

There are of course ways of avoiding *some* of the causal implications and modalities that occur in natural formulations of physical theories, e.g. by increasing the axioms of the theory, by complicating the primitives,[3] and by replacing definitions. In these ways extensional presentations, of what are really intensional matters can *sometimes* be obtained. Smart, in effect, recommends just such obscurantism: "to postulate hypothetico-deductively rather than define counterfactually" or modally, and to introduce complex predicates such as "is a system of particle mechanics" rather than postulating "even such mysterious entities as forces and masses" (1976, pp. 15–16). But once again the proposal is indicated only for a fragment of classical particle mechanics, and even there it would break down (like Quine's proposal which Smart endorses for eliminating talk of forces and masses by way of force and mass predicates) for any application which quantified over forces or masses, as often happens where forces or masses are unknown or not precisely known.[4]

There is one method that can succeed in avoiding, or rather suppressing, the intensional, the method (already considered) of extensional reduction. But since this involves primitives which are usually interpreted in terms of (possible) worlds or cases,

[1] Even where the causal interpretation is not compulsory there are disadvantages in not adopting it, e.g. loss of physical content, physical incompleteness. "There are different kinds of theories of mechanics. Some ... are extensional and perhaps only use extensional properties. I say that they are modal if interpreted completely, simply because they refer to various possible situations ... when an extensional language is applied to nature some modal notions are at the basis of it ... ." (Bressan, PLO, p. 254).

[2] E.g. condition (b), p. 164, for elastic solids.

[3] As Bressan observes, in commenting on Noll 1973, "primitives [with] a very complex mathematical structure ... have to be used when an extensional presentation is chosen. I prefer modal presentations also because they allow us to choose much simpler primitives".

[4] So far no effective methods for removing intensional notions from complex physical theories have been offered – other than methods such as extensional semantics which suppress intensionality into the primitives, e.g. worlds – and more likely methods, such as simple deletion techniques, can lead to disastrous consequences.

the method is decidedly unacceptable, to say the least, to empiricists such as Smart. Nor are fans of worlds and worlds semantics overly-impressed by extensional reduction (see ER). For, among other things, extensional reduction fails to preserve several most important properties, not only paraconsistency, but especially relevant here, explanatory power, intuitiveness, naturalness of axiomatisation and derivations, simplicity of the same, etc. Furthermore, extensional reduction yields only a dependent extensionality, for the extensional formulation is dependent on an intensional original. Bressan brings out some of these points (in PLO); he argues that although the modal formalisation of the Mach–Painlevé theory, for example, can be re-expressed in an extensional metalanguage, nonetheless it is *false* that intensional notions can always be adequately explicated in an extensional metalanguage. Bressan's argument is that the extensional re-expression of, e.g., physical possibility is insufficient to account for the meaning of the intensional notion of possibility, and really that the class of situations (or propositions) involved in the semantical analysis cannot be specified independently of intensional considerations. In the case of continuous media physics, much information that would be required for an extensional specification, such as the masses of – and more generally, constitutive equations for – many bodies, is unknown (and cannot be extensionally defined, mass being dispositional).

On the strength of the evidence he has assembled. Bressan concludes that while the main thesis of North American philosophy is acceptable in the weak sense of extensional reduction, it is unacceptable in the strong sense that possible worlds and causal possibility can be dispensed with in science, because:

(a) without them we cannot have a complete understanding of any physical theory even if it is technically extensional, i.e., in it one works (mainly) considering only one (typical) possible case;

(b) The thesis above in the strong sense, conflicts with the practice of some important branches of physics such as T_{CM} [theory of continuous media] which is not technically extensional: especially in connection with materials with memory ... one is often working with many processes (which belong to different possible cases).

The upshot is then that empirical science is not, especially in its theoretical reaches, extensional. Nor (to advance a slightly more tentative conclusion) can it be satisfactorily reduced to extensional form, even though intensionally formalised scientific theories can

be paraphrased – but in a way that fails to preserve crucial properties – in extensionalese.

§4. Theoretical science is concerned, essentially, with what does not exist

The question as to whether science is extensional is only part of the question as to whether science is referential.[1] The other main part of the question is: Whether science concerns itself (essentially) with what does not exist, i.e. whether all (genuine) subjects are referring? Again the answer is *prima facie*, No. As explained, systematic zoology includes much talk of species, families, classes, etc., objects which do not (ever) exist; theoretical physics, quite apart from its reliance on mathematical abstractions, is loaded in every branch with discourse about ideal objects, items which never exist; and so on. Given "the ancient view" that "all science is employed about universals" (Reid 1895, p. 405), it follows at once from 9.9 above that science is about, entirely about, what does not exist. It is enough for the conclusion sought however, what is true, that much science is employed about universals. Given further that much of the remainder of science is about ideal objects which have properties different from anything that exists, much science is about what does not exist.

Again – because the Ontological Assumption produces deep dissatisfaction with this natural and perfectly satisfactory state of affairs – a variety of reductions have been proposed which are supposed to eliminate undesirable non-referring subjects signifying nonentities. But again the reductions are never shown to succeed generally (as distinct from in limited contexts); and they succeed not (as has already been argued in main case: similar arguments apply against special reduction techniques presented in the philosophy of science, techniques which purport to eliminate ideal objects). Theoretical science is thus essentially inexistential.

Since science is inexistential and intensional it is not referential either; it is, so to say, doubly non-referential. But on any (genuine) empiricist theory – likewise on conventional rivals to empiricism such as idealism – language, especially the language of science, must be at base referential. Thus it can be said concerning the empiricist celebration of physics, and more generally of science, that the empiricist has celebrated too soon, since much of science does not fit comfortably within his philosophy.

[1] As before, a language is *referential* if all its (genuine) subjects occur referentially, i.e., refer to what exist and occupy transparent places, i.e. can be replaced *salva veritate* by identicals.

Chapter 11

Rudiments of noneist philosophies of mathematics and science

A noneist philosophy of the sciences consists, in large measure, in elaborating and applying the main theses of noneism already defended. A first contentious feature then of such a philosophy of the sciences is its nonreductionism. The theoretical sciences are thoroughly and irreducibly intensional; they are seriously and irreducibly inexistential, i.e. concerned with what does not exist. They are none the worse for these features. The nonreducibility feature colours a good deal of the rest of the philosophies. The motivation to try to reduce many disciplines to something else they are not – e.g. mathematics to logic, theoretical sciences to physics – is thereby removed. But there is much left to be done, especially in explaining how the nonexistent and intensional can enter and how they can help in explaining the existent and the extensional.

The effect of the free admission of discourse about what does not exist without any requirement that such discourse be phased or paraphrased out may be illustrated dramatically enough by an application to the philosophy of mind. According to the account of existence adopted, minds do not exist, because they do not (significantly) have spatial locations; the same holds for mental phenomena such as dreams, but the fact that they do not exist does not imply any of the following things, which are too commonly taken to follow from the claim that minds do not exist:– Firstly, it does not imply that creatures such as magpies and dolphins and celts do not *have* minds, that each of them has a separate mind which is the mind of that separate body, and so forth. Secondly, it does not imply that minds are physically reducible in one way or another to bodies, e.g. to behaviour of bodies (behaviourism) or to states of bodies (e.g. central

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state materialism). Thus it does not imply that mental objects such as dreams, images, thoughts and desires are either nothing or else reduce in one way or another.

The effects of free admission of intensional discourse is no less startling, as applications in epistemology (in chapter 8) have already revealed (though evidently, many of the latter effects presuppose the admission of unreduced inexistential discourse, since intensionality commonly relates existents to the nonexistent). Since *much of the philosophy of science is an elaboration of epistemology*, the effects extend into the philosophy of science. But they also enter independently and, as in the case of theoretical objects, directly.

The material presented in this chapter is rather more sketchy and programmatic than that of earlier chapters. Some of the ideas are presented only in schematic form and not worked out to any extent. The main reason for this is that the area is a frontier one, and noneism is in a pioneer (and sometimes rather primitive) state as regards many of the issues. Nonetheless it seems worthwhile outlining *some* of the features that emerge from applications of noneism to these issues, especially as they have close and interesting ties with much new thinking by scientists, especially scientists in the life sciences. Nor[1] is the implied criticism of rival positions in the area presented in much detail, though the basis and direction of noneist criticism is often clear. For example, there is no detailed criticism of intuitionism in mathematics, though practically every thesis of intuitionism is, if not refuted outright, modified under noneist scrutiny.[2]

As in the previous chapter, mathematics is considered before the sciences generally, partly because the main problems in the philosophy of mathematics have been distilled into a somewhat clearer form than those concerning science, and partly because there are several recent and very controversial questions as to the neutrality of the sciences that are best examined after other issues have been considered.

[1] Owing to limitations of time and energy on the part of the author.

[2] It is not too inaccurate to say that intuitionism has won attention and some favour largely because it gave mathematicians and logicians something new to do, in particular investigation of what classically acceptable proofs are intuitionally valid – not because of any intrinsic merits of intuitionistic metaphysics, which are mostly hard to locate.

§1. Outlines of a noneist philosophy of mathematics

Noneism has a direct and substantial impact on the philosophy of mathematics. Some of its bearing has already been exposed. Here more is exhibited, and a beginning made on putting it all together.

The orthodox options offered on the philosophy of mathematics – logicism, intuitionism, and formalism – all (with the exception perhaps of Curry's formalism) incorporate referential assumptions, logicism through its platonism and its (inessential) extensionalism and limitation to classical logical forms,[1] intuitionism through its idealism and verificationism (roughly, the meaning of a mathematical statement is given by its method of intuitionist verification, which is its method of construction), and formalism through its nominalism. With the rejection of the standard positions on universals (in chapter 8), then, only some of the theses of the trio of positions on mathematics can be retained. Moreover all the orthodox positions are ontologically restricted, in a way that begins with acceptance of the Ontological Assumption. For instance, Russell's logicism is in part an attempt to show that such central mathematical objects as classes, functions and numbers are logical constructions, and so "merely symbolic as linguistic conveniences, not genuine objects..." (PM, p. 72): the price paid for these conveniences was an admission of the existence of attributes. In contrast, Hilbert's programme of consistency proofs had the object of showing the legitimacy, and thus (it was supposed) existence, of mathematical objects and methods whose existence intuitionism had allegedly put into doubt; while intuitionistic methods were taken by formalists as well as intuitionists as being valid and providing solid conditions for mathematical existence – only the intuitionists for their part construed the methods as not only sufficient but necessary. With the rejection of the Ontological Assumption, then, and the assumption that abstractions exist, the motivation and direction of the orthodox options is removed. Furthermore, with the relevant (or paraconsistent) elaborations of noneism, the irrelevant (or consistency-based) methods of classical and intuitionistic theories are denied universal validity. Thus the rejection of logicism and intuitionism and formalism runs deep.

[1] Strictly in PM, and liberalised only by a little double referencing in the less formal adjuncts of Frege's work.

Standard problem 1 of philosophy of mathematics,[1] the question of *the existence of mathematical objects* – which of these objects exist? how? where? – *vanishes*. For the objects in question, though mostly perfectly in order, and completely admissible subjects of discourse, do not exist. Thus there is no need to adjudicate between logicists, intuitionists and formalists as to whether mathematical objects exist *as* logical constructions in platonic fashion, or *as* mental constructions, or *as* formalistic constructions (most often as names): for they simply do not exist. Pure mathematics is, when properly formulated, an existence-free science (see 10.2).

Standard problem 2 concerns *the nature of numbers*. Numbers are genuine objects, but they do not exist. Because they do not exist there is little point in trying to reduce them to something that does exist, or is supposed to exist, such as numeral words or mental constructions. Numbers are none of the following: linguistic items, numerals, formal objects, human mental constructions,[2] ideas, sets, categories. For they have quite different properties from the items they are supposed to be or to reduce to (as Frege 1950 showed conclusively for several of the cases mentioned). Numbers are not however entirely *sui generis*: they are certain sorts of properties, properties of certain collectives. The case that numbers are properties is partly syntactical – numerals such as "five" and "eight" have a syntax like that of such adjective-nouns as "red", "ten o'clock", "good" and "beautiful" – and partly logical – that the logical behaviour of number can be adequately accounted for in this way. Roughly, the natural number n is the property of all and only those collectives that correspond one-one with a paradigm collective (independently defined) with n elements (details of this noneist variant of the standard logicist analysis are given in Routley 1965, where also the analysis is applied and defended). Set-theoretical reductions of rational, real and complex numbers – which are inadequate to the data – can similarly be revamped in terms of property abstraction.

Numbers, although central objects of mathematics, are only some among mathematical objects; in current mathematics functions are perhaps as important, and there is a wide selection of other deductive items that are studied to varying degrees, e.g., such objects as groups and varieties in abstract algebra, sheaves and stacks in geometry, etc.

[1] The ordering of the problems is one of convenience. Hereafter "standard problem x of philosophy of mathematics" will be abbreviated to "problem x" or "standard problem x".

[2] As with phenomenalisms, there is an objectionable anthropocentrism incorporated both in intuitionism, which takes numbers as human constructions, and in one of the main sources of intuitionism, Kantian conceptualism.

Indeed every branch of mathematics – which has gone far beyond the "abstract science of space and number" that the *Oxford English Dictionary* accounts mathematics – has its own, often distinctive, objects. Thus problem 2 is but a special case of *problem 3, the nature of mathematical objects*. According to noneism, they are all abstractions, in principle of a wide variety of sorts, none of which exist. There is no good reason to expect that all these objects are analysable in the happy way that various sorts of numbers have proved to be analysable. The intensional objects that mathematicians of the future may well investigate could easily prove intractable to such analysis: in fact such notions as *mathematical proposition* and *conjecture*, widely deployed in current mathematics, resist logicist reduction. (But, as we have seen with intensional reductions and will see again with logicist reductions, whether reductions can succeed is highly sensitive both to what counts as a reduction – especially what properties the reduction is supposed to preserve – and to the reduction base given.) Although *pure* mathematics is an abstract science concerned with abstractions, mathematics can obviously be applied to objects of other sorts, particularly as in engineering to objects that exist. *Problem 4, the objectivity of mathematics*, is, in part at least, easily resolved given the nature of mathematical objects. Mathematics is objective; for pure mathematics is concerned with the properties and relations of objects, objects which, though they do not exist, are objective, are in no way mind-dependent or tied to a thinking or perceiving subject or to human peculiarities or behaviour or agreement. The objectivity of mathematics has seemed to be in doubt in part because of attempts, under the influence of the Reference Theory, to reduce statements about its objects to statements about something considered referentially accommodateable, such as statements about mental phenomena or statements as to or deriving from human conventions. With the failure of the Reference Theory the point of such proposed reductions vanishes; and, in any case, there are sound arguments which show that such reductions are bound to fail. But the issue of the objectivity of mathematics concerns as much the nature of the truth of mathematical statements as the nature of its objects; so the issue will arise again with the problem of accounting for mathematical truth.

The most problematic objects of mathematics are those that threaten the consistency of mathematics.[1] For with inconsistency mathematics collapses, classically and

[1] This should have indicated that the main classical problem regarding mathematical objects was not really that of existence but rather that of consistency. Clearness, distinctness, precision and effectiveness were important in enabling consistency to be seen.

intuitionistically at least; it is rendered trivial. By far the most dangerous objects have been infinitary objects, both infinitely small objects such as infinitesimals and infinitely large objects such as infinite numbers. *Problem 5* thus concerns *the infinite*, both *the infinitely large and the infinitely small*. The problem is again usually seen as an existence one, but it is really compounded from consistency difficulties; for what is inconsistent does not exist, and both the infinitely small and the infinitely large were threatened by or embroiled in paradoxes known, to some extent, from ancient times. In each case there were two important waves; with the infinitely small the ancient problems of Zeno's paradoxes and the much later problem of the inconsistency of the calculus; with the infinitely large the problems of the paradoxes Bolzano assembled, problems Cantor mostly solved by the simple but important strategy of not transferring intact properties of finite numbers to infinite numbers, and the emergent problems of the logical paradoxes. Inconsistency was of course discovered much earlier in the case of the classical mathematical theory of the infinitely small, the original calculus, than in the case of the infinitely large, where there was no substantial mathematical theory before Cantor's work. The classical mathematical story has been that the problems engendered by infinitesimals were definitively solved by the theory of limits[1] – essentially a potential-infinite solution – although the theory never gave an agreed-upon solution to Zeno's paradoxes or explained what really went wrong in infinitesimal theory. But the analogous resolution of the paradoxes of the infinitely large, the set-theoretic paradoxes, has been resisted by logicists and formalists, though a restriction to the potential infinite[2] was suggested by Poincaré and is characteristic of intuitionism. The intuitionistic position has been that (talk of) the objective or actual infinite does not make sense, the chief reasons for this being of a verificationist cast (cf. PB, p. 6ff.), e.g., that an actual infinite or closed infinite totality cannot be experienced. It was partly in response to criticisms of this sort that Hilbert devised his crash research programme for clearing the so-called "actual infinite" through a demonstration of the consistency of classical mathematics, by formalising the

[1] The story is at last beginning to be challenged with the belated advent of new theories of infinitesimals.

[2] The situations were importantly different insofar as the limit theory replaced very much of the theory it superseded, whereas no such replacement of Cantor's attractive theory was proposed, or even possible in terms of restrictions suggested.

The succession of mathematical theories has (as Lakatos 1963–64 has argued) much in common with the succession of empirical scientific theories: an entrenched theory is commonly not given up, or given up only with extreme reluctance, until (at least in the more creditable cases of theory succession) a superior theory, that appears to account for much of the data better, supersedes it: see further 11.4.

object language and proving the consistency in the metamathematical theory using only finitary or constructive methods. As Brouwer pointed out, consistency, even if established (it never was, and classically never can be satisfactorily for rich theories), does not show correctness. The actual infinite worried not only intuitionists and empiricists (since completed infinities are hardly observable) but others; for only the smallest of the infinite cardinals could make any claim to exist on ordinary physical (spatial or perceptibility) criteria for existence, and even it was in considerable doubt since there is little solid physical evidence that infinitely many things exist. One of the views Russell later came to, proposed for the second edition of PM, (PM2), was that mathematics was concerned with the possibility of existence only; and hence that whenever the axiom of infinity (Ax-Inf) was applied in a proof of theorem A, the theorem should be rewritten in conditional form as, e.g., AxInf $\supset A$. This material form is hardly satisfactory. For if AxInf is true then the hypothesis is unnecessary; as A is true, AxInf $\supset A$ follows; while if AxInf is false, then AxInf $\supset A$ holds anyway, again by a paradox of material implication. What Russell was getting at, though his logical theory had no adequate means of expressing it, is that classical mathematics does not require the existence of an infinite totality, an actually infinite object in the straightforward sense, but only the possibility (not to be equated with the possible existence) of an infinite set (cf. chapter 1 [Vol. 1 *—Eds.*], p. 16). An elementary Π–Σ reformulation, in terms of possibility quantifiers, of an appropriate sharpening of edition 1 of PM (e.g., with the syntactical structure formulated in the style of Gödel 1931 system P) would replace the damaging existential form of AxInf. Nor is there much doubt but that such a system, e.g. P, is consistent though proving it with the usually admitted finitist or constructive resources is classically impossible. Beyond the narrow confines of classically re-formulated mathematics, not even a possible infinite set is required, only that some set (perhaps an inconsistent one) is infinite.

Thus the standard problem as to whether an infinite collection of objects exists likewise vanishes under an existence-free formulation of mathematics. The problem is a problem, perhaps not of much seriousness, for cosmology, not a problem (to invoke a facile transfer-of-problems-to-another-discipline approach) for mathematics. For even if, as seems likely (on satisfactory classifications of *things*), only finitely many things exist, mathematics, being existence-free, is not impugned. Similarly under noneism, several other difficulties concerning the infinite either disappear or are transformed. Talk of infinitely large numbers and of infinitely small magnitudes and of infinite structures

certainly makes or can make sense, under the presupposed theory of significance: no category mistakes need be made, and making sense does not depend on empirical or intuitionistic verifiability. A main part of the worry over infinite structures is based directly on the Ontological Assumption: it is that if no infinite structures exist there is nothing at all to talk about and nothing can be truly said (cf. PB, p. 6). The worry disappears after the Assumption is removed. Some of the infinite structures of transfinite cardinal and ordinal theory certainly do not exist, since at most denumerably many things exist, but much can truly be said concerning such objects as transfinite cardinals and ordinals, and many properties proved of them.

Although existence problems disappear, consistency worries remain to perplex the consistent noneist. For infinitary objects are especially apt to generate paradoxes. The less pressing problems concern the infinitely small, the more pressing problems the infinitely large, where variants of the logico-semantical paradoxes directly threaten a comprehensive theory of objects with inconsistency. Noneism can simply incorporate a neutral reformulation of the orthodox calculus and also of recent theories of infinitesimals, in the same way that it can include reformulations of other classically formulated theories (it is again mainly a matter of recasting the underlying quantifier and identity logic). An apparently consistent infinitesimal theory may be obtained by restricting, in one way or another, the principles of classical infinitesimal theory: Robinson's theory (in 1970) is just one way of doing this, but the distinction the theory relies upon is rather unconvincing and makes the theory considerably more complex than the classical inconsistent theory. More exciting and appealing, then, at least to the paraconsistent noneist, is the prospect of a paraconsistent infinitesimal theory which includes substantially the whole classical theory; but such theories have yet to be worked out in appropriate detail. (Furthermore, the impact of Zeno's paradoxes in such a framework is unknown.) Such a leisurely approach is not so feasible with issues as to the infinitely large, especially the logical paradoxes. For these paradoxes have a very large impact, for example through the whole of advanced logical theory.

Problem 6 is as to how *the logico-semantical paradoxes* are to be treated. Various options are open depending on the type of noneism adopted and the extent of departure from superficial neutral reformation of more classical theory. A more conservative noneism which simply adapts classical theories – these are little more than devices – for blocking the paradoxes is however, even if it should succeed in some limited sense,

intellectually unsatisfactory. For such classical devices are characteristically based on assumptions that noneism rejects, especially referential assumptions. The point is easy to illustrate. Limitation-of-size set theories such as Zermelo–Fraenkel suppose that only what is constructive in a certain (liberal) sense exists and that talk about the non-constructive is inadmissible. Accordingly the underlying assumptions conflict with basic theses of noneism, that talk about what does not exist – such as sets, all sets – is perfectly admissible. So while Zermelo-Fraenkel set theory can no doubt be reformulated as a theory of certain sets, namely "ZF-constructible sets", it goes no way towards supplying a full or satisfactory theory of sets. Similarly in the case of other classically-based set theories, e.g. type theories and zig-zag theories such as Quine's systems NF and ML, the motivation is referential. The issue is mistakenly seen as one of determining which sets exist, and of trying to rule out, in one way or another, inconsistent sets. The results, where presumed successful in ruling out inconsistent sets, characteristically rule out much else as well (i.e. the result is overkill), and at best offer, after reformulation, partial theories of certain sorts of sets.

For a philosophically satisfying and non-ad-hoc theory of sets, a route has to be taken (so it is further argued in UL [Vol. 4 *—Eds.*]), different from any of the options Russell considered in his putatively exhaustive classification of options (in Russell 1905), a route which involves changing what Russell presupposed, the classical logical base. For that base is inadequate for radically inconsistent objects, such as paradox-generating sets. The case against classically-based frameworks is even clearer with various of the so-called semantical paradoxes (see Priest 1979; and also UL).[1]

Since, on classical approaches, the set abstraction scheme, $(Pw)(Ux)(x \varepsilon w \leftrightarrow A(x))$ with w assumed not free in $A(x)$, leads to triviality in the presence of classical logic, though paradoxes such as Russell's or Curry's, the abstraction scheme has, it is said, to be modified – even if it does seem intuitively correct, the paradoxes prove it is not. But the paradoxes only show that the abstraction scheme leads to disaster in combination with classical logic; and the correctness of principles of the latter used in paradox derivation are less obvious than the abstraction scheme. For is it not obvious that a wff $A(x)$ determines a set, namely the set $\{x\colon A(x)\}$ of exactly those objects which satisfy A. And is not this far more obvious than the spread principle, $C, \sim C \rightarrow D$, applied in making the Russell

[1] Indeed it can be cogently argued that in the case of the semantical paradoxes there is no satisfactory alternative to a paraconsistent approach: see e.g. Priest 1978a.

paradox, or Cantor's paradox, damaging? Is it not more obvious too than contraction principles, such as $C \to (C \to D) \rightarrowtail C \to D$, relied upon in effecting Curry paradoxes? The expected affirmative answers to these questions indicate the route radical noneism takes, namely intuitive set theories and the like based on non-classical logical bases, which are i) *paraconsistent*, in lacking spread principles, and ii) *non-contractional*, in lacking contraction or absorption principles. For independent reasons already alluded to, they should be iii) *relevant* in their quantificational part. These requirements do not uniquely determine a basic quantificational logic for the formalisation of intuitive set theory and intuitive semantical theory (the "naive" theory where the semantical paradoxes arise), but they impose sharp limits on the class of suitable systems (the region of most satisfactory systems is indicated in UL; for a much fuller discussion, see RLR).

A philosophically satisfying, and hence uniform, resolution of logical and semantical paradoxes leads then to a radical noneist position, which takes inconsistent sets as they come, as data, as objects of logical investigation, as objects which a satisfactory theory would let one talk about freely. The cut-down to consistent sub-theories, which is not uniquely determined and very likely not effectively determined – the cut-down classical theories are compelled to try and make at the outset in advance of logical theory – can subsequently be investigated *logically*, and leisurely, within the wider paraconsistent theory. Then too, more sophisticated and promising consistent cut-downs can be considered, *within* the logic, than those that have hitherto been investigated, e.g. the theory of content self-dependence (obtained through designation loops) can be worked out and the mechanism of the paradoxes brought to light, i.e. the precise way in which inconsistency is obtained can be exposed.

Such a radical noneist programme is, though non classical, not a many-valued approach. Indeed it is different from *any* of the many alternative approaches classified in Fraenkel, Bar-Hillel and Levy 1973. Although the philosophical viability of the paraconsistent approach is no longer in real doubt, exactly where it leads mathematically is decidedly unclear. Thus radical noneism has a vast research programme, which includes in particular the following parts:

(1) Formation and investigation of intuitive non-formalised mathematical theories within the relevant paraconsistent framework, in particular:

(a) presumably consistent theories such as arithmetic, and the theories of real numbers and of complex numbers;

(b) presumably inconsistent theories such as the theories of infinitesimals and traditional calculus and the theory of transfinite sets, cardinals and ordinals; and

(c) theories which appear to be beyond the scope of main classically-based set theories such as modern category theory.

(2) Establishment, where possible or for partial systems, of nontriviality theorems, and also of consistency results.

(3) Recovering, so far as possible, classical theory within the larger framework, and establishing bounds upon such recovery. (A by-product would be consistency proofs, of a sort, for classical theories.)

Is not the programme, since it has so much in common with Hilbert's programme, open to the same sorts of incontrovertible objections as to Hilbert's, in particular the Gödel theorems? No; the restriction on proof methods that Hilbert imposed are not required; and the Gödel theorems concerned do not extend to nonclassical theories which admit full formulation of semantical paradoxes (cf. UL).[1]

The problem of the semantical paradoxes has stood in the way of a satisfactory semantical theory for mathematics. With the paraconsistent dissolution of the paradoxes the obvious, but previously blocked, solution to the problem of a semantic theory can be given. In principle, the theory of truth for mathematical statements is just the same as for other statements, namely based as a semantical theory where truth is defined in terms of holding in worlds. For example, a truth theory for set theory – and so for as much of mathematics as can be accomplished in such a framework, namely a great deal of mathematics – will yield clauses such as the following for the abstraction scheme: $I(t \in \{z\colon A(z)\}, a) = 1$ iff $I(A(t), a) = 1$.[2] The development of such semantics provides a worthwhile beginning on the next problem.

[1] These points apply not merely to standard objections to Hilbert's programme based on limitative theorems such as Gödel's, but to objections with a similar basis to logicism: for a striking example of the latter, see Pollock 1970.

[2] For a more fully worked out semantics of this sort for paraconsistent set theory see Priest 1978. But note that Priest's emphasis on a substitutional interpretation in order to avoid realism is in no way required for the semantics, and from a radical noneist point of view is misguided, since the substitutional interpretation is applied in support of a combination of nominalism and conventionalism, viz. there are no mathematical objects and mathematical truth is a matter of (human) conventions.

Problem 7 is as to *the nature of mathematical truth*. A common assumption of many discussions of this issue is that the statements of mathematics are true. The problem is then to try to explain how. The assumption is however mistaken, and once rectified the problem is transformed to a very different one, that of explaining *which* mathematical statements are true and accounting for their truth. Firstly, very many mathematical statements are false. Some examples will reveal the sorts of cases, which are especially common where reductions are made:–

(i) From standard set theory: each natural number is a member of its successor, e.g. 3 belongs to 4; there exist nondenumerably many objects.

(ii) From category theory, which is another abundant source of false statements: there is exactly one set with n elements, for each integer n.

(iii) From classical analysis: a real number is a Dedekind-cut (similarly: a real number is the limit of a sequence of rationals; and so on, for other reductions).

These statements are false for the usual reason, they make claims as to how things are which are not so; they are false because they assign to mathematical objects properties which, in the ordinary sense, they do not have. Consider, for example, ii above: In the familiar senses of "four", "set" and so on, we can indicate any number of different abstract sets with four elements. As with the statement "Sherlock Holmes rode into London", there are two interconnected ways of truly affirming, or reclaiming, the relational statement, as such,[1] namely:

(1) Assign a local context to the statement, so that its *semantical* evaluation transforms it to something like "In category theory, there is exactly one four element set". Every mathematical statement holds of course in the world its theory circumscribes. Every mathematical statement is true according to the lights of its theory, in the context of its theory (the theory of truth involved is given in detail in 1.24 [Vol. 1 *—Eds.*]);

(2) Take the statement as literal but about special objects, those the theory circumscribes. Then the category theory falsehood is replaced by the following the truth about

[1] If retention of form is not required, there are other options, e.g. the *if-thenism* of Russell 1937 as elaborated by Putnam 1967a. Lack of a good implication was a crucial reason in Russell's shift away from this variant of logicism; nor does Putnam substitute a good implication for Russell's material connection (only a metalogical version of strict). Given a relevant implication many of the appealing features of *if-thenism* can by synthesized with the noneist theory elaborated. Many, but not all: for *if-thenism* is false, as object axioms show.

categorical sets, "There is exactly one four element categorical-set". The statements of mathematics so transformed become statements – necessarily true statements – about objects of their theories, nonexistent objects in the domain of the real world.

One of the logicist theses, that the statements of mathematics are analytic, is based on transformations like these (recursively definable on atomic transformations of the form: $(a_1, \ldots, a_n)f \rightarrow (a_1^T, \ldots, a_n^T)f$, where $a_1^T, \ldots, a_n^T$ are new objects of the theory, the predicates typically remaining intact). For consider the way logicism aimed to avoid the objections to such statements as "The sum of the angles of a triangle is two right angles", that if space is Riemannian, as the general theory of relativity seems to indicate, then the statement is not true except as an approximation in local cases, but empirically false. Logicism characteristically amends the geometric statement to (the still categorical form): "The sum of the angles of a plane Euclidean-triangle is two right angles" (the replacement of objects being taken just far enough to ensure necessary truth, e.g. "angle" doesn't have to be replaced by "Euclidean angle" because Euclidean-triangles provide sufficient determination).

In each case, whether by method (1) or (2), the reclaimed statements are true, and the explanation of this truth is straightforward. Local context statements, as under (1), are true because the world they are evaluated is one where all the statements of the theory hold. Special object statements, as under (2), are true, necessarily, because they are about objects which conform to the theory. To say that the statements are true in virtue of the senses of the expressions involved, is correct, but less illuminating and liable to misconstrual. But is it of course by virtue of the interpretation of the terms as about the special objects of the theory that the statements come out, on the truth theory, as true. Note well that the explanation given is not a conventionalist one; in particular, it is necessarily true that the necessary statements are necessary, i.e. an S4 thesis, $\Box A \rightarrow \Box\Box A$, holds, in opposition to the characteristic conventionalist thesis, $\nabla\Box A$, that all necessary statements are contingently true, because true through the contingent conventions governing expressions.[1]

In sum, *the statements of mathematics*, though not always analytic or indeed even always true, *can be rendered analytic*, true according to the lights of the theory con-

[1] There are of course several other objections to conventionalism: e.g. a good objection is developed in PB, p. 19. A far-reaching objection to conventionalism is its human chauvinism: see ENP1.

cerned, of its objects. In *this* sense, one of the main theses of logicism (cf. pp. 15–16 [of Vol. 1 *—Eds.*]) is correct.

The answer to *problem 8, the nature and explanation of mathematical necessity*, is partly set by the answer to problem 7, the rejection of conventionalism, etc. The necessity of those mathematical statements that are necessary can be explained through the semantics, i.e. the necessity is semantically explained. Since necessity is, semantically, truth in all possible worlds, and truth is characteristically determined recursively, it is not too difficult to indicate what accounts for necessity of the statements, namely the objects themselves and their properties. Necessity is the consequence of objects having their properties invariably over a suitable class of world. For example, it is in virtue of the properties of Euclidean triangles in all possible worlds that it is necessary that the sum of the interior angles of a Euclidean triangle is two right angles. It could be said alternatively that it is in virtue of the senses of the expressions "Euclidean triangle" etc., but this is less revealing, says no more, and is in more danger of being misconstrued, for example conventionalistically.

Problem 9 is as to *the structure of mathematical theories and the character of mathematical methods*. It is method that distinguishes mathematics, rather than subject matter, although traditionally mathematics *was* distinguished in terms of subject matter, as the science of number and space. But it is perfectly possible to have a mathematical theory or investigation that is entirely independent of space or number, e.g. large parts of Boolean algebra, and much modern algebra. It is the methods that are distinctive. The methods of mathematics are *essentially deductive*.

Thus, the methods are those supplied, in a loose sense, by logic; but methods though logical are applied to nonlogical subject matter, such as air or stream flow, rigid bodies, topological figures, algebraic structures, vector fields, etc. etc. It is, however, final products rather than intuitive processes that should be viewed as deductive in character; and even final accepted products may be gappy by modern logical standards – gappy in two respects. Firstly, much of the reasoning is enthymematic. Secondly, many of the rules applied are incompletely formulated, their precise range of applications (so far) undetermined; and the rules may be weird or even crazy. There are, in principle at least, few or no restrictions on the class of rules that can be investigated, though many rules will not be fruitful, e.g. they will not preserve any prized properties, or lead to stable

mathematical structures that may have been independently arrived at in other ways. But some classes of rules will be especially favoured, e.g. those that are requisitely finitist or are suitably constructive. There is, however, no restriction to such rules, and much modern infinitary mathematical logic consists of the discernment and investigation of decidedly non-constructive rules with "nice" properties.

A mathematical theory has accordingly the following general structure:– it consists of initial postulates, assumptions or axioms – some of which may be incorporated in definitions, from which axioms result by the use of characterisation postulates – together with rules or principles of derivation. The theory includes the closure of the assumptions under the rules, the results being theorems of the theory. In sum, a mathematical theory H may be represented, at a superficial level, as a structure $H = \langle A, R\rangle$, where A is a set of assumptions and R a set of logical rules. This is enough to reveal how a mathematical theory resembles a postulate system. But at a deeper level of analysis the objects of a mathematical theory, the things its statements are about, and other features, would also be revealed. A mathematical theory is not usually a static object but something that changes over time. A dynamic theory is typically augmented by new postulates and definitions, or by new rules, or both (the theory grows by additions in the way that models for intuitionistic logic have made clear). The dynamic development of an initial static theory H_0 may be represented by a structure $\langle H_0, K, \leqslant\rangle$ where K is a set of static theories such that for each $H \in K$, $H_0 \leqslant H$ and $\leqslant$ is a reflexive and transitive relation on K.

The two commonly noticed components of mathematics, the analytic and generic components, are readily fitted into the framework outlined. The analytic part comprises the working out of the theory in terms of the so far given or received structure, e.g. by deduction of theorems, by formulation of necessary and/or sufficient conditions for important properties, by working to equivalent formulations of the theory or to an exact axiomatic basis for what is included. For a mathematical theory often starts, so it is said, in middle stream, and one can work forward analytically to consequences of the theory, as well as backwards to postulates of the theory. The generic component concerns extensions – some of them conservative – of the theory, the seeking out and investigation of new rules, axioms and definitions. Thus the generic component is that associated with a dynamic theory, much as the analytic component is associated with a static theory.

The *unlimitedness* of mathematical theorising is a consequence of the infinity (large cardinality) of mathematical theories. The number of mathematical theories and structures of some interest that can be discerned is enormously large. There is simply no prospect, then, of the subject matter of mathematics ever being exhausted by human investigators even over an open-ended time scale. For these sorts of reasons Spengler's thesis that Western mathematics is exhausted, is entirely mistaken.

> It is enough for the moment that for us the time of *great* mathematicians is past. Our tasks today are those of preserving, rounding-off, refining, selection – in place of big dynamic creation, the same clever detail-work which characterised the Alexandrian mathematics of late Hellenism (Spengler 1926, p. 90) .

The work since Spengler wrote, of Gödel, von Neumann and others, is enough, on its own, to cast very serious doubt on his claim; for new and important directions were taken, not mere detail-work followed out. But even if mathematics had been in the doldrums in the years since Spengler wrote, his claim would be at best accidentally true – as it would be if a nuclear catastrophe destroyed all mathematicians, so that no new theories were investigated.

The matter of the basis of choice of theories that are investigated, and the direction developments take, is part of the sociology of mathematics. Evidently, out of the huge range of structures that could be investigated, only comparatively few are studied. Various choice principles are at work: in particular, applications in other sciences are influential, so too are the proclivities of leaders in research.

Problem 10, accentuated by the answers given to earlier problems, is *how can mathematics be applied*? How are everyday applications made, and how is mathematics applied in the theoretical sciences? For how can pure mathematics, which is about what does not exist, be applied to what does exist, to bridges, rockets, aerofoils, billiard balls, and so on? The answer is in terms of idealisation, simplification and approximation (cf. p. 17 [of Vol. 1 *—Eds.*]). Firstly, the behaviour of actual systems, e.g. the actions of physical bodies, may be *approximated* by the behaviour of ideal objects, which conform exactly to regular principles and which considerably simplify the usually messy actual situation.

> For example, the motions of moon and earth can be roughly approximated by a model of two point particles m_1 and m_2 such that m_1

> has the same mass as the moon and is located at the moon's centre and m_2 similarly represents the earth (van Fraassen 1970, p. 192).

Secondly, actual systems may be *conceived* as consisting of certain configurations of ideal objects, as for example a black body can be regarded as a system of harmonic oscillators though it does not really consist of such. The nonexistent objects introduced in the approximation to or idealisation of actual systems are those that satisfy known or attainable mathematical techniques, objects that is that are suited to current mathematical assessment. Approximation and idealisation take several different forms: e.g. an object may be replaced by another rather different object such as a point; an object may be regarded as decomposed into several other objects, as is a rigid body into a configuration of points or a circle into a collection of infinitesimal straight lines; an object may be the limit or intersection of a series of.other objects; etc. Both methods indicated, approximation and conceptual replacement, could be presented by way of more precise theories, e.g. by a theory of approximation; but the main point is already clear enough, namely that mathematics can be applied to actual things and systems in virtue of suitable relations between nonentities and entities they idealise. (Thus the requisite theories of approximation and idealisation assign a central place to non-Brentano relations.)

There is another dimension as well to explaining how mathematical methods can be applied to empirical subject matter: that is the logicist account of the application of mathematics, which should be integrated with the account in terms of approximation and idealisation already indicated. Logicism explains very nicely how empirical inclusions can be derived from empirical premisses by principles of logic: the underlying fact is

> that when we assert that a principle of pure logic is "valid" we thereby assert that the principle is good under all substitutions for the predicate letters A, B, C, etc.; even substitutions of empirical subject matter terms (Putnam 1967a, p. 289; where the point is also usefully illustrated).

The answers to earlier problems enables more to be said on *what is right and wrong about logicism and its standard rivals, intuitionism and formalism*: call this bundle of issues *problem 11*. To some extent the problem is really part of a more general problem, a problem already addressed in the previous chapter, to which noneism need attempt no very full answer, namely *the scope* and *nature of mathematics*. The practice of mathematics alone is enough to reveal the inadequacies of standard positions. The practice is not

of course sacrosanct, beyond criticism, and has commonly been regarded, correctly, as far from sacrosanct. Even so, the practice is obviously not restricted in the ways intuitionism, and differently formalism, suppose. Legitimate practice is obviously not restricted to the study of formal systems or to that and metalogical investigation and in fact rarely consists of such things. Nor is it restricted, nor need it be restricted, to the things, certain mental instructions, and methods that the intuitionists regard as admissible. A mathematical investigation may use any mathematical methods and consider any postulates; and mathematical theories may be discerned and designed with a similar freedom.

But what is wrong with formalism and intuitionism runs wider and deeper than this; indeed it is not going too far to say that most of the leading theses of formalism and intuitionism are defective.[1] The more deeply entrenched troubles derive firstly from the presupposed human chauvinism (see ENP1)[2] and secondly from the Reference Theory (as already explained). In particular, the objects of pure mathematical theories and studies are not entities of any sort, e.g. they are not formal objects such as symbols or other counters. They are objects which do not exist but which nonetheless have definite mathematical properties, properties which are assigned their characterisation by characterisation postulates (or object axioms) of the intuitive logic, the mathematical investigation of the objects being carried out by a given or chosen (and perhaps informal) carrier logic (cf. the explanation of how mathematics is possible on p. 60 [of Vol. 1 *—Eds.*]). The picture is thus a noneist elaboration of postulate theory, as illustrated in Church 1956, p. 317ff.; a picture which commonly permits logicistic transformation (as Church goes on to show).

Since logicism, like Hilbert's formalism, is built on classical logic and likewise assumes the Reference Theory, how is it that logicism obtains more favourable consideration than formalism, and weakened versions of central theses of logicism are brought out (see, e.g. pp. 15–16 [of Vol. 1 *—Eds.*])? An important part of the answer is that main theses of logicism are not tied to a particular logic (this is also the case, to an even greater extent with formalism; but not with intuitionism), and that these theses are by no means as ob-

[1] The requisite documenting of this large claim will have to await a further elaboration of noneism in the philosophy of mathematics. Some of the points, those that do not question the Reference Theory, can be tracked down (they are widely scattered) in the literature; e.g. on intuitionism, see Russell 1937.

[2] There is nothing quintessentially human about mathematics, its objects and methods, or about mathematical activity. As it happens, the mathematicians we know of are human; and it is some of them who choose from the infinite variety of objects and of logics, the objects they consider worth investigating and the methods by which to do it.

jectionable when freed from a referential background. Furthermore, once cut loose from that background, most of the objections to the theses ((li) and (lii)) of logicism (stated on p. 16 [of Vol. 1 *—Eds.*]) can be met (as noted there). For the textbook notions of classical mathematics (pre-1911 consistent neutral mathematics) can be expressed in neutral attribute logic (as, for the most part, PM appears to show), and the truths concerning those notions can be proved in that logic (which of course contains choice principles, and allows for the assemblage of infinitely many objects). In addition, the axioms of the logic are analytic, provably so (in an S5 sense) when the logic is properly modalised, and the logical rules preserve analyticity. Along these well-enough known lines logicism as formulated (essentially Church's formulation) can be defended.

> But this weak form of logicism, while mathematically interesting [and] ... true ..., is not philosophically interesting ... .The only philosophically interesting version of logicism is the strong form which refers not just to the concepts of classical mathematics, but to *all* mathematical concepts, and asserts they are all definable in set theory. This strong form of logicism is false (Pollock 1970, p. 392).

While Russell did advance a strong form of logicism (e.g. 1937, Introduction), the weak form is of considerable philosophical interest; it appears to refute many philosophical claims, e.g.

> it *does*, I think, show that there is no sharp line (at least) between mathematics and logic; just the principles that Kant took to be "synthetic *a priori*" (e.g. "five plus seven equals twelve") turn out to be expressible in the notation of what even Kant would probably have conceded to be logic (Putnam 1967a, p. 289).

Nor did Russell – or, for that matter, other leading logicists such as Frege and Church – demand a reduction to set theory (which is questionably logic). Thus Pollock's demonstration that "logicism is incorrect" (p. 388, p. 389) misfires, since it at best shows that a certain function is not definable in set theory. Moreover it is far from evident that in a larger logical framework (which deals more satisfactorily with logico-semantical paradoxes than the classical framework) Pollock's argument would succeed.

§2. Noneist reorientation of the foundations and philosophy of science

As remarked, much of the philosophy of science is a replay of epistemology, much of the remainder a replay of metaphysics (the point is especially evident from the presentation of Harré 1972). A corollary is that much philosophy of science is buggered up by mistaken epistemology (especially reductionism and scepticism in perception theory) and much is distorted by bad metaphysics. The metaphysical replay is well illustrated by the issue as to the status of theoretical entities, where the standard positions are like those on universals. The epistemological replay is evident in philosophical theories as to the nature and status of scientific knowledge, theories which at the same time try to account for scientific truth, insofar as it is obtainable, and for the allegedly puzzling character of scientific theories and theoretical statements. Because the problems and positions are a replay, noneist rejection of all the set (i.e. standard, entrenched) positions on main issues in the philosophy of science is accordingly to be expected, and occurs. The standard positions that get rejected are of course predominantly empiricist, now standard alternatives being furnished by Marxist philosophies of science.

It is a curious fact that empiricism, which is the philosophy invariably linked with science and its promotion and commonly thought to provide the foundations of science, has great difficulty in explaining how theoretical science is possible at all, and indeed fails to do so, even on charitable interpretations of what it can provide. Empiricism is not alone in failing to answer the Kantian question (cf. Kant 1929, p. 36): *How is theoretical science possible?* Kant's own modification of empiricism, a sort of idealism (according to which knowledge arises not merely from experience but from experience or impressions processed by human faculties[1]), likewise fails – even if it were successful it would land us in a form of scepticism. So also does traditional rationalism, *insofar as* information derived from nonexperiental sources is reduced to intuition (or to a referential base). The

[1] Kant's theory is flawed by a pernicious human chauvinism; with its tremendous emphasis on human faculties and human knowledge it fails to explain animal knowledge. However the theory could be modified to account for animal knowledge, by extending the faculty theory to animals, where however it looks even less plausible.

The empiricist cast of Kant's position, which does transcend empiricism, begins to emerge with the very first sentence of the body of the pure Critique (1929, p. 25):

> There can be no doubt that that all our knowledge begins with experience ...

Kant's two stage account of perception and perceptual knowledge, in terms of impressions perceived by human faculties, is open to the same damaging objections as the similar modern view of perception in terms of raw data plus interpretation, a view criticised in 11.3.

failures are in each case due to the attempt to account for theoretical science in referential terms.

The modern Marxist critique of empiricism, and of rationalism, need not detain us; for the alternative the Marxist theory offers – a production line "theory" of knowledge (cf. PT, p. 38): it is really little more than a suggestive comparison – fails to address itself to the main issues (or most other problems of interest that will emerge). It is a truism of course that science is, in *one* sense, a social product: that does not mean that it is not open to an individual to check its wares or to improve or extend them. But that there is an ongoing process of accumulation or modification of theoretical knowledge simply avoids the question of how, what almost everyone knows somehow happens, namely theoretical science proceeds, does happen. However modern critiques of empiricism, from Marxists from idealists and also from nihilists (sceptics) such as Feyerabend, do usefully reveal how many of the problems that have exercised philosophers of science are the product of positivism (though these critiques are often misguided, being directed against the wrong features and not against some of the fundamental faulty features of empiricism). It is fair to say that philosophy of science has been, until very recently, the last conspicuous stronghold of positivism in philosophy. To be sure, positivism lurks elsewhere throughout philosophy but in a much more disguised and less blatant form: there is no parading, or even flaunting, of positivistic assumptions (as there still is in the social sciences), but instead the assumptions are more subtly infiltrated.

On empiricist assumptions theoretical science can be couched in a language which is referential, which conforms to the requirements of classical logic, which is about only what exists (i.e. what is observable) and which is extensional, and so value-free. If scientific theories are not expressed in such a form then at least they must be reduced to such a form. Therewith a vast program of reduction and analysis – most of which has never been carried out, and much of which cannot be carried out in the way planned – is presupposed; for instance, reduction of intensional claims such as those of laws, dispositionals and counterfactuals to extensional surrogates, of claims about nonobservables and nonentities to claims about observables, and even, with more extreme forms of empiricism such as operationalism, of all claims to claims concerning operational statements, i.e. statements describing certain minimal laboratory operations (a much exaggerated version of the reduction of all geometrical constructions to ruler and compass constructions).

The upshot is that theoretical science is said not to be in order as it is[1] – the real reason for this being that it does not conform to strict canons of empiricism. It is in need of rational reconstruction, which the empiricist program is designed to supply. This reconstruction program loses much of its interest once it is realised, first, that some of the theoretical sciences said to need reconstruction are more or less in order logically and linguistically – they may be out of order in all sorts of other respects, e.g. various of the theories are a mess – secondly, that a reconstruction program is not required to justify ongoing activities and language, and thirdly, that the problems that are detected are not problems of science but problems of empiricist strictures.

The rejoinder to the initial question, as to how *theoretical science* is possible, is thus that it *was only in doubt because of referential strictures*. Without such strictures it is perfectly possible to carry on investigations of what does not exist, such as ideal objects, and what is intensional, such as scientific laws, and thereby of theoretical science. Such investigations are moreover intimately bound up with the real empirical world, insofar as the aim is to devise – by far exceeding empiricist bounds – true theories concerning *what* does exist and what does happen and *how* it does and *why* it does.

Furthermore with a different (noneist) approach from a different perspective, *many of the standard problems* discussed in the philosophy of science vanish. They *are problems*, that is to say, *induced by an empiricist frame-of-reference* – or, more generally by the Reference Theory. Let us locate some of the standard problems in the philosophy of science and consider how they are transformed under the change of perspective. Though it is convenient to try to separate the problems, it will become clear that many of the problems are so not isolated from other problems (so it is not enough to try to avoid the Reference Theory in just a piecemeal sort of way). As always there are two main classes of problems generated by the Reference Theory.

(A) *Existence problems.* According to noneism, many of the objects considered in theoretical science, the objects of scientific theories, do not exist and do not need to exist, e.g. all the idealised objects of physical theories. They may have physical properties and (full) relations nonetheless: and they acquire their properties primarily in virtue of assumptions of the theory, by characterisation postulates. Many objects of scientific

[1] Rival views which claim that theoretical science is entirely in order as it is, even when the practice is, as in some modern examples, methodologically unsound to a far from negligible extent, are criticised in 11.3.

theories which are not observable also have physical properties, though they may acquire some of their properties differently, namely in virtue of existing. All these objects are however thought baffling, capricious, the product of superstition or worse, to those who have bought the Reference Theory in empiricist form.[1] Hence arises:

(A1) *The problem of theoretical entities*, which is commonly a problem of nonobservable objects. The problem, which is generated by the Ontological Assumption[2] is as follows:–

1. Scientific theories contain many statements (some often true) about objects which are not observable.

2. Only what is observable – or reducible to observational terms, on a wider construal – exists.

3. The Ontological Assumption. Therefore, by 2 and 3,

4. There are no true statements of scientific theories about nonobservable objects.

The problem is another empiricist generated problem. There are two mistaken premisses, 2 and 3, and with the rejection of those the problem disappears. So also does the motivation for, and much of the interest in, instrumentalism – though a residual linguistic interest remains, as for instance with the issue as to what extent, and with what losses, can we prune our theoretical vocabulary. (Compare the problem for speakers at international conferences: to what extent can one get by with basic English and paraphrases one can make using it.)

(A2) *The problem of mathematical entities and abstractions.* Sophisticated modern science draws heavily on mathematics in formulating its theories and deriving consequences of them. And the mathematics used makes heavy use of objects that are not observational-type items and which, on the face of it, *and* after further investigation, do not exist, e.g. abstract sets, real numbers. Science also has frequent recourse to other abstractions, objects that have no place in modern extensional mathematics, namely properties and relations of one sort and another, e.g. disjunctive properties.

Although the mathematical objects figure in a different way from the sorts of theoretical objects science itself supplies – objects which for one reason or another are

[1] That is, with what exists empirically determined – as opposed, e.g., to platonistically determined as a rationalist may allow.

[2] There are variations, on the argument, meaning forms, which rely on the Verification Principle:– Only terms which are experiential or expressible as such, have a meaning (Hume). So theoretical terms have no meaning. But the premiss (a version of Verification Principle) is false.

not directly observable such as genes, microparticles, photons, and objects which do not exist such as idealised particles, planes, bodies, frictionless surfaces, etc. – they cause similar problems for empiricism. They commonly force a modification – really a rejection of pure empiricism – in the direction of a qualified platonism: Thus, for example, the Quine–Smart position, which takes those sets required by the mathematics of physics to exist but which allows no attributes to exist, and the Armstrong–Tooley position, which takes the attributes thought to be required for science to exist but which admits no sets as existing. (Each is right only about what they contend does not exist.) Again the problem is premissed on acceptance of the Ontological Assumption and vanishes with its rejection.

(A3) *The problem of Space and Time.* If Space and Time are considered as universals, the problem is like the previous one, like that of universals generally, and resolved in a similar fashion. But often – and this compounds the problem – Space and Time are construed as particulars. In fact, like *world*, *space* and *time* admit of various related construals. Whether as a particular (Real) Space exists depends on which particular it is taken to be. Time is different, since (as explained in chapter 2 [Vol. 2 *—Eds.*]) even as a particular it will include particular components, purely past and future instances, which do not exist (now).

(A4) *The problem of the objects of failed and false theories*. The history of science is littered, as they say, with failed theories, including theories that were about, or purportedly about, objects that did not exist, luminous ether, phlogiston, etc. The first problem is said to be to explain how such theories make referential sense, i.e. how serious investigation of such theories can be explained. The main problem however, is that many of the theories that we confidently adhere to may be of the same character as those of our ancestors, i.e. they may be about things that do not exist. Their predicament, of theorising about nothing, may be ours also (as Rorty 1976 has nicely explained).

The first problem is no problem at all for noneism, but provides a fragment of the case for the position. One can perfectly well talk, sometimes truly, about what does not exist, i.e. about nothing *actual*. Serious investigation of such theories is likewise easily explained. Sometimes the investigators mistakenly thought the objects investigated did exist; sometimes the objects sufficiently resemble objects that exist as to repay serious study; and so on. For similar reasons the main problem is only a predicament given

referential assumptions. To be sure, there remain *other* problems, e.g. the objects of false theories are in many respects like those of myth, and attributions them may not sustain inferences which would be legitimate were the theory true; and our theories like theirs may be false, they may not even always be better approximations to what is true.

(A5) *The problem of theories generally.* Likewise removed is the problem of the existence and placement of theories, laws, problem situations, etc., that leads Popper to introduce a Third World resembling Plato's World of Forms and leads Althusserians to try to place theories as a real part of scientific practice (Chalmers 1976, p. 140). For theories do not exist, either in a different world, or – somehow (in a holistic operational fashion?) – as a part of the scientific production process.[1] The puzzling linkage between theories and the world of physical entities, to explain which Popper invokes the mind as a mediator (1972, p. 155), and which Chalmers (p. 140) suggests is to be explained – again how is not made clear – by scientific practice, also ceases to be puzzling. For there is no question of reconnecting disconnected worlds (since theories do not exist someplace) or of fitting objects into a theoretical production process. Since explanation is an intensional matter what does not exist can unproblematically explain what does exist and what does happen.

(B) *Intensionality problems.* According to noneism many of the fundamental notions of philosophical interest to be accounted for in theoretical science are intensional, notably explanation, cause, evidence, confirmation, probability, counterfactual, dispositional, law, theory. The intensionality of some of these notions is recognised to some limited extent by referential accounts, but there is an attempt to reduce all these – by initial reductions to deducibility and probability relations, these in turn being referentially analysed at the metalogical level – to extensional notions.

(B1) *Explanation.* A frequent objection to noneism has been that nonentities cannot explain the behaviour of entities. But if explanation is an intensional relation the strength of the objection is dissipated; because of course entities can stand in intensional relations to nonentities. And why shouldn't explanation be one of these? Indeed it seems certain that it is. On the kinetic theory of gases, to take an example, properties of an ideal gas, to which actual gases approximate, are explained in terms of statistical behaviour of a

[1] Again, it is true, rather trivially so, that the production of theories is an important part of scientific practice, but it is not distinctive of science, e.g. it holds also for such practices as philosophizing and literary criticism. And that truth does not solve, but simply avoids, Popper's referentially-generated location problem.

collection of perfect molecules, none of which exist: the details are those of the kinetic theory. Similarly with the model of black body radiation, the classical accounts of solids, even the basic particle theory of Newtonian physics, since the particles assumed (with mass and velocity and no dimensions) do not exist. In sum, behaviour of assumed objects which do not exist is explanatory of the behaviour of things that do exist. Certainly the nonentities reflected upon are in requisite physical respects *like* the entities whose behaviour they account for: why not? Nonentities can have such properties; that does not make them exist.

The explanation relation so far considered takes the form:

that ys have such and such properties explains that x has property f,

where the y's in question may not exist. The more general form of explanation relations is thereby foreshadowed, namely

MF. that A explains that B,

where A and B are (declarative) sentences. Thus MF represents explanation linguistically as a predicate of sentences or of statements (or on the metalinguistic view names of sentences), depending on how the *that's* are disposed. The main form, MF, is by no means the only form explanation connections can take: "explain" can link objectives, e.g. "the red chair's looking purple is explained by ...", properties, e.g. "--- explains the blueness of the sky", events, and mixed cases, e.g. "a broken axle explains my failure to arrive on time". And there are a range of other forms, e.g. "Alfalpha always explains the theory more clearly than I do". There are methods of paraphrase, of varying degrees of adequacy, aimed at reducing the further forms to the main form MF. As far as the central issue is concerned however we can concentrate on the main form.

Explanation is an intensional relation, on both relata, as examples show; consider e.g., "that light rays passing the sun are bent in accord with relativistic predictions explains that a precessing of the perihelium of Mercury is observed" (a rather forced way of stating the connection). Replace either antecedent or consequent by a truth-functional equivalent, or for that matter by a strict equivalent, and truth need not be preserved; e.g. suppose it is true that modern birds evolved from the dinosaurs and replace either antecedent or consequent in the reductionistic explanation example by "modern birds evolved from the dinosaurs". The result is irrelevance and falsehood. Thus explanation is

not extensional at all. That is, the following connections are rejected (when MF is now abbreviated A EX B):

$\dashv (A \equiv C)$ & A EX $B \supset .\ C$ EX B;

$\dashv B \equiv D$ & A EX $B \supset .\ A$ EX D.

Nor, equally importantly, is the relation modal, i.e. replacement cannot be recovered by supplanting material equivalences of A and C or B and D by strict equivalences. This is evident from mathematical examples: the universality of Pythagoras' theorem was eventually explained by theorems of Euclidean geometry, but it was not explained by the law of identity as a modal account would claim. The modal failure also bears directly on more empirical cases. For A is strictly equivalent to A & T where T is any necessary truth. Were modal replacement correct relativistic effects would explain the observed precessing *and* $2 + 2 = 4$. But presumably, A EX B & C implies A EX C, so relativistic effects explain, on the modal view, $2 + 2 = 4$!

There are several corollaries. Firstly, explanation *is* a serious problem for empiricism and, more generally, for referential theories, because it is intensional. Thus reduction is essential if explanation – a crucial feature of what science is supposed to offer – is to be accounted for. Secondly, the reductions that have been proposed are inadequate. Consider the best known reduction, the covering-law model, popularised by Hempel. In its initial form (the objections extend straightforwardly to later refinements) it goes like this: A EX B iff, for some set of scientific laws and background truths (initial conditions) $P_1, \ldots, P_n$, B is deducible from A together with P_1 through to P_n, i.e. in symbols A & P_1 & $\ldots$ & $P_n \Rightarrow B$. This already encounters a good many problems, much discussed in the literature, e.g. some historical explanations are presumably correct but history furnishes (despite Hegel and Marx) few, perhaps no, covering laws. But such problems are not the immediate concern, which is that deducibility is already an intensional relation (and not, as it is rather easy to see and as RLR explains, a modal one). Deducibility has in turn to be reduced, extensionalised: something that has been attempted by the metalinguistic theory, formalised by Tarski and developed by Carnap and others. But the account, since essentially (first-degree) modal, makes explanation modal also, which is wrong. There are obvious connected faults, e.g. the covering-law model as presented delivers paradoxical results, with – what is false – any statement at all

explaining a scientific law.[1] Finally, there are more technical, but nonetheless significant, faults; for example, the metalinguistic account excludes nesting of the explanation relation, yet such nestings as A EX (B EX C), A explained B's explaining C, make perfectly good sense.

Again the difficulties are mitigated with noneism. Intensional relations stand in need of no reduction in order to be in order. Explanation is a further relation to be investigated in its own right, without requiring however – what looks increasingly unlikely – a reductive analysis. Some of the elementary logic of explanation we can already supply within the framework of relevant logic; and the principles which hold enable an attractive semantics to be furnished.[2] In particular, the following principles hold: A EX B, $B \Rightarrow C \rightarrow A$ EX C, where $B \Rightarrow C$ reads "that B entails that C"; and $D \Rightarrow A$, A EX $B \rightarrow D$ EX B. Hence, e.g., A EX B & $C \rightarrow A$ EX C; and a basic logic emerges. Even so quite elementary principles are still in dispute. Certainly A EX $B \rightarrow A \Rightarrow B$ fails, but to what extent does $A \Rightarrow B \rightarrow A$ EX B hold? The trivial explanation A EX A is surely degenerate – this could be avoided by adding the premiss $B \not\Rightarrow A$ – but what of (A & B) EX A, $(x)A(x)$ EX A (t) etc., which only barely (if at all) avoid triviality? The logic of explanation does not seem sharply enough determined to resolve these questions. A way around the difficulty is to introduce initially a wide undifferentiated notion of explanation which includes trivial explanations, and then to make distinctions within the kind between elementary logical explanations and substantive explanations. For the elementary logical explanations can be worked out using the account of deducibility.

The *order* of intensionality of explanation is (like many other central notions in the philosophy of science) of the order of entailment, not modal, but not of as high an order of intensionality as such notions as belief and assertion which are not closed under entailment relations. This order of intensionality determines the basic logic and semantics of explanation, e.g. the worlds involved in the semantical analysis are those used in the analysis of entailment.

The intensionality of explanation can be applied to show how science can explain. Explanation is intensional: but so is science, so explanation in science is certainly not excluded. The matching intensionality is in fact the reason why science can *explain*, and

[1] Thus an improved account of deducibility alone is not going to save the model: more far-reaching changes are required.

[2] Appropriate details are given (once again) in the companion volume RLR, chapter 7.

not merely describe. In this way a modern puzzle, which has been used as an objection to science, that science can only *describe*, not explain, can be resolved. The puzzle arises because description is taken to be referential, given only in narrow this-worldly forms, because it is thought that all that science can include is of this type. Explanation being intensional lies beyond its scope. The resolution, already argued for, is that science is intensional. It describes not only how things are, but how they *would* be in various alternative worlds. In this way it can offer genuine explanation, and assertions that are deeper than constant conjunctions.

In an attempt to defend science against critics who object to science – or at least to empiricist restricted science – on the ground that it fails for one reason or another to offer genuine explanation, Passmore (1978, p. 11ff.) attempts to dispose of such critics as wanting more than can be expected and in particular of expecting anthromorphic explanations. But the critics, in expecting intensional science are not expecting more than science can offer, and they are not always thereby expecting anthromorphic explanations. Passmore has, to summarise his moves, equated intensionality with intentionality and construed the latter anthropomorphically![1] Such critics are rightly looking for more than merely mechanistic extensional science, and more, much more, can be expected, and is not uncommonly supplied. Once the intensionality of explanation is seen, such mistaken equations as Passmore's are seen to be in no way required. While the world may described to some limited extent extensionally, intensionality is essential for explaining and understanding the world.

The intensionality of explanation is, of course, only one of many issues that surround the central issue of explanation in the sciences. Other issues, upon which noneism bears, that will not be tackled here include: When are explanations good, adequate, genuine? What types of explanation are of this sort? Can the wide variety of forms of explanation, or adequate explanation, be reduced to a limited number of canonical forms? Can everything be explained or are there some ultimate unexplainables?

Much of what has been said concerning explanation applies also to the following, otherwise very different, central notions in the philosophy of science:

(B2) *Cause, causal explanation.*

[1] Really this is not so surprising: the allied equally mistaken attempt to make all intensionality somehow mental, and then reduce the latter to referentially-acceptable features of humans, is philosophically pervasive.

(B3) *Conditional, counterfactual, dispositional.*

(B4) *Law, lawlike statement.*

(B5) *Theory.*

(B6) *Verisimilitude.*

(B7) *Probability, confirmation.*

None of these notions is extensional; all are, as well as inexistential, intensional; all concern what happens not just in the actual world but in many alternative worlds as well, and often as regards what does not exist. But none are modal, a fact that rules out most of the standard philosophical accounts that do not erroneously aim for an extensional analysis. Most of the notions are of the order of entailment. None are of as high an order of intensionality as that of belief, contrary to an assumption sometimes made in the explication of probability and of conditionals. Relevant analyses of many of these notions and criticism of rival irrelevant analyses may be found in RLR; probability is however considered in UL [reprinted in Vol. 4 *—Eds.*].[1] At this point the text has to join forces with what is presented in RLR, namely the case for, and shape of, such explications.

§3. A noneist framework for a commonsense account of science

Much recent philosophy of science has been diverted from commonsense answers to main questions and indeed thoroughly vitiated by:

(1) a heavy injection of epistemological scepticism; and

(2) a reliance on classical logical theory.

These have of course a common source, namely the Reference Theory. As a result of (2), for example, explication after explication of a commonsense or intuitive type has gone bad; examples are explication of content, probability, empiricalness, verisimilitude (cf. §2). In each case, accounts conservatively extending and explicating initial commonsense views can be restored by transcending classical limitations, a point that has already been clearly glimpsed.

[1] Preliminaries for a relevant account of verisimilitude may be found in Mortensen 1978. But more work is called for on this important (and even from a relevant viewpoint, difficult) topic.

At least as damaging to commonsense has been the effect of scepticism (1), which has, in particular, issued in a thesis of fallibility, that all (scientific) knowledge and all observation statements are fallible, and a thesis of theory-dependence, that really there is no separable class of observation statements, that all so-called "observation statements" are theory-dependent. These two theses have been applied in the new philosophy of science - Chalmers 1976 is an excellent illustration but essentially the same points can be found in the work of Feyerabend, Kuhn, Lakatos and others – to destroy or erode many facets of commonsense accounts of science. For example, to erode the following principles:–

CS1. Science starts from, is based on, veridical observation.

It should be observed however that the "starts from" terminology, as well as being insufficiently explicit, is open to misinterpretation. For it can suggest, what is not intended, a Baconian account of science, where theories emerge from the accumulation of observations. To say that science is *based on* observation is not to say that sophisticated theories are arrived at by generalisation from observation (on the contrary "new theories are conceived of in a variety of ways and often by a number of routes" Chalmers 1976, p. 32); it is not to deny that observation and experiment in science are often guided by theory; it is to say rather in terms of what grounds *scientific* theories are appraised and justified, and also on what more basic empirical generalisations are premissed.

In the end, Chalmers himself relies on an observational base, though in more tentative fashion than need be: for according to Chalmers 1976 (pp. 57–8) even observation statements may be tentatively accepted and provisionally retained, as long as theoretical developments do not require their rejection.

CS2. Veridical observation yields a secure basis for the derivation of scientific knowledge.

CS3. The primary aims of science are truth and explanation;

a little more specifically, a primary objective of scientific investigation and theorising (and, more generally, scientific practice) is to give a true account (or description) and explanation of reality, i.e. of the actual world. Commonsense is not however committed to unworldly views about scientists, such as Popper's naive view: "the scientist aims at a true description of the world" (1969, p. 114; cf. also 1972, p. 40).

CS4. There is a direct relation between scientific theories and the real world such that those theories are better or worse descriptions of "what the world is really like",

(Chalmers 1976, p. 114: Chalmers calls the position *realism* and subsequently, in contrast to his own pluralistic realism, simple or naive realism.)

Theses CS1 and CS2 are two of the three that make up what Chalmers calls "naive inductivism" (1976, p. 12).[1] Each of the theses CS1–CS4 cited, and much else, falls before the objections from fallibilism and theory-dependence; for example, according to Chalmers (p. 114) simple forms of CS4 are rendered untenable by "the fallibility of scientific knowledge in general and of observation statements in particular". Indeed the whole argument of Chalmers 1976 – which represents well one of the recent new waves (or ripples) in the philosophy of science – relies very heavily on the theses of fallibility and theory-dependence; and so, much of the criticism of Chalmers 1976 and most of the arguments directed against commonsense claims are removed when the case for the theses of fallibility and theory-dependence are removed. For these theses are appealed to repeatedly in the course of Chalmers' dismissal of natural and commonsense answers to questions in the philosophy of science – not only in the rejection of CS1–CS4, but, for example (p. 123), in trying to raise doubts as to whether "the notion of truth or correspondence to the facts makes sense for observation statements", and (pp. 124–5) in trying to manufacture difficulties for the notion of closeness to the truth of theories.

What supports these undoubtedly powerful (i.e. destructive) theses of fallibilism and theory-dependence? Nothing substantial, but primarily sceptical arguments – so it will now be contended, by way of examination of Chalmers' elementary, but nonetheless *representative*, case for the theses and against CS1 and CS2 (1976, chapter 3). The preliminary softening-up process in Chalmers, as in much of the other work defending fallibilism and theory-dependence, consists of an attempt to remove direct realism in favour of some indirect theory, by a series of contrived examples. There is said to be a gap between what is observed, and what is recorded in an observation statement, and what is directly had in sense perception, and all that is secure is the latter. Chalmers

[1] The third thesis is that "scientific knowledge is derived from [veridical] observation statements by induction". The thesis lacks commonsense character, partly because of the involvement of the somewhat technical notion of induction and partly because commonsense certainly appears to allow for the further testing of generalisations reached by induction before accounting them knowledge. On this point, as on the forms of inductive argument that he considers, Chalmers' account of induction is seriously defective.

The qualification, *veridical*, has been inserted where Chalmers has none both above in the third thesis and in CS1; but by "observation" Chalmers means "veridical observation".

simply identifies what observers see and the subjective experiences that they undergo (pp. 23–4),[1] and claims, without any argument, that "as far as perception is concerned the only things with which an observer has direct or immediate contact is his or her experiences" (p. 24).[2] In the ordinary senses of terms this is just false: one can have direct contact, e.g. by touch, with a variety of physical objects (one does not, in this sense, have direct contact with one's experiences). There is no gap to fill, in veridical perception, between what is given in sense perception and what is observed, e.g. physical objects with ascribed features; and so there is no breach in security. Chalmers assumes that the following points are key ones for the account of observation that CS1 and CS2 presuppose, and accordingly mounts his initial attack against them:

(i) (a) "a human observer has more or less direct access to some properties of the external world

(b) insofar as those properties are recorded by the brain in the act of seeing";

(ii) "... two normal observers viewing the same ... scene from the same place will 'see' the same thing" (p. 21).

But though (ia) is crucial for direct realism – which offers *one* account of observation which will support CS1 and CS2 – neither (ib) nor (ii) are required, nor correct. (ib) is not significant as it stands (properties cannot be significantly recorded in the brain); and (ii) imports a mistaken assumption as to the sort of relation seeing is, namely a sort of physical (Brentano) relation so that if one observer simply replaces another with the same physical equipment the results will be the same. But seeing is not such a relation. A trained bird watcher will look for and see much that a newcomer does not. The fact that trained or skilled observers may observe much that inexperienced or bored observers do not, provides no support for (ia) and in no way undercuts commonsense accounts of observation which support CS1 and CS2. Chalmers errs in thinking that it does (p. 25).

There is the question what we do say, and what we should say, in examples such as representations, x-ray pictures, microscope slides, etc., where faulty theories have forced some philosophers to say that although different observers perceive the same thing they

[1] Also (p. 23) "What an observer sees, that is, the visual experience that an observer has". But what the observer sees may be a fly-catcher in a mist net, which is not a visual experience. The identification involves a category mistake.

[2] In fact, Chalmers thoroughly confuses seeing with contingently connected components of the physiological process; p. 20ff.

interpret it differently. The novice sees a patterned bird, the ornithologist sees a Ground Thrush; yet in the transparent sense (strictly, determinant) of "see" what is seen by both is the same.[1] Representational cases involve a further factor beyond transparency and opacity, that of representation of the object. The radiologist sees what the lines and blotches represent as well as the lines and blotches: the novice may not. The identity linkage is more complicated than in the nonrepresentational case where the patterned bird is (identically) a Ground Thrush: my chest is not lines and blotches. Rather, the pattern of lines and blotches is the representation of my chest.

There is also the question, when a skilled observer in some way avails himself of experience or equipment which has relied on theory, whether that makes his observation theory-dependent in some sense. But very many cases of observation involve no such use of theory; and in many that do what was once theory may have become fact. Of course if a questionable theory is applied, the results are doubtful to that extent. But that some sophisticated observation may be theory-dependent does nothing to cast doubt on CS1 and CS2. For these it is enough that a solid basis (and an increasing basis when further facts are verified) is available, that many observation statements are not damagingly theory-dependent.

The thesis that Chalmers really is presenting, that

DT1. All perception and perceptual experiences are (damagingly) theory-dependent (see 1976, p. 33),

would refute CS1 and CS2. But the thesis is supported only by a selection of contrived examples, when a representative sample will contain many counterexamples; i.e. the argument from selective examples involves a fallacious *some* to *all* argument. In any case DT1 is simply false: much direct perception of features of objects, e.g. by animals, depends on no theory.

For similar reasons there is naught but an *invalid* inductive argument from a series of specially selected examples – what one is mostly offered by exponents of the thesis,

[1] The two act theory of perceiving, in terms of pure experiencing plus interpreting, is also a product of the Reference Theory; for it is an attempt to account for opacity in perception (as indicated in such phrases as "seeing as") in a referential fashion. The two act theory is criticised in more detail in 11.4; see also Kuhn 1970, pp. 194–5, who makes the point that interpreting implies deliberative action in choosing among criteria and rules, none of which interpreting in perceiving exhibits.

usually by philosophers who frown on inductive arguments for generalisations – for the main thesis now opposed to the commonsense theses CS1 and CS2, namely

DT2. All observations and observation statements are theory-dependent. (Observation statements are roughly – it is always roughly – statements reportive of observations, and commonly of elementary logically form, such as af.)

The argument from examples for DT2 does not however rely simply on randomly selected examples but relies either on (what is still inadequate) some surprising examples or on such examples, together with the suggestion that, in the same remarkable way, other statements, *all* other statements, thought to be purely observational are in fact theory-dependent. There are two decisive objections to this. Firstly, there are very many observation claims that appear in no way liable to prove theory-dependent. Secondly, some of the surprising examples offered do not, when context-dependence is properly taken into account, show what they are alleged to show. Examples of observation statements that are hard, and in no-way liable to theoretical degeneration, are not difficult to produce (many workaday statements of "primitive" peoples will serve): "The log is heavy", "The fire is hot", "Elbert is asleep", "It is raining", "That wallaby has a joey", "Oko has red hair", "The grass is brown", "The bees are not flying", "The larder is bare", etc. All of these assertions depend on a contextual setting, to determine which object, which Elbert, what place, and so forth.[1] So also do assertions such as "The wall fell down", a case of the type Feyerabend claims, surprising as it may seem, is theory-dependent, because it presupposes a primitive theory of space with absolute directions. Feyerabend's claim neglects the contextual setting, a location on the surface of the earth, and illegitimately extrapolates that assertion to all of space. That the assertion is, under classical logical analysis, again, surprisingly, about everything in the actual world, is an accidental feature: for "Joe fell down", where "Joe" properly names the wall or some other individual is not. The claim "Joe fell down" presupposes no theory of the universe, no theory of gravitation or the like, and no theory. It makes use of the notions of *falling* and of *down*, and so, one may say, of direction within the neighbourhood contextually indicated; but the notions are pretheoretical and independent of any particular theories of what accounts for falling and why down is down. As even this is contentious it is worth sketching some of the support. Firstly, people, e.g. children, can learn the meaning of, and understand, such statements as "Joe fell down" without imbibing whatever the going theories of gravitation

[1] But context-dependence does not entail theory-ladenness.

and orientation in the community happen to be, *if any*. Secondly, different communities or tribes can often understand statements of this sort made by tribes with different myths and theories. The notions are not sensitive to change of theories, but rather theories must conform to these notions or have as well an account of why they do not. These points tell against the further thesis used to back up DT2, namely

DT3. "Observation statements must be made in the language of some theory, however vague" (Chalmers 1976, p. 26).

All that is true in this is that observation statements must, when stated, be made in some language or equivalent coding. But a language is not a theory.[1] Feyerabend, Chalmers and others suggest however that it is. What we are being offered here is a low – an appallingly low – redefinition of "theory", so that much that would not ordinarily be counted as theory at all comes to be accounted theory. Roughly, any notion that one *could* have a theory about, such as heaviness, falling, wind, etc., will be accounted – under the excessively generous redefinition that underlies the theses DT2 and DT3 – theoretical. But the fact that someone *could*, or *does*, have a theory about brownness or rain does not show at all that "is brown" and "is raining" *must be* theoretical predicates, or that "The grass is brown", in the ordinary, as distinct from the redefinitional sense, must be in the language of some theory. To argue so would be to commit a modal fallacy. Only redefinition saves matters, by making such notions by definition "theoretical". Under such a redefinition, since any statement makes use of a predicate, and any predicate will be theoretical, DT3 is analytically true. Similarly under redefinitions such mistaken theses as the following are rendered true: no arguments are conclusive, no one can do anything on their own, no one is really free, there are no real physicians, nothing is certain, everyone is mad really; the last three examples are taken from Edwards 1960 and Wisdom 1952, where the philosophical strategy of low and high redefinitions, a trick especially favoured in sceptical arguments, is well explained and criticised. As in sceptical cases, the redefinition of *theory* which renders all ordinary and commonsense discourse theoretical, has little to recommend it

[1] Similarly statements presuppose classifications, e.g. of things as of this or that sort, as green or brown, as objects or processes, etc. But classifications are not theories. For example, while theories can be true or false, classifications cannot, etc. And while some classifications are theoretically-based, others are not, but are otherwise based, e.g. conventionally based. Furthermore, the addition of new classifications, e.g. of things in terms of changes in place, of things as static or stable, need not replace or overturn previous classifications, but can supplement them, and so help to enrich the background language. Thus no high-level metaphysical theory, e.g. as to the ultimate constituents of the world (whether substances, processes, or whatever), need be presupposed. Thus too, arguments from failure of invariance, in changing from one metaphysical framework to another, gain no grip.

(except perhaps to exponents of theses like DT1), and much against it, since it tries to rule out some valuable contrasts, e.g. between theoretical and observational, theoretical and factual, theoretical and experimental.

Low redefinition is only part of the method used in arguing for DT3. Another is to try to read into claims much more than may be intended, with a view to locating some theoretical elements. Consider the first and most detailed example Chalmers offers in support of DT3; it concerns the "simple" sentence (grammatically and logically it is not so simple)

> ... "Look out, the wind is blowing the baby's pram over the cliff edge!" Much low-level theory is presupposed here. It is implied that there is such a thing as wind, which has the property of being able to cause the motion of objects such as prams, which stand in its path. The sense of urgency conveyed by the "look out" indicates the expectation that, the pram, complete with baby, will fall over the cliff and perhaps be dashed on the rocks beneath and it is further assumed that this will be deleterious for the baby (Chalmers 1976, p. 26).

Much of this is pure embroidery not warranted by the imperative at all. Since the thesis DT3 the example is supposed to be supporting is about statements, not warnings or the like, let us extract the statemental component

(a) The wind is blowing the baby's pram over the cliff edge,

and consider how much of what Chalmers says it implies and involves it does, and how much low-level theory is actually presupposed (Chalmers doesn't tell us which the theories in question are). Firstly, although (a) is about, among other things, the wind, it does not imply any generalisation about the wind of the sort Chalmers claims it does. In particular, (a) does not imply "There is such a thing as the wind which has the property of being able to cause the motion of objects such as prams, which stand in its path"; (a) makes no such *generalisation* about what the wind *can* do, but merely reports on what it is doing in a particular case. If the "low-level theory" consisted in a low-level generalisation about the wind as a physical phenomenon, then (a) implies no such theory. What of the expectations (psychological theory?) alleged to be indicated? All are imported; none of those cited are warranted by statement (a). (a) concerns the baby's pram; it doesn't even indicate the baby is *in* the pram (so how, for example, is it assumed that the result

will be deleterious for the baby?). Likewise nothing is said as to what is beneath the cliff edge; there may be no rocks but a soft grassy bottom. It is true of course that those who offer statements like (a) commonly have certain expectations, e.g. that the pram will fall. But where's the theory, even low-level theory, in that? Without redefinition and embroidery once again, there need be none. (The low level is zero-level.)

Another argument for DT2 (sketched in Chalmers 1976, pp. 25–6) resembles that for DT1, that nothing is secured by observation but private experience and a theory is presupposed in the building of such experience into public, testable observation statements. But according to direct realism (as explained in 8.10), observation claims are secured directly by observation, without a reductive circuit through logical constructions from private experiences. The argument depends, in short, on a special, and defective, theory of perception.

So also do arguments against CS1 and CS2 based on the fallibility of observation statements. The argument from fallibility, which presupposes DT2, is this:

DT4. "Observation statements are as fallible as the theories they presuppose and therefore do not constitute a completely secure basis on which to build scientific laws and theories" (Chalmers 1976, p. 28).

The argument for the premiss fails with the failure of DT2. Veridical observation statements are contingently true, i.e. they *may be false*; but they are not fallible, i.e. *liable* to *err*, their security is not tellingly threatened. Chalmers appeals again to, what does not suffice, a range of special examples, and these examples do not stand up to examination. Consider the first, "Here is a piece of chalk", uttered by a teacher indicating a white stick by a blackboard.

> Even this most basic of observation statements involves theory and is fallible. Some very low-level generalisation such as "White sticks found in classrooms near blackboards are pieces of chalk" is assumed (p. 28).

Plainly no such assumption need be made, or would normally be made. Nor should such a generalisation (certainly false in classrooms that cater also for the blind) really be counted as theory. The remainder of Chalmers' case takes a familiar sceptical direction,

e.g. the chalk may be fake,[1] with one difference:

> the more stringent the tests [designed to verify the statement] the more theory is called for, and further, absolute certainty is never attained (p. 28).

The first claim is doubtful, e.g. tracing the origin of the chalk in some recognised limestone quarry would be as stringent as some chemical test, but involve little or no theory: the second claim is certainly false. Often in such cases, the real possibility of error is negligible: the claim made is not fallible and there can be complete certainty about it. Often where there is some ground for doubt the issue can be settled definitely with but a few checks or tests, i.e. the claims are not infinitely fallible. The fact that in some cases – as far as the chalk example is concerned, quite exceptional cases – there may be an appeal to tests which involve theory to resolve real doubts does not show fallibility in observational claims of the type; nor does it show that they presuppose theory. For such cases are not the sort of cases that would be used to test theories, and not part of the secure basis on which theories are based. What is required for commonsense theses such as CS1 and CS2 is not that all observation claims are reliable and not open to the real possibility of mistake, but that a roughly separable class (in fact a majority) of such claims are secure; and this is the case.

Not all observation claims are reliable; some are not veridical. It is not difficult to indicate areas where observations, even by honest observers, are to be treated with some caution, e.g. where new instruments are being used, such as telescopes in Kepler's time, or new phenomena investigated. Two of Chalmers' three less-contrived scientific examples illustrating DT4 are of this type. Kepler's claim, following observations through a Galilean telescope, "Mars is square and intensely coloured" is simply false (as Chalmers remarks), and so not a veridical observation statement. Thus it does not tell against CS1 or CS2 (similarly the boiling water on a high mountain example, p. 29). In the electrostatic example, observational reports of small pieces of paper adhering to electrified rods are in order and not refuted by modern theories of attractive forces: it is only if experimenters are led on from this to a viscous fluid theory of electricity that error enters. Chalmers confuses observational and theoretical claims in setting up his illustration. The remaining scientific illustration does not concern an observation statement at all, but a

[1] On the shortcomings of the sceptical arguments from fallibility see Wisdom 1952 and Griffin and Harton 1981.

generalisation based on the comparison of observations, namely "Venus, as viewed from earth, does not change size appreciably during the course of the year". So far from the example "clearly illustrat[ing] the theory dependence and hence fallibility of observation statements" (p. 29), it does not even apply to the thesis DT4 in question.

The arguments for the thesis of universal theory dependence accordingly fail. While it is true that many statements are theory dependent, many more than traditional empiricist accounts were prepared to allow, it is a serious logical error to conclude that all are theory-dependent. Given that there is a body of observational data which is not theory dependent (a system of factual constraints), the falsification of scientific theories, and the occurrence of anomalies, both serious problems for the newer idealistic philosophies of science, are readily explained, in a rather orthodox fashion (namely, as by Popper 1959, except that now, with the removal of sceptical arguments, some basic data is hard). It is a more straightforward matter, too, both accounting for theory change and succession – in a way that undermines recent accounts of theory succession – and obtaining a satisfactory account of theory choice. Theory choice is constrained by the observational data, more generally by a conformity to the facts requirement (as explained in Routley 1980). So while much room for choice remains, because theories are intensional and cover infinitely many cases the factual data does not determine, theory choice is by no means totally free.

The direct upshot of the critique is, however, that the commonsense principles CS1–CS4 are not demolished by the new philosophy of science of the seventies: it is the new philosophy of science which, like the older faulty empiricism it aims to supersede, is at fault, not CS1–CS4. Subject to but minor qualification the commonsense principles can be retained, and of course elaborated. For example, the aims of science can be more fully stated, so that the central importance of such notions as approximation to the truth and probability are brought out, and the methods admitted can be more explicitly indicated, so that the range of admissible methods and of inadmissible methods can be appreciated. As regards what it takes the aims and methods of science to be the noneist account is, like commonsense, conservative – in contrast to the new philosophy of science where, for example, "the claim that the aim of science is truth" is rejected on the (mistaken) ground that "there are difficulties associated with the application of the commonsense idea of truth to science" (Chalmers 1976, p. 119 and p. 121). As a matter of fact, however, Popper's account of the truth of a theory (stated by Chalmers 1976, p. 122), which is but

a gloss on Tarski semantic theory, can be readily absorbed into the universal semantics already presented (cf. 1.24 [Vol. 1 *—Eds.*]). Thus, a refined commonsense theory of truth can be applied to scientific statements and theories, as elsewhere: there is no difference in kind.

But though conservative in some respects, in its commonsense basics, noneism does offer a fresh and very different sort of account of, and outlook on, science from both older and newer philosophies of science, all which involve referential assumptions. For according to noneism, science is decidedly other-worldly in attempting to account for features of this actual world; and, in its attempt to arrive at the truth and to explain things, phenomena and so forth, science considers, and for several reasons is forced into considering, objects that do not exist: indeed many of the objects of its best theories do not exist.

Accordingly the refined commonsense account of science aspired to has much in common with a neutral version of Hilbert's account of the extension of finitary mathematics to encompass transfinite and other ideal objects. In a similar way empiricist science is extended by nonentities, ideal objects idealisations and abstractions, alternative situations and uses, in order, in particular, to accomplish explanation. It is required in both cases that the extensions be conservative as far as the empirical facts go. Beyond that however extensions are not uniquely determined, and there is substantial room for theory choice, since many different theories can cover the same data.

§4. Rejection of the new idealism and of modern conventionalism and relativism in the philosophy of science

Throughout the book the argument has appealed to some of the hard pre-theoretical data of natural language, and what can be truly said in it, to argue against classical logic as (a framework for) a theory of truth and meaning which appropriately fits natural language and natural reasoning. It has appealed to simple theory-independent facts, such as that it is true that Meinong believed the round square is round. It has also appealed to the fact that, of the great multiplicity of inadequate accounts of intensionality classical logic has spawned to deal with the recalcitrant problems the truth of such statements raises, none can bring out such a true statement, or the great class of other statements it represents, as true in its original and natural sense. That *no* theory of intensionality which works within

the constraints of the classical theory *can* provide an adequate account which does so, has also been argued in 8.1. But an inadequate analysis of such a class of problem statements and of intensionality generally is no trivial discrepancy, but has a significant bearing on the resolution of a great variety of philosophical problems. On these grounds there is an excellent case then for regarding classical logic as an inadequate theory, which should, on any objective criteria for theory assessment, be up for abandonment or replacement, and which remains unquestioned and dominant for reasons which have little to do with theoretical legitimacy and a great deal to do with entrenchment and theory-saving.

Recently however these accepted criteria for theory-assessment and the whole concept of theory-saving and of pre-theoretical data have been called into question. It is claimed by a number of writers (e.g. Kuhn 1970), that there is no such thing as pre-theoretical data, that all data is theory-dependent, that any "hard" fact can be rejected or reinterpreted to fit in with a theory – in short that "theory-saving" is inevitable and that there are no external criteria of data accountability by which theories may be compared, found to fall short, preferred or rejected. If this is so then the theory-saving approach of classical logic to the "data" of natural language would appear to be quite legitimate.

In Kuhn 1970, we are presented with an account of scientific revolutions and of theory change which differs markedly from the conventional empiricist account. The account presented combines elements of conventionalism, relativism and idealism.

The conventionalism emerges in the account of the acceptability and correctness of theories in terms of the assent of the relevant scientific community (circularly defined), of complying with the rules of the game as accepted by this community, and the reduction of methodology essentially to such matters. "As in political revolutions, so in paradigm choice – there is no standard higher than the assent of the relevant community" (p. 94). There are no external or objective criteria then for theory-assessment, and the notion of correctness of a theory, in terms of correspondence to an objective, external reality is pronounced "illusive" (p. 206).

The position leads to many of the unintuitive consequences and faces many if not more of the difficulties of conventionalism in other areas, e.g. ethical conventionalism and relativism. It is certainly possible, for example, to envisage "scientific" communities which did not follow adequate methodological rules, indeed it seems that this may often

well be true of the scientific status quo, and improper methodology appears to have been a feature of much past science (e.g. medieval botany and physiology).

Like all conventionalisms, it is convincing only so long as one is prepared to accept the conventionalist's arbitrary stopping points ("the rules"), and does not attempt to obtain an explanation of why the conventions are as they are. Thus the Kuhnian account cannot really explain scientific revolutions; it cannot explain *why* there is a *crisis* when theories are felt not to fit the facts, *why* the "game" is no longer playable, or felt to be playable, according to the old rules, *why* there are felt to be disturbing anomalies, and why even entrenched theories are thus eventually abandoned, according to the promptings of methodological conscience, if they persistently fail in the relevant ways. Such "crises" and "shifts" have to be explained as apparently arbitrary gestalt changes, illuminating not the world, but only its human observers or interpreters and thus must simply be accepted without further explanation, as ultimate. There still does seem however, to be something further to be explained about such a crisis, an anomaly etc. The obvious explanation is that there is a crisis or a felt anomaly *because* the theory does not fit some set of (at least partially) independent facts, and that theories are eventually abandoned, despite pressure to retain them, for the same reason. But such an explanation goes outside the framework allowed by conventionalism, and the position thus appeals to data (crises, anomalies, paradigm, shifts, etc.) which cannot be satisfactorily explained within its framework.

The conventionalist position adopted leads to a number of difficult and anomalous consequences. However it does not seem to have been followed out in a consistent way in Kuhn's essay. The thesis that no data is theory-independent is inconsistent with some of the facts of pre-theoretical data collecting cited earlier in the work. Thus also it is claimed *both* that there is "no standard higher than the assent of the relevant community", that the point of the exercise is only that of persuasion, that there are no external criteria imposed by the external world by which theories are found wanting, *and also* that "observation and experience can and must drastically restrict the range of admissible scientific belief, else there would be no science" (p. 4). But this is simply inconsistent, for it is asserted both that there are no constraints imposed by the external world, and that there *are* such constraints. But it is the former position which is the real consequence of the relativism and denial of external criteria, as well as of the view that all the data is theory-dependent. For if all data and problems are theory-dependent, if there are no external criteria for choosing between theories, if any degree of theory-saving and epicycling are logically and

methodologically acceptable, then these devices can be employed everywhere to avoid accountability to the data, so that virtually any theory *can* be imposed on the data, and observation and experiment cannot provide external constraints in the way claimed.

This inconsistency appears to result from the desire to retain conventionalism and the resulting relativism without embracing the paradoxical and unintuitive consequences they entail. Many of these consequences have however been embraced by Feyerabend, for example, the consequence that science is no different from religion or witchcraft. This does indeed appear to be a consequence of such a conventionalist and relativistic approach. For if science has any claim to differ from these and from the construction of fiction, it must be in terms of its accountability to an external reality. The thesis of total theory-dependence of the data and of problems does however involve denying such accountability.

The point of empirical research and experiment appears to be lost entirely, presumably becoming no more than a sort of social convention or ritual. Prediction is equally a problem. Discussion, assessment and comparison between theories becomes impossible to account for, apparent discussion presumably becoming no more than a sort of sophisticated persuasion campaign ("buy my brand"). The position faces here the same sorts of problems about assessment and comparison which face extreme relativist accounts of ethical discourse ("x is good" means "I like x"), where discussion as comparison and disagreement are equally impossible to account for. Theory construction becomes an activity difficult to distinguish from the creation of fiction, and is equally lacking in explanatory ties to an empirical reality which can provide grounds for its rejection as "wrong". But although theories and fictional works may occur on a continuum, with myths falling somewhere in the middle,[1] the distinguishing feature between theories and fictions does appear to rest on the fact that theories are falsifiable and rejectable in terms of the truth or falsity of statements concerning the actual world, whereas works of fiction are not (see chapter 7 [Vol. 2 *—Eds.*]). The position in short, seems to be involved in many of the well-known difficulties of idealism and scepticism and similarly appears to be headed towards denying either the reality, or the knowability, of an independent, external world.

[1] Many myths and legends have the feature which distinguishes them from fiction, that they do attempt to account directly for the origin of observable features of the actual world, e.g. "the waterhole was made by a Dreamtime woman digging yams", "the stars are the campfires of dead ancestors in the sky and the Milky Way is the smoke from these fires". Thus in many ways they resemble theories more closely than fictions, but must be seen as having features of both (cf. 7.10 [Vol. 2 *—Eds.*]).

As this fact suggests, the conventionalist account of science is buttressed by an idealist account of perception, in which one never actually sees an item as it really is. Indeed not merely the knowability but the very existence of an independent, external reality seems to be denied by Kuhn, who wishes to say that the *world itself* changes when the theories which are intertwined with the perceptions of it change; thus "the electrician looking at the Leyden jar saw something different from what he had seen before" (p. 118), "... after a revolution scientists respond to a different world ..." (p. 111), "after Copernicus, astronomers lived in a different world ...". Thus it is claimed that a change in our ideas of the world changes the world, not merely our perceptions, theories or interpretations of it, while subsequently (p. 121) the existence of stable, theory-independent objects of perception is explicitly denied. It is argued that scientists holding different theories do not "see" the same thing, because one sees oxygen and the other sees dephlogisticated air. But oxygen is not identical with dephlogisticated air, therefore they do not see the same thing and there are no stable, independent objects of perception.

These arguments and the idealist theory of perception advanced do not represent a new paradigm for perception, as Kuhn appears to believe, but rather an old muddle based on the old paradigm. The argument for the instability of data is closely related to the sceptical argument from incompleteness (discussed in 8.10), and like it is based on the confusion of transparent and opaque senses of "see" and thus ultimately on the Reference Theory. For while it is true in the opaque sense of "see" that each scientist sees something different (dephlogisticated air in one case and oxygen in the other), it is not true in a transparent sense. The opaque sense of "see" is often indicated by the natural language locution "seeing as" (which prohibits substitution of contingent identities), while the transparent sense is usually indicated by the use of the expression "in fact" (which indicates the permissibility of such substitution). Thus it is true to say that *what Priestley saw as dephlogisticated air was in fact oxygen* (i.e. $\imath z(pPz) = o$). The distinction between the two senses (which is only possible once the Reference Theory is rejected, as explained in 8.10), can resolve the problem of admitting the incompleteness, fallibility, selectivity and "theory-dependent" character of perception (including its links with other perceptions and with belief systems) without denying the stability of the objects of perception. For the transparent sense of "see" can provide a stable object of perception which has just the properties the independent object in the external world has, independently of what

it is perceived as being, while the opaque sense can allow for the features of "seeing as" which result from the intensionality of perception.

Given such an account, which follows that indicated in natural language, there is no need to attempt to account for the problem in the common way which Kuhn rightly criticises, namely by splitting perception into *two acts*, "seeing" (still conceived of as referential) *plus* a further act, interpreting or organising what is seen. Such a two-act account ultimately derives from the Reference Theory, for it attempts to retain seeing as a referential relation between the perceiver and the perceived, and to add the intensional features of seeing on as a *separate* act ("interpreting", "organising" etc.). As Kuhn rightly points out, it faces many difficulties and cannot account adequately for what goes on. The "two" acts apparently cannot be performed separately, and the "first act", the referentially-construed relation of perception, yields the legendary stuff of perception, raw sense data. The "second act", interpreting or organising, as Kuhn notes, implies a deliberate and conscious choice among alternative theories or interpretations, which is not what occurs when something is seen *as* something else. The distinction between opaque and transparent senses of "see" and other perception functors enables an account of perception as a single, integrated act, but one which admits of a further important logical distinction turning on the account of identity.

This modern terminological variant of idealism, according to which all is theory-dependent and the World is Theory and Idea, is, like its predecessor, a reaction against the excesses and faults of empiricism and in particular, in the modern case, the empiricist account of theory assessment. For empiricism, true to its program of denying the intensional and attempting to account for everything in extensional terms, has given an *extensional* account of theories and of theory-assessment which attempts to make theories seem much more limited to, and merely descriptive of, the *actual* world than they really are. Thus it has ignored such features as the variability and infinite corrigibility of observational data, which derive from the way in which ordinary observation statements support counterfactuals and thereby go beyond the actual world. It has equally overlooked (or played down the extent of) the theory-dependence of much of the material a theory organises, for theory-dependency is an intensional feature: theories are intensional (as argued above), that is, their assessment stretches out over other worlds than the actual, and so then in general does what depends on them. Because in the empiricist account theories have been made, in the interests of extensionalism, to look much more

closely tied to and determined by the actual world than they really are, they have also been made to look much *more* falsifiable and readily rejectable on the basis of simple observational data in the actual world than they really are.

In accordance with this extensionalist program, simple empiricism accounted for theories as inductive generalisations which simply summed up observations in the actual world. As the defects of this account become clearer, it was replaced by the Popperian account in terms of *falsification* (or variations upon it, such as the hypothetico-deductive account), which attempted to rehabilitate the extensionalist program of the actual world as the entire determinant of theories, of their assessment, point and construction. Given such an account in terms of falsification, the extensionalist program could (it seemed) be retained. Because falsification occurs entirely in the actual world, if the entire point of theory construction turns on falsification, theories are accountable for entirely in terms of the actual world. Other features of theory construction and assessment which require an intensional account, can then be written off as logically extraneous to the real business of theories, as simply social or psychological facts about how people happen to arrive at theories or hypotheses.

The Popperian account admits of ready caricature. The view that the point of arriving at theories is to falsify them is, of course, a very odd account of the process and purpose of theory construction, which has been compared to the view that the purpose of building a house is to demolish it. As many have pointed out, it distorts the actual practice and purpose of science, implying that theories must be abandoned immediately once falsified, and that the good scientist, the one who best fulfils the aim of science, is the one who cooks up the most falsifiable theories, whatever their other merits. The account ignores completely the positive functions of theories, especially the way in which they enable the interpretation and organisation of experiences in the actual world by setting them within a large framework of relationships which go well beyond the actual world. It focusses exclusively on the negative constraints on theories, or falsification, because the positive functions connect with the way a theory goes beyond the actual world. What is appealing and right in the falsification account is that falsification *is* important, that the actual world does provide a set of crucial truth-constraints on admissible theories.

In contrast to the empiricist account the idealist account correctly draws attention to the way in which theories go beyond the actual world, and the important ways in which

they resemble fictions or myths, and are ways of interpreting, organising or modelling the actual world; that is, to intensional characteristics of theories. In the process however, it tends to deny accountability to the actual world. The idealist account in fact obtains much of its credibility from seesawing between two quite different positions, one of which denies accountability to the actual world, and the other of which merely opposes the empiricist account, for example often swinging ambiguously between the two positions that there is no hard data at all, and that the hard data alone does not determine the theory.[1] The former position leads to idealism and scepticism, while the latter simply denies the extensionalist and empiricist thesis.

Another dimension of difference between the empiricist account of theories and that of their new idealist opponents concerns the role of wholes and parts. The empiricist account gives a partist[2] account of theories, in which they are just the sum of their self-contained and separate parts which can be accepted or rejected separately from the whole. The new idealist opposition draws attention to the systemic (or holistic) features of theory-assessment denied in the empiricist account, and sees the "facts" as incapable of separate assessment or rejection apart from the whole theory of which they form part.

To see the basis of the dispute in the faulty empiricist account of theory assessment (and its partist view of the universe) is to see that the choice between this empiricist account and that of the new idealist position presents us with a false choice. For in order to allow for the fact that theory assessment goes beyond the actual world, there is no need to deny that theories are *also* assessed in terms of their fidelity to the actual world, which has thus a special place, both in falsification, prediction and experiment and in providing truth constraints on other criteria for theory choice. Because theories do go beyond the actual world and the hard data determined in it, the hard data alone can never completely determine a theory, but only act as a constraint upon it. Similarly in order to recognise the systemic or holistic aspects of theory-assessment, it is not necessary to see individual statements as entirely inseparable from the whole theory, for reduction of wholes to their parts versus reduction of parts to wholes are not exhaustive alternatives.[3] To recognise that much "data" is theory-dependent and thus reinterpretable in the light

[1] For example Kuhn, p. 4 again, "Observation and experience can and must drastically restrict the range of admissible scientific belief, else there would be no science. But they cannot alone determine a particular body of such belief".

[2] A not unfamiliar term explained in ENP2: atomistic individualism is a rough equivalent for partism.

[3] As argued in the case of social theories in ENP2.

of the theory, it is not necessary or correct to see all data as of this kind and to deny the availability of hard data and thus of any external independent checks on theories.

The point is perhaps best illustrated by considering historical theories and historical explanation. History is (as observed in chapter 2 [Vol. 2 *—Eds.*] and chapter 10) intensional, and much data is highly theory-dependent. The selection, significance and importance of particular events and historical tendencies is highly relative to social and political outlook, and the general theory of mankind and of society adopted. Much data can be interpreted in the light of this kind of theory. Nevertheless it is both possible and necessary to draw a distinction between theory-dependent and non theory-dependent historical data, and to distinguish a class of "hard" data. The fundamental social reasons for and the significance of the settlement of Australia, or the First World War or the Great Depression, might be highly relative to the social, political and economic theory adopted, but not the fact that they occurred. There might be historical debate and much room for different interpretations concerning the effect and the significance of 19th Century Russian nihilist terrorism and its role in producing the subsequent revolutions in Russia, *but not about the fact that the nihilist movement existed*, that *it did succeed in assassinating the Tsar*, and so on. These are facts of hard data, independent non theory-dependent facts in the external world to which historical theories and explanation must be held. Historical theories might be entitled to reinterpret the significance of much of this hard data and thus to adopt varying approaches to higher level generalisations concerning social tendencies, but they are not entitled thereby to reject or falsify the basic hard data to suit their theories; to do so is methodologically illegitimate, and illegitimate in other ways too. The new idealism implies however that there is no real difference between such reinterpretation and falsification, that expunging Napoleon's name from the history books and denying that he ever existed is a "reinterpretation" no different in kind from reinterpreting some generalisations concerning the significance of his conquests.[1]

The same considerations show that the position that there is no hard data leads directly to scepticism, to the thesis that there is no knowable, independent external world.

[1] The existence of Napoleon may of course be doubted and disputed. It can be maintained that history books present us with a giant conspiracy to maintain the fiction of Napoleonic existence. The settlement of Australia can also be disputed, although this would require a more determined sceptical stand. But at this point the close affinity of the position with scepticism, the fact that it rests finally upon the same unreasonable demand for incorrigible, infallible "knowledge" (in this case before the label "hard data" can be applied), becomes clear.

For if the scope of history includes all "facts" and all "facts" are theory-dependent, then nothing can be known for certain.

The main direct arguments the new idealism presents for its position, those for the theory-dependence of the data, have already been examined and rejected in the previous section. An important further set of arguments involves appeal to certain features of alleged scientific practice, which, it is claimed, support the position. Thus, it is claimed (e.g. Lakatos 1968, Martin 1979), examination of present scientific practice shows that theories are not abandoned when "falsifying" evidence is produced, and theories consistently take precedence over the data, which is reinterpreted to fit in with the theory. Theory saving, in short, is consistently practised.

The argument depends in part upon a low redefinition of "theory-saving". Theory-saving does not occur merely when such a theory is not immediately abandoned because of some single piece of empirical evidence, but only when a body of evidence is systematically produceable. Nor is this sufficient. It is not surprising that theories are not abandoned immediately even in these circumstances, for normally an attempt would be made to extend the theory to see if it cannot take account of the problem area; and it might in any case, as many have pointed out, be retained as a working model, despite awareness of deficiencies and the need for repairs or replacement, simply because no alternative is available. Theory-saving *does* occur in a clear (and clearly reprehensible) way when a theory is retained even after repeated attempts have been made to account for the problem areas and have failed to do so satisfactorily, (i.e. without creating further serious problems) and when an alternative theory is available which *can* account for the problem areas in a straightforward way without difficulty, and which, furthermore, can explain why the other theory fails to do so adequately.

It may be objected that whether the extension is satisfactory is always relative to the theory, because problems are always defined by the theory. But if classical logic for example must assign the value *false* to a whole class of clearly (and pre-theoretically) true statements such as "Meinong believed the round square is round", or reinterpret them in such a way as to make them false (e.g. as "Meinong believed that there existed a round square and that it was round") when they are clearly in appropriate circumstances true, then it is *not* merely a theory-relative matter that such a theory cannot account

satisfactorily for problem areas, any more than it would be if a certain theory of colonial history denied the reality of the settlement of Australia.

Both the character of the data and that their attempted resolution or reinterpretation of it is unsatisfactory may of course be *disputed* by adherents of the faulty theory; however to argue that such data therefore isn't "hard" or isn't objectively or independently establishable *unless it is beyond dispute* is again to impose a requirement on "hardness" which is far too strong, and which has close affinities with the sceptical requirement for knowledge, that nothing is known unless it is absolutely beyond dispute and cannot possibly be wrong. Of course there is no such "knowledge". As the libertarian principle defended in chapter 6 [Vol. 2 *—Eds.*] asserts, *anything* may be disputed or believed. The mere fact of disputability does not show that there is no hard or pre-theoretical data, no externally assessable criteria of accountability for data to which theories must measure up, any more than the sceptical analogue of the disputability argument demonstrates that nothing can be known.

That genuine theory-saving of the kind indicated sometimes does occur in existing scientific practice is clear. The question is whether it *should* occur. The new idealist procedure of attempting to legitimise existing theory-saving by appealing to the actual practice of contemporary science is a dubious one, which simply fails to take account of the rather obvious possibility that much in prevailing scientific practice is not what it ought, on the grounds of methodological legitimacy, to be.

There is no lack of sociological explanation for this state of affairs. As everyone knows, science has an important place in the economies of most developed nations, where a considerable slice of GDP is allotted to it. The credentials required for scientific contributions have become much more rigorous, there are more scientists alive today than in the whole preceding history of mankind, and so on. Science is well and truly established. These factors seem to have been enough to persuade some, who see scientific achievement as merchandise to be purchased, that present science, which is after all, so expensively bought, must therefore be good science. But precisely these factors (or ones closely connected with them) help to ensure that in many respects it is *not* good science, and that its practice is corrupted by the fashion of its success and establishment and is not therefore a model for methodological legitimacy.

The attempt to retain, in the face of contrary evidence, a theory or thesis with which one is closely identified and in which one has heavy investments is a natural, widespread and human reaction. However this reaction is successful only in particular social circumstances in entrenching theories which should be abandoned. A striking feature of the establishment and growth of science and intellectual inquiry generally in the last 50 years has been professionalisation and the corresponding monopolisation of intellectual life by institutions. As everyone knows, these institutions are now almost invariably organised along more or less centralised, bureaucratic and hierarchical lines, with control over rewards and progress in particular areas being exercised mainly by a hierarchy of senior professionals with heavy investments (e.g. a life-time's work) in particular areas and theories. Senior professionals with heavy investments in certain established theories thus control to a high degree what is taught, how the evidence is presented (through textbooks), what is published (in professional journals), at all levels who is employed and promoted, and which lines of research and investigation are pursued. Very often the more "mainstream" and prestigious the institution, the greater the exercise of such controlling and selecting factors, so that the climate and opportunity for the exploration of new theories may be available only in a few out-of-the-way places (something which is well illustrated in the case of non-classical logics). The greater rigour of qualification requirements can easily, in such circumstances, be used to ensure entrenchment of defective theories. In such a situation it would hardly be surprising if "non-respectable" positions did not usually prosper, and if theory-saving became not only common but *normal* practice: and in fact the professionalisation, institutionalisation (in some places officialisation) and corresponding hierarchical control of intellectual life has coincided with a *decrease* in the rate of major theory overturn, compared with the period which preceded these developments. Even where theories are eventually replaced by new ones with better ability to account for the evidence (as in the case of the theory of continental drift for example) a substantial lag may be required while an old hierarchy dies off and is replaced by a new one with smaller investments in the older, unsatisfactory theory. *The admittedly widespread practice of entrenchment and theory-saving can thus be readily explained as a social rather than a methodological phenomenon.* The fact that the social situation outlined (which is by no means either inevitable or beneficial as a means of organising a society's intellectual life) encourages entrenchment and theory-saving does not however make the practice of it either methodologically legitimate or necessary.

The attempt to establish what methodological practices are legitimate by appeal to the social practice in such a social situation may be compared to the attempt to establish what bureaucratic procedures are legitimate by examining and appealing to actual bureaucratic practice. Anyone investigating actual bureaucratic practice will no doubt find the very widespread practice of what might be called *policy-saving*. Policy-saving occurs when bureaucrats promote certain policies they favour over others they do not and when they manipulate secrecy and their control of information to discredit policies they do not favour and promote others, even where these others are contrary to the desires, interests and preferences of electors. Any examination of bureaucratic practice would discover no doubt that bureaucrats have a large amount of power and a major role in determining policies, although they are not elected and the exercise of such power is contrary to the theory of democratic control. A procedure analogous to that followed for scientific method will conclude that policy-saving is legitimate, that the role of bureaucrats in exercising power must be recognised, and that the democratic aim and ideal of fully accountable power controlled from below is unsatisfactory and should be abandoned, as not corresponding to any real or viable bureaucratic practice. Attempts to treat the autonomous exercise of bureaucratic power as an *abuse* which departs from the ideal of what is legitimate, attempts to make practice conform to some ideal model of external democratic control and responsibility, are unrealistic. Prevailing practice should be accepted and legitimated. The best we can ever hope for is benign and slightly controllable rulers as opposed to malign and uncontrollable ones.

In the same way the appeal to scientific practice implicitly writes in the legitimation of the status quo in scientific methodology, and decries the attempt to make practice conform to a difficult ideal. The ideal of methodological soundness in theory assessment, like the ideal of genuine and full democracy or equality of power, may be difficult to attain and there may always be forces which work against it, but the ideal can be more or less nearly approximated to, and some practices and forms of organisation are much better able to express it than others. But the failure of prevailing practices to attain it is not a reason for abandoning the attempt and retreating to some form of methodological cynicism and scepticism and utter relativism. The legitimation of such abuses by appeal to realism and current practice is superficially radical but in fact lends assistance to an extreme entrenchment of the theoretical status quo. As Kuhn himself notes (on pp. 79–80), new theories always in fact progress by appealing to the methodological

conscience, by treating as counter-instances what the theories they replace attempted to treat unsuccessfully as further problems within the theory. It is only by appeal to such a methodological conscience and the ideals of checkability and conformity to an independent, external reality, and superior explanatory power, that new theories are able to make the small amount of headway they do in the face of the heavily entrenched conservative forces which oppose them, and the ability of the powerful to shape, determine and manipulate our entire view and experience of the world is checked and challenged.

Chapter 12

How the theory elaborated differs from other theories of objects in its theses and objectives

Theories of objects are rare in the history of philosophy. The main streams of Western philosophy from its inception to modern times and most of the lesser and minor tributaries are, with but few exceptions (already noted), referential in nature. Most leading positions incorporate central facets of the Reference Theory, in particular the Ontological Assumption. That Assumption appeared early in western philosophy – a strong form is at the bottom of Parmenides' philosophy – and is to be found in fairly explicit form in the work of both Plato and Aristotle. It lies behind the theory of ideas which, in one form or another, as Reid indicated, dominated philosophy (Greek, scholastic, and "modern") for two thousand years, and which has persisted since Reid's time, more recently in the shape of sense data theories.

The Reference Theory is an integral part of British empiricism (for example, it appears in explicit form in Russell and in Ayer, and versions of the Ontological Assumption may be found in Mill, in Hume, and earlier[1]), and has been thoroughly absorbed

[1] See, e.g. Mill 1947, p. 30 (i.e. Bk. 1, ch. 3, sec. 2) and Hume 1888, pp. 66–68. According to Hume,

> To reflect on any thing simply, and to reflect on it as existent, are nothing different from each other. That idea, when conjoined with the idea of any object, makes no addition to it. Whatever we conceive, we conceive to be existent. Any idea we please to form is the idea of a being; and the idea of a being is any idea we please to form.

Hume's claims may be refuted, in much the way the OA was refuted, by examples of objects and ideas to which no idea of existence attaches. To refute Hume's claim it is not necessary to do what Hume tries to make out (p. 67), which involves buying into his theory of ideas.

As in Russell, so in Hume and Locke the Ontological Assumption is not quite so restrictive as may at first be supposed. Much as Russell employed the theory of descriptions and, more generally, logical constructions to extend vastly what could be encompassed, so Locke and Hume used that forerunner of logical construction theory, the theory of complex ideas. (Locke's theory is discussed in 12.4). Thus

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in recent Anglo-American empiricism, whether in positivist or pragmatist or ordinary language forms. Moreover referential assumptions go largely unquestioned in what are usually taken to be main alternatives to empiricism: they are taken for granted not only in the traditional rationalists such as Leibnitz (who approvingly formulated leading theses of the Reference Theory) and Spinoza, and in more recent realists such as Frege and Church, but also in Bradley and English hegelians, in Brentano, in Husserl and phenomenology, and in existentialism. Kant and German idealism provide no real exception, though idealists do complicate the (somewhat oversimplified) picture. For it was usually assumed, as by Kant, that any object that did not exist was given through a concept which did exist, and that ascription of features to such an object (as an object of possible experience) amounted to a judgement about the concept. In short, the Ontological Assumption was maintained by – what tends to disguise its presence – a conceptual (or idealistic) reduction. The general situation is like that in Descartes and Hume: the bound of conceptualisation is the possible, not what exists, but the (nonexistent) objects conceived are construed as conceived objects, as, in one way or another, mental constructs.

To be sure, there have been deviations from strict referential standards, even among those counted as empiricists such as Mill (who was too honest to adhere entirely to tenets of hardline empiricism and who approached – what really only softens the Ontological Assumption – free logic) and Locke. Much more sweeping and important departures from mistaken referential standards are those of Reid and of Meinong.[1] Only Meinong could seriously be said to have a *theory* of objects,[2] though the rudiments of an analogous theory – enough for a theory in the familiar perhaps overgenerous philosophical sense – may be found in Reid's work. Furthermore Reid and Meinong appear to be alone (among historical philosophers) in clearly extending the domain of objects beyond the possible, beyond the rationalist bounds on intelligibility, to encompass impossible objects; only Meinong, however, went on to contemplate the inclusion of paradoxical objects.[3]

Hume can imagine "such a city as the *New Jerusalem*, where pavement is gold and walls are rubies" (Hume 1888, p. 3), because this involves only a relation to a complex idea which exists.

[1] Less sweeping departures are encountered in some of the work of Moore and Chisholm, both of whom usually restrict quantification to existentially-loaded cases.

[2] Reid would have demurred at the assignment of such a theory to himself. Nonetheless main theses of the theory of objects are an integral part of Reid's criticism and rejection of the theory of ideas, as will be seen in §1. These theses are not what Reid's organisation of his work may suggest, and what some commentators have thought, merely tacked on additions to his work that are easily removed.

[3] To be fair, Reid was not so historically placed that the issue of paradoxical objects had come to matter.

The last decade has seen a remarkable philosophical revival of interest in Meinong's theory of objects, due firstly to reassessment of the outcome of the Meinong–Russell debate (which previous decades of philosophers had assumed Russell won by a knockout) and wider realisation of the viability of something like a commonsensical theory of objects, and secondly to various attempts to advance the theory of objects, to set it in a modern logical framework and to fill out the semantical theory of (possible) worlds. Connected with this revival there has been a sporadic flowering of free and neutral logics and modalisations thereof and of relevant and paraconsistent logics – which revealed how many things, previously said to be impossible or incoherent, could sensibly, and sometimes truly, be said and done – for example, properties ascribed to nonentities, a logic of nonexistence worked out, highly intensional functors semantically assessed, and impossible objects and situations rationally confronted. Largely disconnected with this small[1] but remarkable revival, but eminently linked with it and important to join to it, there has been a wider swing (mostly outside recognized philosophical circles) against reductionism, and against such positions as thoroughgoing mechanisms and physicalisms.[2]

One of the objectives in this final chapter is to endeavour to draw together further historical strands and the recent developments mentioned, to unify them, but within limits, so, at the same time, to separate the theory reached from other theories, and thereby to continue (hopefully) the process of clarification of the theory. And one of the things that will emerge from all this is a programme, which includes a research programme for working out and assessing the combined effects of the theory of objects, ultralogic$^{\alpha}$, and nonreductionism, i.e. of radical noneism in the fuller sense.

[1] Rumour has it that the revival is soon to burgeon, particularly in U.S.A., with many new books and articles planned on possible and impossible objects, especially on those remarkably useful objects, worlds.

[2] The rejection of reductionism comes from many different quarters, by no means only from holists and marxists (who reject individualist reductions, but adhere their own sorts of reductions of individuals to wholes), but from a range of alternative, and often younger, thinkers outside academic philosophy, especially those who have been influenced by environmental and ecological matters, and from biologists (especially ecologists) and social scientists. As to the last, see for example, to get the feel of the swing (I make no judgements as to the quality of the case so far presented), *Beyond Reductionism: New Perspectives in the Life Sciences* (edited A. Koestler and J.R. Smythies), Hutchinson, London 1969; and also E.P. Odum "The emergence of ecology as a new integrative discipline", *Science*, 195 (4284) (1977) pp. 1289–93.

[α] Cf. Vol. 4 *—Eds.*

The procedure will be, accordingly, to investigate to some limited extent, what the theory has in common with and how it differs from, firstly, the positions of Reid and Meinong, secondly, recent theories of objects, primarily those of Castañeda and Parsons, and thirdly, modern antireductionism.

§1. Reid, commonsense, and the theory of objects

Reductionism, in the empiricism of the seventeenth and eighteenth centuries, took the form of reduction to ideas (of one sort of another, e.g. impressions, ideas of reflection, etc.). The reductions of philosophers were thus primarily epistemological,[1] the primary problem being seen as that of accounting for human knowledge in its various forms and for the intellectual powers of man.[2] These reductions all, according to Reid,

> leave common sense at one and the same point and are on the road to Hume [and scepticism]. Whether they speak of *eidola* with Democritus, or of "sensible and intelligible species" with the Schoolmen, or, since Descartes and Locke, of "ideas", they all ... accept the "ideal hypothesis" in one form or another. They all hold the theory which is summed up in the proposition that the immediate object of every sort of "external" cognition [what is really perceived, conceived, remembered, etc. and acted upon] is a representative [existing, transparent] substitute for what one would ordinarily say that we say or

[1] The modern art has been to replace epistemological reductions by logical reductions of one kind or another, e.g. to take an important class of examples, those in terms of complexes or associations of ideas by logical or set-theoretical constructions in terms of properties (or concepts) or sets.

[2] The main discussions in Reid's work of importance for the history of the theory of objects occur in his *Essays on the Intellectual Powers of Man*, especially the essays *Of Abstraction* and *Of Conception* and the section entitled "Reflections on the Common Theory of Ideas" in the second essay.

To appreciate the value of some of Reid's work, the gems to be found with only a little fossicking, is not of course to applaud all of it. Some of Reid's work can be vaguely irritating, e.g. the human chauvinism, the attitude to "savages", and to the brutes (which included and was based on serious errors of fact, e.g. the sixth conclusion p. 405), the protestantism, the celebration of the principles, assumptions, and values of the Enlightenment. In much of this Reid was only a creature of his enlightenment times. But the swing from protestantism to humanism, then occurring, only seemed to make matters worse, as evidence by Reid's contemporary Hume. For so much then devolves on man. It is not just philosophy that is human centred (e.g. "the sole end of the logic is to explain the principles and operations of our reasoning faculty, and the nature of our ideas" Hume 1888, p. xix) with chauvinistic accounts of fundamental notions such as causation and probability, but that all science is really nothing but the science of man ("in pretending therefore to explain the principles of human nature, we in effect propose a complete system of the sciences..." p. xx) – a staggering thesis, and one quite invalidly reached (see p. xix).

> touched, that we remembered, or in any way thought of (Grave 1960, p. 11),

Or, more briefly, the mind's immediate objects upon which it operates are always ideas which exist. Ideas are in fact fully referential intermediaries in all mental operations.

The theory of ideas in the larger sense – what, appropriating use of Reid's terms for the theory of ideas, we shall call the *system of ideas* – consists of two theses, first, the *ideal hypothesis* (or theory of ideas in the narrow sense) just stated, and, second, the *principle of conceptual empiricism*[1] (or *conceptual limitation*), according to which

> all our ideas (concepts) are, or are complications of, ideas of sensation or of reflection ... [i.e.] introspective experience (Grave 1960, p. 16),

that is, less explicitly, we have no ideas which we do not have from experience. Reid's most important theoretical contribution to philosophy was to isolate the system of ideas, to uncover its underlying sources, to follow out its consequences and point out the flagrant violations of common sense it leads to, to call it into question and to refute it.[2] His conclusion was that ideas (or images) do not exist, that is, ideas in the philosophers' sense, as contrasted with the vulgar sense (see Reid 1895, p. 291); and that, furthermore – until much is done (the four points Reid sets out on p. 374), which Reid thought could not be done –

> the theory of images existing in the mind or brain ought to be placed in the same category with the sensible species, *materia prima* of Aristotle, and the *vortices* of Des Cartes (p. 374).

The ideal hypothesis derives, as do essential characteristics of the ideas involved, from the Reference Theory, with but few further assumptions. Reid traced the main connections:

[1] This principle, already examined in chapter 9, is further considered in connection with Locke's theory of complex ideas in §4 below.

[2] Cf. Reid himself (1895, p. 88):

> The merit of what you are pleased to call *my philosophy* lies I think, chiefly in having called into question the common theory of ideas, or images in the mind, being the only objects of thought; a theory founded on natural prejudices, and so universally received as to be woven into the structure of the language. ... there is hardly anything that can be called *mine* in the philosophy of mind, which does not follow with ease from the detection of this prejudice.

> There are two prejudices which seem to me to have given rise to the theory of ideas in all the various forms in which it has appeared in the course of the above two thousand years...
>
> The *first* is – That in all the operations of understanding, there must be some immediate intercourse between the mind and its object, so that the one may act upon the other. The *second*, that in all the operations of the understanding, there must be an object of thought, which really exists while we think of it; or, as some philosophers have expressed it, that which is not cannot be intelligible (1895, p. 395).

The second, and really important, principle, *the principle that ideal substitutes have to be found for nonexistent objects* of thought, *amounts to but a case of the Ontological Assumption*. The argument is as follows:– Operations, by definition, apply to objects, since they always operate on something to yield something;[1] and accordingly they ascribe features to the objects operated on, since, for every operation ϕ, a representing function R_ϕ, can be defined, e.g. thus: $R_\phi =_{\mathrm{Df}} \lambda xy(\phi(x) = y)$ (cf. Mendelson 1964, p. 120). By the Ontological Assumption then any object a of an operation, ϕ say, must exist (now); for if ϕ applies to a to yield something, b say, then a has the property $\lambda x R_\phi(x, b)$. The Reference Theory therefore implies that the objects of all operations, including mental operations, exist. But because a special case may be true where the general principle is false, it requires further argument than that against the Ontological Assumption to show that the special case is false. However arguments like those against the Ontological Assumption can be applied: they include, what Reid appeals to (e.g. p. 373, also p. 368), examples of intellectual operations which involve no existing objects, e.g. where one thinks of or dreams about or fears what does not exist. Moreover, it follows from the Independence Thesis that some operations apply to objects that do not exist: for some such objects

[1] Reid is not denying that mental operations have objects, only that the objects are ideas and that the objects must exist. On Reid's view "every such act must have an object" (p. 368); similarly (p. 292):

> In perception, in remembrance, and in conception, or imagination, I distinguish three things – the mind that operates, the operation of the mind, and the object of that operation. ... There must be an object, real or imaginary, distinct from the operation of the mind about it.

Hamilton, a strong exponent of the OA, foolishly asks in his note on this passage:

> If there be an *imaginary object* ... where does it exist?

The short answer is: it does not exist. The object is the obvious object, e.g. the object of one's conception of a centaur is the centaur, which does not exist, and accordingly requires no location, no placement either within or outside the mind.

have properties, thereby yielding characteristic functions, and so operations on them. There is good reason to think that, if any operations apply to non-existent objects, at least those associated with intensional, and typically with intentional, properties do (so Reid's examples are no exceptions, but perhaps paradigmatic of cases when the OA fails). Hence there is good reason to think that the principle that every mental operation has an existing object is false.

Reid disposes very neatly of the objection that, because we may say that a man who conceives a centaur has thereby a distinct image of it in his mind, we can

> infer... that there really is [i.e. exists] an image in the mind, distinct from the operation of conceiving the object[. This] is to be misled by an analogical expression; as if from the phrases of deliberating and balancing things in the mind, we should infer that there really is a balance existing in the mind for weighing motives and arguments ... if we only attend carefully to what we are conscious of in this operation [conception], we shall find no more reason to think that images really do exist in our minds, than that balances and other mechanical engines do (pp. 373–4).[1]

[1] Reid continues (p. 374):

> We know of nothing that is in the mind but by consciousness, and we are conscious of nothing but various modes of thinking, such as understanding, willing, affection, passion, doing, suffering. ... But [as for] images in the mind, if they are not thought, but only objects of thought, I can see no reason to think that there are [i.e. exist] such things in nature –

an admirable precis (with a little allowance for other modes and other ways of knowing of the modes) of an important part of what appears correct in Ryle's *Concept of Mind*.

An important anti-Cartesian thesis that Reid advances is that *men think without ideas*, and, more generally, that mental operations occur without internal mental entities such as ideas, impressions, images, species, sense data, concepts, etc. in the senses of philosophers. Reid explains how the appearance of paradox, arises in his opinion, from an ambiguity in the word "idea" between the ordinary and the philosophers' sense:

> If the idea of a thing means only the thought of it, or the operation of the mind in thinking about it, which is the most common meaning of the word, to think without ideas, is to think without thought, which is undoubtedly a contradiction (p. 373).

Reid's anti-Cartesian thesis is not as radical, then, as it may at first have seemed. For earlier on (p. 298) Reid concedes that all ordinary acts and operations of the mind exist:

> No man of sound mind ever doubted of the real existence of the operations of mind, of which he is conscious!

The first principle underlying the theory of ideas Grave 1960 (p. 25) calls the *principle of cognitive contact*, since it is a sort of epistemological no-action-at-a distance principle.[1] The first principle is, like the second, false, as Reid says (p. 369; his further case against the principle is given on p. 302ff.):

> There appears no shadow of reason why the mind must have an object immediately present to it in its intellectual operations, any more than in its affections and passions. ... persons, and not ideas, are the immediate objects of ... affections, ... sometimes persons who have now no existence ...

There was however an important traditional argument for contiguity of the object to the percipient which Reid had previously considered and rejected (pp. 300–2), namely the following:– The mind cannot have intercourse with any object not present to it, e.g. it "cannot perceive what it is not present to, because *nothing can act, or be acted upon, where it is not*" (Clarke, quoted in Reid, p. 301, my italics). In the sense of "act" ("physically act") in which the (italicised) principle of the argument is correct for entities, perception does not involve action, as Reid explains:

> To make the reasoning conclusive, it is further necessary, that, when we perceive objects either they act upon us, or we act upon them. This does not appear self-evident, nor have I ever met with any proof of it. I shall briefly offer the reasons why I think it ought not to be admitted.
>
> When we say that one being acts upon another, we mean that some power or force is exerted by the agent which produces, or has a tendency to produce, a change in the thing acted upon ... .

[1] According to Reid (p. 369, my italics), this principle:

> depends upon [the second]; for although the last [i.e. the second] may be true even if the first was false, *yet if the last be not true neither can the first.* If we can conceive objects which have no existence, it follows that there may be objects of thought which neither act upon the mind nor are acted upon by it; because that which does not exist can neither act nor be acted upon

– by what exists, such as, on Reid's (not entirely coherent) view, the mind. But the argument breaks down if the mind does not exist (as Reid's treatment of mental images tends to suggest) and given that some nonentities can act upon others, e.g. Chloris bore a daughter and twelve sons to Neleus – all of whom, except Nestor, were killed by Heracles. But the latter Reid may have disputed, given the truth-value gap suggested in passing as regards "creatures of imagination" (p. 363).

> An object in being perceived does not act at all. I perceive the walls of the room where I sit; but they are perfectly inactive, and therefore act not upon the mind. ...
>
> I see as little reason ... to believe that in perception the mind acts upon the object. To perceive an object is one thing, to act upon it another; nor is the last at all included in the first (p. 301).

One relation, that of acting-upon, is a physical, Brentano-relation, the perception relation is not, but is intensional. (By virtue of its intensionality, the relation of perception does not exclude, but may be coupled with, a physiological story concerning perception). Moreover, as Grave points out (pp. 27–8) following Reid (e.g. p. 372),[1] the introduction of intermediaries scarcely diminishes the difficulty of explaining the relation of mental operations to their *prima facie* objects.

Reid's main thesis is that:

> (1) these two principles carry us into the whole philosophical theory of ideas, and (2) furnish every argument that was ever used for their existence. (3) If they are true, that system must be admitted with all its consequences. (4) If they are only prejudices, (5) grounded upon analogical reasoning, the whole system must fall to the ground with them (p. 369, my numerals).

Observe that (3) strengthens (1), and (4) adds to (2). It is not just that the two principles incline, or induce us, to accept the theory of ideas, but that:

(α) The two principles, together perhaps with other true statements which we cannot but admit, entail the theory of ideas;

and hence entail its consequences. Nor is it just that the two principles have figured in all the arguments that were actually used for the existence of ideas, but further it may seem from (4), there are no other arguments in which the principles do not occur essentially. The latter claim is difficult to establish, nor does (4) really require it. It suffices for (4) (as distinct from (5)) to show that:

[1] And as Reid has elaborated in the case of ideas (p. 305),

> ideas do not make any of the operations of the mind to be better understood, although it was probably with that view that they have been first invented.

(β) The theory of ideas entails the two principles.

For then, by Modus Tollens, the theory falls with the two principles, or, for that matter, either principle. But it has already been argued (above and by Reid) that the two principles are false. (And (β) is true; for the ideal hypothesis implies both that ideas are immediately present to the mind and are acted upon and that they exist. Hence the theory of ideas *is* a mere prejudice. But none of the other marked assertions are correct without some qualification.

The analogical reasoning, remarked under (5), which Reid thinks accounts for the two principles is "a supposed analogy between matter and mind", "that the operations of the mind must be like those of the body"; more specifically, "a strong and obvious analogy" between "the mind and its conceptions" and "a man and his [material] work"' (cf. again Ryle's *Concept of Mind*). No doubt the material analogy is important in accounting for the origin of the first principle, and has played a significant part in the widespread acceptance of the second, especially insofar as the assimilation of mind to matter has meant the assimilation of the intentional to the extensional. However, the important reason for the adoption of the second principle, and the ideal hypothesis, is the Reference Theory.[1]

Without the enlargement of the second principle to (something approaching) the full Reference Theory Reid's claim (2) is in doubt. For several of the reductionist and sceptical arguments that were used by Reid's opponents (e.g. Descartes and Berkeley) for instance, arguments from perceptual relativity and from incompleteness, relied upon identity features of reference, while arguments from mistaken perception and false memories depended upon a more comprehensive version of the Ontological Assumption than Reid's second principle (which is restricted to operations of the understanding) covered. Indeed the argument to which Reid devotes most attention in the section (pp. 300–5) where he claims to have "considered [and found wanting] every argument I have found advanced to prove the existence of ideas, or images, of external things, in the mind", namely an argument of Hume's from perceptual relativity (which Reid deals with very neatly, and shows to depend on an ambiguous middle term) does not conform with claim (2). In

[1] As for why the Reference Theory is entrenched, the story resembles that of other sweeping theories. The motives are not only (or always even importantly) philosophical, but social and political: see e.g. ENP2.

addition, Reid's claims to completeness have to be treated with due scepticism, for as Grave remarks (1960, p. 25)

> Most of [the] familiar reasons for a theory of ideas were curiously ignored by the philosophers of the Common Sense school. They are all silent about the objects of false beliefs and memories.

Given that claim (2) fails for these reasons, claims (1) and (3), and so also (α), likewise fail. But just as claim (2) can be reinstated (if a little more cautiously stated) by enlarging upon the second principle, so also (1) and (3) and (α) can be reinstated. (This makes Reid's claim directly comparable with, and an anticipation of, those of chapter 8, §8.)

The argument Reid offers for (1) and (3) is far from sufficient, but it indicates the direction of travel:–

> It is by these (two) principles that philosophers have been led to think that, in every act of memory and conception, as well as of perception, there are two objects – the one the immediate object, the idea, the species, the form; the other the mediate or external object. The vulgar know only of one object ...
>
> These principles have not only led philosophers to split objects into two, where others can find but one, but likewise have led them to reduce the three operations now mentioned to one, making memory and conception, as well as perception, to be the perception of ideas (p. 369).

Let *y*-ception be an arbitrary mental operation, e.g. one of Reid's favoured trio, conception, memory, perception, or cases of these such as imagination or olfaction, or yet again, foresight, telepathy, etc. (Very approximately, "*y*" is replaceable by "per", "con", "auditory per", etc. The notation implies no offensive reduction of operations to one, but facilitates some legitimate generalisation.) As argued already, *y*-ception always has an object to which it applies (the application of the function[1] is indicated prepositionally, most commonly with particle "of"). But the obvious and ordinary objects of mental operations are not references; commonly they do not exist (even at some time), invariably they are not

[1] The operations are functions under Leibnitz-identity, not under extensional identity.

transparent, and they are not Brentano-related to that which operates, e.g. they are not physically acted on (by the y-ceptor) in the operation. Therefore, by the Reference Theory, there must exist references in the case of each operation. Hence there exist objects – Reid's second objects – distinct from the ordinary objects of mental operations (such as kings and dungeons and round squares) which are not pure references. These referents are uniformly supplied whatever operation y-ception is.

The more detailed arguments that the obvious or ordinary objects of perception are (referentially) defective rely, naturally, on sceptical-style arguments; and different arguments for ideas (in the philosophers' technological sense) result according as different sceptical arguments are pressed into service. A familiar one among more detailed arguments runs, when generalised and set out more explicitly, as follows:–

1. Both [true] y-ception and false y-ception occur, i.e. there are cases of both types. ("True" and "false" are partitioning adjectives sometimes applied as regards memory, perception and imaging; but sometimes "true" is deleted, i.e. y-ception is made into a so-called success term, and sometimes other adjectives replace "true" or "false", e.g. "veridical", "mistaken".)

2. There are no intrinsic marks of true y-ception (which would distinguish true y-ception).

Hence, by virtue of the intended sense of 2,

$2^{\dagger}$. The objects of true y-ception must be of the same sort as the objects of false y-ception.

3. The objects of [true] y-ception must exist; on modern prejudices, they must be referents, transparent entities.

4. The apparent objects of false y-ception do not exist, at least in the form y-cepted.

3 is taken to be entailed by the notion of [true] y-ception, 4 by the notion of false or mistaken y-ception, and 2 is often claimed as a matter of brute fact (supporting arguments typically take the form of issuing a challenge to produce internal criteria, and refuting any that are produced along with more likely-looking candidates). By 3 and 4,

5. There must exist some surrogate objects – call them y-ideas – which are the real objects of false y-ception.

By 2† and 5,

6. y-ideas are also the objects of true y-ception.

Hence,

7. The real objects of y-ception are always y-ideas.[1]

It is corollary that y-ideas exist, and are transparent; they are (in this sense at least) clear and distinct.

It remains to show that the referents arrived at (y-ideas) have the further basic property of ideas, namely immediacy. Presumably Reid thought that the principle of cognitive contact (so far unused) yielded the immediacy feature. But for immediacy in the issued sense of "without intermediary" the principle is not really required. For suppose z is the referent of y-ception and there is no immediate referent, under some presupposed ordering relation $\leq$; then z is immediate referent. If z is not immediate, consider some "more immediate" referent y and reapply the first argument, repeatedly. Either an immediate referent at some stage results or a sequence of progressively more immediate referents ordered under $\leq$ results. This sequence is bounded above, by the y-ceiver's mind on the usual view, hence it has a least upper bound, which is then the immediate referent. There are two hitches to this. Firstly, the argument does not prove contiguity, in the sense of adjacent interaction of the y-ceiver's mind and the referent. Perhaps this is not an essential feature of the notion of *idea* – on historical accounts (subsequently adopted) it is not.

Secondly, the argument assumes some properties – very plausible properties – on the ordering relation and its field (more in fact than are needed to select, all that is required, a nearest referent); but some further assumption seems to be required in any case to make the argument tight. For there is a problem in applying the principle of cognitive contact to clinch the case, namely that it is not immediate that the immediate referent yielded by that principle is the same as the referent of y-ception delivered by the second (ideal substitute) principle. There are several ways out of this problem, of varying satisfactoriness. Least satisfactory, simply introduce a bridging assumption, that the referents coincide. Better, assume or argue that the mind acts on the y idea and

[1] Reid himself is in some trouble with arguments of this sort applied to memory and (cases of) perception. For he insists upon a variant of premiss 3: but then a kind of y-ception can be defined to guarantee both premisses 3 and 4, and premiss 1 can hardly be disputed.

apply Clarke's argument for contiguity. More specifically, the argument applies the two principles:

(PC) The mind^{E} acts on, or interacts with the referents of mental operations;

(UC) No entity (physically) acts or is acted upon where it is not located.

(UC) is the principle underlying Clarke's argument, and (PC), the bridging principle, is an appropriately referentialised version of the principle of cognitive contact. Perhaps best, reverse the arguments: first apply the cognitive contact argument, referentially construed (its intended construal given that minds are supposed to exist and to interact with their immediate objects), to obtain an immediate object of y-ception with the interaction property; then apply the argument previously given, leading to y-ideas, to show that the ordinary, commonly external, objects of y-ception are distinct from these referents. Observe that the principle of ideal substitutes now *follows*; but of course the second argument uses (or presupposes in one of its premisses, viz. 3) the Ontological Assumption.

There is just one detail to complete, the requisite definition of "idea". When defined, ideas have almost always been defined as *that whichs*. Such a characterisation was offered by Locke 1975, e.g. p. 47 "whatever it is, which the Mind can be employed about in thinking", also "whatsoever is the Object of the Understanding when a Man thinks"; but the characterisations are not wide enough for Locke's own subsequent purposes, for instance for ideas of sensation (especially in cases when "men think not", p. 113). Better is Reid's account of ideas as the immediate existing objects of mental operations of cognition in the wide sense. Similar characterisations of sense data have been given this century, for example Moore's definition as "whatever is directly perceived is sensory experience" (for this and other recent accounts see Smythies 1956, p. 5ff.). Along the same lines, let us define an idea as that which is the immediate referent of y-ception of some sort (i.e. *idea* is defined by abstraction or description). The arguments presented show – given the underlying assumptions of cognitive contact and the Reference Theory – that there exist such objects. Hence, on the same assumptions, the ideal hypothesis follows. Thus slightly modified forms (the modifications being in the principles) of Reid's (1), (3) and (α) do hold.

What fills the place left upon the demise of the theory of ideas (and with it empiricism)? Evidently the theory of items can replace the theory of ideas. In Reid's view it is commonsense which replaces the theory of ideas, but it is commonsense reinforced

by principles of the theory of objects. Facets of the theory of objects appear not only in Reid's critique of the ideal hypothesis, but elsewhere in Reid's work, in particular in his view that mathematics is existence-free (already discussed), in his theory of universals, in his account of conception, and in his rejection of the thesis that we cannot conceive the impossible.

Against "the authority of philosophy, ancient and modern" Reid advances the truth – of which he says: "I know no truth more evident to the common sense and to the experience of mankind" (p. 368) – that one may conceive things, such as centaurs, that never existed and also things that are impossible;[1] he says further that one may think and reason about such objects, and generalise and particularise about them. Despite commonsense, things have not advanced that much among philosophers since Reid's day. Grave, who has made a careful study of Reid's work, makes very heavy weather of Reid's straightforward and lucid remarks about being able to conceive what does not exist.

> What does Reid mean when he says that a centaur is the direct object of the conception of a centaur and that there are no centaurs, that the circle does not exist and is the direct object of the conception of it? One would like to be quite sure that Reid himself knew even vaguely. He goes on to speak of our conception of objects that do not exist as if he had said something perfectly straightforward, as though there was no appearance of self-contradiction in it which needed to be explained away (Grave 1960, p. 36).

Grave has imported assumptions from the Reference Theory that Reid rejected. Even what Reid is said to say is recast in these terms, thus giving the appearance of contradiction (in the first part of the first sentence). For what Reid said was that there *exist* no centaurs, i.e. no centaurs exist (cf. Grave p. 34). Reid would *not* have said "there are no centaurs" meaning "no centaurs are objects", for he explicitly said, to quote Grave (p. 54), that every conception "must have an object", because every conception is "of something", and went on to say that the object of a conception of a centaur is a centaur, whence it follows that (some) centaurs are objects. Once the distinction between existentially-loaded

[1] According to Reid (p. 407),

> I can conceive a thing that is impossible, but I cannot distinctly imagine a thing that is impossible.

Acquaintance with etchings like Escher's cast considerable doubt on the latter concession to the traditional rationalist-empiricist opposition.

and neutral quantifiers, which Reid found quite straightforward, is seen, no appearance of contradiction remains and no explaining away is required. Similarly, that the circle is an object which does not exist, only gives an appearance of self-contradiction if objecthood is mistakenly taken to imply existence (i.e. a principle like the OA is imported).

Grave then goes to considerable trouble (1960, p. 36ff.) trying to interpret what needs no interpretation. As one might by now expect, these "interpretations" are attempts to reset what Reid says within the scheme of the Reference Theory. But Reid has dismissed that Theory along with the system of ideas. None of the interpretations Grave proposes are (as he virtually admits) satisfactory. Reid was *not* "providing nonexistent objects of conception with a 'subsistence' somewhere between being and nonentity" (p. 36); he was *not* relying on a metalinguistic translation taking "conceive of a" into "understand the word 'a'" which would remove nonexistent objects in favour of words without application to anything, i.e. anything^{E} (Grave's less probable interpretation, p. 36); he was *not* relying on a Lockean reduction of individuals which do not exist to complexes of properties, in Grave's terms (his "more probable" interpretation, p. 40):

> when we think of some individual thing which does not exist, a centaur for example, we are presumably combining pure universals in thought and giving them this reference.

Grave thinks a similar reconstrual is required from Reid in the case of imagined objects, since in Reid's view, "imagination is a species of conception": in the case of a rose seen but unremembered

> the characters of real things are before the mind ... but formed into unreal combinations – a centaur pictured is an unreal combination of real components (p. 43).

The less probable interpretation, which "cannot claim much support from anything he [Reid] says" (p. 37), means that "the principle which Reid regards as axiomatic, the principle that every conception must have an object" "has to be given up" (p. 36) – or somehow satisfied by words. Neither option would have satisfied Reid: neither option has much to recommend it (as explained in chapter 4 [Vol. 2 *—Eds.*]). The more probable interpretation depends on a misinterpretation of Reid's views on universals, which imply that universals do not exist. Since universals do not exist, neither do combinations, so the combinations cannot supply the reference Grave assumes. Again the misinterpretation

is the result of importing referential assumptions: with the result that Grave has trouble comprehending how Reid can speak intelligibly of and ascribe properties to universals which do not exist. Not surprisingly then, he has a considerable struggle to make sense of Reid's theory of universals.[1] The struggle begins with the remark that Reid "then begins to speak obscurely of the nonexistence of universals" (p. 38), and ends, unsuccessfully, on this note:

> One looks carefully through Reid for something that makes intelligible the notion of a world, populated by abstract entities or possible predicates in timeless relations and deprived of any kind of being. There is nothing at all (p. 40).

But that was not Reid's position: on Reid's view, universals do not exist, so, though they are objects of conception, and abstract objects at that, they are not abstract entities, and they do not "populate the world".

Reid's actual views on universals are presented, primarily, in several brief but important statements in his essays on conception and abstraction (Reid 1895, pp. 360–412) – beginning with the account of conception of nonexistent objects (p. 368) and with the rejection (already noted of a case of the Ontological Assumption as one of the foundations of the erroneous system of ideas, a rejection which makes logical space for

[1] The struggle issues in results like this:

> on Reid's view of the nature of universals, it will turn out to be as misleading to say that universals which have instances do not exist as that they do (p. 35).

On the contrary, it is not at all misleading to say that Universals do not exist; but, Reid is prepared reluctantly to concede (p. 407), they may be said to *exist in* – much better, they may be *instantiated by* – individuals. Reid makes the customary distinction between a universal, e.g. whiteness, and its instances, e.g. the whiteness of this sheet. The first implies no existence, the second Reid allows can exist (it is a particular state-of-affairs). Thus on the conceded sense, universals exist *in* the individuals they instantiate where the instantiating state-of-affairs exists. (The doctrine is therefore not that Grave takes it to be in the middle paragraph of p. 39.)

It has already been argued (in 8.9) that the "exists in" terminology is unfortunate, and misleading since it suggests (what is wrong) an immanent theory of universals. Reid's view appears to be similar; for he at once adds

> this existence ... in some existing individual subject ... means no more but that they are truly attributes of such a subject (p. 407; my rearrangement).

Certainly some accommodation has to be made, on almost any theory of universals, for the popular sense in which some species are said to exist, others to no longer exist, and so on. But this can be done with ordinary terms which need carry no commitment to the external existence of species, such as "extinct" and "not extinct" (or "represented" or, more dangerously, "extant"). A species is *extinct* if it did have members that existed but no longer has members that exist.

objects, like universals, which can stand in immutable relations without existing. The core of Reid's view is that

> ... all that is mysterious and unintelligible in the Platonic ideas, arises, from attributing existence to them. Take away this one attribute, all the rest, however pompously expressed, are easily admitted and understood (p. 371; similarly p. 404).

As to how, Reid explains through an example – which serves at the same time to illustrate Reid's view of the objects of mathematics –

> Take, for an instance, the nature of a circle, as it is defined by Euclid – an object which every intelligent being may conceive distinctly, though no circle had ever existed; it is the exemplar, the model, according to which all the individual figures of that species that ever existed were made [better, *conform*]; for they are all made according to the nature of a circle. It is entire in every individual of the species, without being multiplied or divided. For every circle is an entire circle; and all circles, in as far as they are circle, have one and the same nature ... It is the essence of a species, and like all essences, it is eternal, immutable, and uncreated. This means no more but that a circle always was a circle, and can never be anything but a circle. It is the necessity of a thing, and not any act of creating power, that makes a circle to be a circle (p. 371; a briefer presentation of some of these points appears on p. 404).[1]

Platonists

> were led to give existence to ideas, from the common prejudice that everything which is an object of conception must really exist; and

[1] Reid suggests an ingenious application of this theory to solve two puzzles in the philosophy of religion that the Platonic system and systems like it generate: (1) that the role of God is much diminished, for "nothing is left to the Maker of this world but the skill to work after a model" that already exists independently of him and in greater perfection and beauty than anything he can produce, and (2) that arguments from design for the existence of God are "destroyed by the supposition of the existence of a world of ideas, of greater perfection and beauty, which was never made" (p. 371). The puzzles are removed "if it be true that the Deity could have a distinct conception of things which did not exist, and that other intelligent beings may conceive objects which do not exist"' (p. 372); and so are removed with "the common prejudice that everything which is an object of conception must exist" (p. 404).

> having once given existence to ideas, the rest of their mysterious system about ideas followed of course; for things merely conceived [need] have neither beginning nor end, time nor place ... (p. 404).

Also simply resolved are

> the intricate metaphysical questions that ... agitated ... the philosophers till about the twelfth century ... such as, whether genera and species do really exist in nature, or whether they are only conceptions of the human mind. If they exist in nature, whether they are corporeal or incorporeal; and whether they are inherent in the objects of sense, or disjoined from them (p. 406, my rearrangement).

Similarly resolved are the questions which exercised philosophers after the revival of learning, as to whether universals were particular or general ideas. The answer, in each case, is neither. There exist no "general ideas either in the popular or in the philosophical sense of that word",

> because everything that really exists is an individual.[1] Universals are neither acts of the mind, nor images in the mind.[2] ...
>
> A Triangle, in general, or any other universal ... is not an idea, nor do we ever ascribe to ideas the properties of triangles. It is never said of any idea that it has three sides and three angles. ...
>
> Ideas are said to have a real existence in the mind, at least while we think of them; but universals have no real existence. (p. 407).[3]

Just and true though most of this is, Reid has somewhat overstated his result in claiming that "all the mystery is removed". Granted the existential problems concerning universals are removed (at least for most ordinary intelligent people, who, unlike philosophers, are not caught in the grips of the Reference Theory); but the other puzzles or

[1] On the view defended in chapters 8 and 9, *particular*, not individual.

[2] The conclusion Reid draws from this, "that we cannot, with propriety, be said to have abstract and general ideas" in either sense, does not follow, either on the theory of items or on Reid's view. For what does not exist can be conceived, and, in certain cases, had. But though universals – which do not exist – can be distinctly conceived (p. 407), they cannot of course be significantly had.

[3] It is at this point that Reid introduces, only to immediately eliminate again, the "exist in" terminology (already discussed), to account for the sense in which species are said to exist.

mysteries concerning universals, such as the Third Man (and other puzzles considered in 8.9) are not thereby removed.[1]

Nor does Reid really think that all mystery is removed; for he proceeds in an interesting section (1.4, pp. 363–5)[2] to compare conceptions of universals with "copies which the painter makes from pictures done before", the copies in the case of conceptions of universals being taken from "the conception or meaning which other men, who understand

[1] There is much excellent discussion in Reid of philosophers' opinions on universals, we shall have to pass over as not of immediate relevance. For example, Reid does a splendid hatchet job on Hume's sentiments and in particular on Hume's amazing (but nonetheless referentially entirely expected) theses "that it is utterly impossible to conceive any quantity or quality, without forming a precise notion of its degrees", and "that it is impossible to distinguish things that are not actually separable" (see p. 410).

[2] Reid divides "our conceptions" into:

> *three* kinds. They are either conceptions of individual things ...; or they are conceptions of the meanings of general words; or they are creatures of our own imagination: and these different kinds have different properties ... (p. 365).

In his fuller account, of which the foregoing is a summary, Reid relies on

> a very strong analogy, not only between conceiving and painting in general, but between the differentials of our conceptions, and the different works of painters (p. 363).

Conceptions, like paintings, are either:

a. not copies, or

a*. copies,

> because they have an original or archetype to which they refer, and with which they are believed to agree; and we call them true or false conceptions, according as they agree or disagree with the standard to which they are referent. These are of two kinds which have different standards or originals:
>
> b. (they are conceptions) "of individual things that really exist",

and are "analogous to pictures taken from the life";

> b*. of universals.

It is the discussion under division a of "conceptions which may be called fancy pictures" that merits note.

> They are commonly called creatures of fancy, or imagination. They are not [or may not be] the copies of any original that exists, but are originals themselves. Such was the conception which Swift formed of the island of Laputa, and of the country of Lilliputians; Cervantes of Don Quixote and his Squire; Harrington of the Government of Oceana; and Sir Thomas More of that of Utopia. *We can give names to such creatures of imagination, conceive them distinctly, and reason consequentially concerning them, though they never had an existence.* They were conceived by their creators, and may be conceived by others, but they never existed. We do not ascribe the qualities of true or false to them, because they are not accompanied with any belief, nor do they imply any affirmation of negation (p. 363, emphasis added).

Only the last sentence of this otherwise admirable passage calls for comment and qualification. The objects are not true or false (in the relevant sense) because they are not copies, so there is no question of agreement of *or* disagreement with the original. There may however be beliefs about them, but not, except of those who are mistaken, as to their existence. But affirmations and negations concerning them *are* implied by data their source books supply.

the language, affix to words" (p. 364) – a dubious and unnecessary doctrine that he at once attempts to back up with an inadequate conventionalistic (and chauvinistic) account of sortals and general names and the universals they signify.

Corollaries of the thoroughgoing rejection of the system of ideas are by no means confined to resolutions of (gratuitous) problems concerning universals and perception. Another corollary is the rejection, which Reid shared with Meinong, of empiricism.[1] Many too are the philosophical paradoxes and sophisms that are removed with the rejection of the system of ideas.[2] Reid mentions (p. 306)

> several paradoxes, which Mr. Locke, though by no means fond of paradoxes, was led into by this theory of ideas. Such as, that the secondary qualities of body are no qualities of body at all, but sensations of the mind: That the primary qualities of body are resemblances of our sensations: That we have no notion of duration, but from the succession of ideas in our minds: That personal identity consists in consciousness; so that the same individual thinking being may make two or three different persons, and several different thinking beings make one person: That judgment is nothing but a perception of the agreement or disagreement of our ideas. ...
>
> However, all these consequences of the doctrine of ideas were tolerable, compared with those which came afterwards to be discovered by Berkeley and Hume:– That there is no material world: No abstract ideas or notions; That the mind is only a train of related impressions and ideas, without any subject on which they may be impressed. That there is neither space nor time, body nor mind, but impressions and ideas only: And, to sum up all. That there is no probability, even in demonstration itself, nor any one proposition more probable than its contrary.

[1] Reid's rejection of empiricist principles is not as systematic or complete as that of noneism: see, e.g. Reid's thesis as to the ingredients to which conception must be confined (p. 367).

[2] Only some of the range of paradoxes indicated, which are likewise removed with rejection of the Reference Theory, have been examined in this book. That gives some idea of the scope for further philosophical application of the theory of items. [Routley had written this last phrase as "theory of ideas" but we think he meant "theory of items" and changed it accordingly. —*Eds.*]

> These are the noble fruits which have grown upon this theory of ideas, since it began to be cultivated by skilful hands. It is no wonder that sensible men should be disgusted at philosophy, when such wild and shocking paradoxes have, with great acuteness and ingenuity, been deduced by just reasoning from the theory of ideas [and so from the Reference Theory], they must at last bring this advantage, that positions so shocking to the common sense of mankind, and so contrary to the decisions of all our intellectual powers, will open men's eyes, and break the force of the prejudice which hath held them entangled in that theory.

§2. How the theory of items differs from Meinong's theory of objects: a preliminary sketch

The theory of items outlined has not aimed at being faithful to Meinong's theory of objects: nor should it have so aimed, since important logical and semantical tools are now available which were not accessible to Meinong. It is no criticism then of the theory of items that Meinong said something different or that his theory of objects is unclear or indeterminate at places where the theory of items is not (or vice versa).

Although there are very considerable and important areas of agreement between Meinong's theory of objects and the theory of items, for example on the theses presented on pp. 3–4 [of Vol. 1, i.e. M1–M7 *—Eds.*] and their elaboration, there are also many differences, some of the more noteworthy of which are then following:–

1. *Subsistence*. Meinong's talk of the subsistence of objects, of objects which do not exist, is entirely abandoned. There is, on the theory of items, only one way of being, that is existence in the space-time world; there are no alternative ways of being, or of existence, such as subsistence may be taken to be. Subsistence has no role in the theory of items. (To be sure, "subsistence" retains its usual meaning as in "subsistence farming", "subsistence levels", but such matters have little to do with objects in Meinong's sense of "object".)

Part of the attribution of subsistence theses to Meinong is no doubt due to misconstrual of his claims, misconstrual reflected in mistranslation. A blatant example is the

following, drawn from Grossman (MNG, p. 69ff.), who imposes a subsistence position on Meinong under the guise of translation:

> Certain entities are said to *exist*, while others are claimed to *obtain*. For purposes of translation, I shall from now on call the second role of being, the being of ideal objects, *subsistence*. Real objects are said to exist, according to this convention, while ideal objects merely subsist –

or what *should* have been said, they obtain.

But some is not due to misattribution. Meinong, unlike Reid in respect of universals, did not entirely free himself of subsistence theses and unnecessary existence claims (and perhaps even of a weak version of the OA). Nonetheless, in almost every case these subsistence and existence claims can be removed, and the requisite distinctions and points made neutrally. Part of the argument for this thesis has already been given (pp. 5–6 [of Vol. 1 *—Eds.*]), namely the cases concerning number and concerning objectives.[1] Other cases are as follows:- Consider first the airship which exists now and thus which, according to Meinong, *subsisted* at some previous dates (UA, p. 74). It is *decidedly* preferable to say that the airship which now exists was such, at previous dates, that it did not yet exist but would exist, i.e. it *was* that it *will* exist. More generally, instead of saying that objects that at some time exist subsist, it can be simply said that they at some time exist, or, equivalently (but somewhat misleadingly), that they have sometime existence.

2. *Hierarchies of being*. Like the subsistence terminology, Meinong's talk of the being of objects is shunned in the theory of items. It is too easily misinterpreted – *being* too readily suggests, or does imply, existence – and so it is an asset and point of leverage for the referential opposition. Moreover the extensive use of the *being* terminology, especially in connection with objectives, derives from a mistaken assimilation of truth to existence, an assimilation much encouraged by referential thinkers such as Brentano. The idea – the mistaken idea – is that whether a proposition is true or not is like whether an object exists or not, a resemblance that can be enforced either by a suitable definition of the existence of propositions – as those that are true, in which case (intensional attitudes such as belief of) false propositions reactivate the "riddle of nonbeing" – or by transformation of propositional discourse into objective discourse in Meinong's fashion. But in the theory

[1] The question of the subsistence of objectives is taken up again in 3 below.

of items whether a proposition is true or not has nothing to do with whether it exists, or has being, or not.[1] No proposition exists or has being (see 1.24 [Vol. 1 *—Eds.*] and chapter 9), but many propositions (on usual reckoning, half of all propositions) are true.

The misleading *being* terminology should accordingly be paraphrased out. Talk of kinds of being should be phased out in favour of talk of kinds of objects.[2] The change is of course not *merely* a change in terminology; it reflects a change in theory, and probably in ontological commitment. An instructive example will reveal how, and how the change, at first sight a change in terminology, deflates Meinong's hierarchies of being. Consider Chisholm's exposition of one of the more baroque parts of Meinong's theory:

> Since there are horses, for example, there is also the being of horses, the being of the being of horses, the nonbeing of the nonbeing of horses, and the being of the nonbeing of the nonbeing of unicorns ... (Chisholm 1972, pp. 25–6).[3]

There are two cases according as the premiss "There are horses" is existentially-loaded and is equivalent in context to "There exist horses" (as Chisholm no doubt supposes), or is not but amounts to no more than "Some objects are horses".

Case 1: Since there exists horses but not unicorns, it is true that there exist horses, and that horses exist, but not true that there exist unicorns; alternatively, it is a fact that horses exist and a fact that unicorns do not. But no hierarchy is induced. For it is true that A iff A, i.e. iff it is a fact that A, etc. "It is true that" and "it is a fact that" may be reiterated indefinitely, but redundantly by virtue of the implications. What of the claims "There exists the existence of the existence of horses" and "There exists the existence of the nonexistence of the nonexistence of unicorns"? It is very doubtful that the functor "the existence of" significantly iterates as applied to subjects (and objective terms). It seems best to say, with the theory of items, that it does not, that the significance range of the phrase-forming functor "the existence of ..." is confined to bottom order subjects.

[1] The paraconsistent theory of items outlined further widens the gulf between truth and existence. For while consistency is required for existence it is not for truth.

[2] Kinds-of-existence and kinds-of-truth doctrines should be similarly eliminated in favour of categorical distinctions of objects, it can more generally be argued. For they simply *double up*, in a misleading way, on categorial distinctions already presupposed.

[3] There are on Meinong's theory only two *varieties* of being, existence and subsistence (*Aussersein* it is sometimes suggested as a third: see 5 below). But there does not mean that judgements of being cannot be iterated, indefinitely.

Insofar as the claims do make *any* sense, they convey no more information than "(It is true that) horses exist" and "(It is true that) unicorns do not exist".

Case 2: Since some objects are horses it is the case that included among objects are horses. No existent objects are unicorns, so (even though unicorns are objects) unicorns are not included among existing objects. The linguistic means for progressing up Meinong's hierarchy are, for excellent reasons not available.

Other Meinongian hierarchies similarly collapse; e.g. the hierarchies of factuality and unfactuality (of Mög, c.p. 291) are easily deflated since superordinate objectives (generated by such functors as "It is a fact that" or "That ... is factual") coentail certain initial objectives. But some of the hierarchies with which Meinong appears to have been stuck arose from the explanation he gave of the way in which objects acquire their existence, namely "by virtue of superordinate objectives" (Findlay 1963, p. 102). This vexed issue is taken up again in and following the discussion of the "indifference to being of the pure object", after other leading characters that figure in the issue have been introduced.

3. *Higher order objects, and exorcism of the kinds of being doctrine*. An object of higher order is one which is "built upon" and presupposes other objects.

> Among objects, there are some that have an intrinsic lack of independence; thus diversity, for example, can only be thought of in relation to differing terms. Such objects are based on others as indispensable presuppositions (Russell 1904, p. 207).

From examples Russell concluded Meinong had the following class of objects in view:

> they are relations, the complexes formed of terms related by relation, and the kind of objects (which we may call plurals) of which numbers other than 0 and 1 can be asserted (p. 207).

But Russell omits a crucial class, objectives: "The objective that snow is white is built upon or presupposes the object snow which is therefore its material" (Findlay 1963, p. 71). As Russell observes, "there are certain difficulties about" Meinong's brief characterisation of higher order objects (even omitting plurals), namely:

> They have an internal lack of independence in their nature; they are built on other objects as indispensable presuppositions (p. 207).

Two of the difficulties discerned arise however from serious deficiencies in Russell's *own* logical theory: his points have a very modern ring. The first is that Meinong's characterisation

> is based upon logical priority ... [but] logical priority is a very obscure notion ... which a careful discussion tends to destroy. For it depends upon the assumption that one true proposition may be implied by another and not the other by the one; whereas, according to symbolic logic, there is a mutual implication of any two true propositions (pp. 207–8).

The second difficulty is of a rather similar order:

> it seems impossible to distinguish, among true propositions, some which are necessary from others which are mere facts ... . Throughout Meinong's work, in many crucial points, use is made of the notion of necessity; and some of his most important arguments fail if necessity is not admitted (p. 208).

Meinong's theory is intensionally based and requires, for its formal elaboration, what is not difficult to supply, not merely a theory of logical modality, but to meet the first "difficulty" properly, a theory of entailment. Then A is logically prior to B (under the determinable Russell indicates) iff $B \Rightarrow A \;\&\; \sim(A \Rightarrow B)$.

Russell's third difficulty is more serious, that a relation "appears to be capable of being thought of apart from its terms" (p. 209). As this is true, Meinong's more psychological characterisation of higher order objects should be avoided. The examples Meinong offers of the higher order objects lead to other difficulties (cf. p. 8 [of Vol. 1 *—Eds.*]). The examples include not only four nuts (for they "presuppose each of the nuts") and melodies, but, what is also a source of considerable trouble, a red square, said to be compounded of a shape and a colour. For in a similar way any object descriptively presented could be said to be of higher order since compounded from (simpler) properties, e.g. the round square, the golden mountain, Kingfrance, Manfibo. This indicates that Meinong's division, if pressed, would all too easily result in an atomism. Such examples as the melody lead in the same direction. Any process composed of elements (i.e. all processes, suitably viewed) would, like an individual melody, be of higher order; and more generally anything composed of anything else would be of higher order. The only elements would be Wittgen-

stein's simples (duly criticised in Wittgenstein 1953). Accordingly, Meinong's distinction of orders has not been pressed: the distinction needs not merely sharper characterisation, but reorientation. For every purpose however for which the distinction has been drawn upon in this text the following (non-exhaustive) division suffices: every particular item is a bottom order object; and every abstract item (characterised by abstraction) is a higher order object.

Meinong's earlier theory was seriously overloaded with attributions of being of one kind or another to nonexistent objects; nor were they entirely eliminated from the later theory (as will be seen). A striking example is the doctrine of *Quasisein*, according to which every object had, as on Russell's earlier theory (criticised in 4.3 [Vol. 2 *—Eds.*]), a (peculiar) kind of being with no contrary, quasi-existence. By 1899 Meinong had abandoned this doctrine in favour of the doctrine of *Aussersein*, to be considered below, according to which the pure object stands beyond existence (being) and nonexistence (non-being), both of which are, in some sense, external to it. Whether an object exists or not makes no difference to what it is, to its characterisation. (See further the discussion of *Quasisein* and *Aussersein* in Findlay 1963, pp. 47–50).

But although the thoroughly rotten kinds of being doctrine was largely removed from Meinong's theory of bottom order objects of *objecta*, it was not exorcised from the theory of higher order objects but remained to haunt it, to its cost. For example, factuality is said to be a kind of being peculiar to objectives, and even unfactual objectives are assigned being of a sort. But the assumption of being is as otiose and damaging here as it was in the case of bottom order objects. It suffices to say that objectives obtain, or are the case, or not: this imputes being no more than truth imputes existence to propositions.

The factuality of objectives is, according to Meinong, an example of the subsistence of higher order objects.

> If the existence of the Antipodes does not itself exist, its nonexistence is nevertheless not on a level with the nonexistence of the phoenix; it has a certain sort of being . . . . For this type of being Meinong employs the word "subsistence" (*Bestand*) . . . Objectives are not the only subsistents: a relation such as diversity subsists between two entities, and the number of a group of existents subsists, but cannot

> exist as they do (Findlay 1963, p. 74).

Meinong regarded the difference between the two varieties of being, existence and subsistence, as fundamental, unanalysable and as irreducible as the difference between yellow and blue. Again the subsistence doctrine, which is entirely rejected by the theory of items, is as unnecessary as it is damaging. For example, instead of saying that relations between entities subsist, it is enough to say that a relation is actually instantiated iff it does hold between entities. Similarly every other use of the subsistence terminology, which is invariably introduced by way of admissible *non*subsistence terminology, can be (better) paraphrased away, mostly along the lines of the original introduction, but not always. The nonexistence of the existence of the Antipodes, for instance, is not on a level with the nonexistence of the phoenix, because it involves a second (and dubiously significant) iteration of the "(non)existence of" functor. "Subsistence" always reduces to other attributes of objects. The notion is not fundamental but analysable, case by case, for different sorts of higher order objects. There is only one kind of being, existence, and higher order objects, such as universals, simply do not exist, as Reid explained. Such objects have no kind of being at all. According to Meinong however (GA II, p. 395; Mög, p. 169), "properties of existents and some relations between existents (the 'real' relations) themselves exist" (cf. Findlay 1963, p. 67). On this point the theory of items is characteristically opposed to Meinong's theory of objects, which is here overtly platonistic. By the unified criteria for existence (cf. chapter 9), no such objects of higher order as properties of relations exist.

4. *Objectives*. Objectives, which are Meinong's replacements for propositions, have a central role in Meinong's theory of objects; they have a *much* diminished role in the theory of items. To be sure they can be introduced (cf. §3 below),[1] even if they do not have all the features they present themselves as having or Meinong presents them as having, such as being. What is under suspicion is Meinong's motivation in introducing them, for instance in such ways as the following: if one judges that some swans are black, there is an object in virtue of which one's judgment is true, namely the objective, the being of black swans. It looks as if it is being assumed, much as on Brentano's defective

[1] A case for introducing objectives can be made directly from consideration of the objects of such intensional discourse as "Passmore was worried by the city's being so ugly", "The seminar focussed on the nonexistence of the round square".

Naturally objectives have extensional properties as well, e.g. that specified by the predicate "is a fact", that helps mark out objective terms.

theory of judgments, that every objective is duly existential, an attribution of existence or nonexistence to an object. In short, it looks as if the theory is set up in the very type of framework it should have renounced, as excessively referential, at the outset. Truth and factuality are explained through objectives of existence or nonexistence, instead of the other way round.

> Again, if I judge that the round square does *not* exist, my judgement is true, not in virtue of the round square (for there is no round square), but in virtue of the non-being of the round square; this Objective – the non-being of the round square – also subsists (Chisholm 1960, p. 6).

Again the extra ontological baggage is unnecessary, and undesirable. The judgment is true simply because the round square does not exist, or, if you like, because the round square has the property of not existing. A theory of truth which is not existentially or referentially biassed can account for all such cases.

There is, it may be said, a fundamental reason for objectives (as bearers of factuality) as supplanting propositions (as bearers of truth); that is, that objectives appear to get rid of propositional middlemen, intervening between judgments and the facts. The appearance is misleading however, and objectives accomplish no significant elimination. For consider, for example, unfactual objectives, consider general objectives, consider intensional objectives, etc. The atomistic tie with the facts that objectives appear better fitted to accomplishing smoothly than propositions cannot be achieved. (The mapping of fact and language is not quite so simple, nor conveniently extensional.)

In the same way that a theory of propositions was developed in 1.24 [Vol. 1 *—Eds.*], so a logico-semantical theory of objectives could be devised. But it would be almost isomorphic to the theory of propositions (*but* see §3). This is why it is not too material that in the work of most expositors of Meinong writing in English objectives became, a little inaccurately, propositionalised in form; e.g. even where the objective terminology is retained, examples take the propositional form "that A".

5. *Aussersein, and the principle of indifference of objects as such to existence*. The doctrine of *Aussersein*, since a direct repudiation of the referential assumption that every object must have being of some sort, has not surprisingly, been found very puzzling to adherents of the Reference Theory, some of whom have managed to stir up dust that

has not yet subsided. But the core thesis is straightforward: *"existence and nonexistence are both external to" all objects as such, never part of the characterisation* or nature *of objects*;

> the object as such ... stands "beyond being and nonbeing" ... the object is by nature indifferent to being (*ausserseiend*) (Chisholm 1960, p. 86).

This is the thesis of *Aussersein* of pure objects (*den satz vom Aussersein des reinen Gegenstandes*), commonly expressed in English as "the principle of indifference of pure objects to being" (*ibid.*). The doctrine is well explained by Findlay (1963, p. 49); but since the thesis is effectively part of the theory of items, and readily formally incorporated in it, it will help to explain it somewhat independently. The pure object, or object as such, is the object as given by its characterisation (its determinations of *Sosein*) and may be represented by its set of ch features. Let d be an object and C_d its set of characterising features, i.e. $C_d = \{\phi\colon \mathrm{ch}\phi \ \&\ di\phi\}$. Then *the object d as such* is represented by C_d. Property ψ is *external* to the object d as such, $\psi \,\mathrm{ext}\, d$ for short, iff $\psi \notin C_d$. Hence $\vdash (Ud)(\lambda E \,\mathrm{ext}\, d \ \&\ \lambda{\sim}E \,\mathrm{ext}\, d)$, i.e. existence and nonexistence are universally external to objects: the thesis of *Aussersein* is a simple consequence of the fact that λE and $\lambda{\sim}E$ are not characterising features of objects.[1] Similarly possibility and impossibility are external to all objects. By contrast, characterising features such as redness and roundness (rd) are not: $(Pd){\sim}(rd \,\mathrm{ext}\, d)$, etc. It is of some importance to distinguish what is *part of* a characterisation from what *follows from* an object's characterisation: nonexistence is not part of any object's characterisation, but the nonexistence of the round square follows from its characterisation.

An object as such is said to *be ausserseiend* or to *have Aussersein* (*ibid.*). That is, *Aussersein* is a property, and it is not difficult to say which: $Aussersein =_{\mathrm{Df}} \lambda x(\lambda E \,\mathrm{ext}\, x \ \&\ \lambda{\sim}E \,\mathrm{ext}\, x)$, i.e. it is the property of objects as such, such that both existence and nonexistence are external to them. The definition is of course an explicative definition set within the theory of items. It follows, in the theory of items, that Aussersein does not exist, since no properties do.

Aussersein is not a kind of ontological status, it is not a kind of being:

[1] As elsewhere λf, i.e. λxxf, approximates in second-order theory properties, i.e. ρxxf: see 1.18 [Vol. 1 —*Eds.*].

> At times, Meinong was inclined to assume that there is a third state of being which belongs to everything.[1] But his *principal* view is that existence and subsistence [obtaining] are the only two modes of being. *Aussersein*, therefore, must *not* be conceived of as a kind mode of being. To say of the golden mountain that it has *Aussersein* does not mean that it has some kind of being other than existence or subsistence. Rather, it means, among other things, that the golden mountain has no being whatsoever . . . . Russell, by contrast, . . . at first . . . accepted the conclusion that the golden mountain must have some kind of being (Grossman MNG, pp. 67–8; emphasis added).

Gram, however, makes the mistake of identifying *Aussersein* with having some ontological status (1970, p. 120). Gram is firmly locked into a referential framework: he does not see

[1] Unfortunately Meinong's inclination in this direction is by no means an isolated phenomena or confined to early work, though the main example Grossman cites (p. 67) is: but see also his discussion, p. 119. There is an embarrassing passage in a late work:

> I believed and I still believe some being-like thing (*Seinsartiges*) ought to be attributed to [objects which lack *sein*] under the name of "*Aussersein*" (EP, p. 19).

In addition, Dyche has ferreted out statements of an even more damaging character in Meinong's unpublished work e.g. (from 1903/4) "The round square does not lack the positive: it is a kind of being – '*Aussersein*'" (1976, p. 135, p. 197). In a later work (dated 1908) Meinong assigns, according to Dyche, a *Seinsminimum*, a minimum kind of being, even to irrealia such as a Pegasus (p. 137). What makes this assignment especially awkward is what Meinong is supposed to say of the basic texts where he denies that *Aussersein* is a mode of being (namely Stell and TO):

> While Meinong says (footnoting the latter essays), he had been led to understand the term (Aussersein) in a merely negative sense, he now thinks that in having something as an object we always grasp something positive, even if it is only minimally positive (Dyche, p. 136).

Dyche concludes, a little precipitously,

> It is clear that Meinong, like Plato, thinks in terms of degrees of reality (p. 137).

Given the conflicting evidence it is far from clear. For a different construal can be put on the evidence; namely that Meinong was a philosopher in intellectual conflict who was, like Ryle (1949, p. 4), "trying to get some disorders out of (his) own system" – facets of the Reference Theory – but without complete success, who was regularly, like the addict, tempted back to the referential. There is a good deal of historical evidence, e.g. Meinong's struggle over *Quasisein*, supporting this interpretation which, perhaps not too pretentiously, sees Meinong as a kind of flawed hero who breaks free of the morass of the referential only to slide back into it. Though it seems clear that the unpublished evidence (from 1908) needs more careful assessment (by some less interested parties than Dyche), there is no real ground to question its reliability; for it fits into the historical picture of prolonged struggle.

There is no need to demote Meinong because the position of the backsliding Meinong is quite incompatible with the theory of items (with M1 [cf. Vol. 1, p. 3 *—Eds.*]). The limited hero Meinong, whose jungle we are exploring, whom Meinongians follow, was not a platonist, and did not join those who banqueted on the fruits of *Zizyphus lotus* outside the jungle on the plains of the eastern Mediterranean.

how one can have objects before one's thought without assigning them ontological status (p. 113, n. 6). The fact is that non-existent objects have no ontological status (in the standard English meanings of the terms). It is false that Meinong

> argued for the ontological status of nonexistent objects. [That] Meinong was, on the face of it, arguing for a realm[1] of objects, which have ontological status though they lack being (p. 124).

Gram goes on to claim that it is wrong to interpret "Meinong as saying that Aussersein belongs to every object as such and not merely to some objects rather than others" (p. 125). Gram's claim is at flagrant odds with what Meinong has to say in TO, and with the way Meinong is interpreted by Chisholm, Findlay and others.[2] The criticism extends to the account given here since $\vdash (Ux)x \iota$ *Aussersein*. Gram argues that to so interpret Meinong "is to impute a contradiction to him" (p. 124). But Gram's argument rests on the following error: "an object which ... is indifferent to being or beyond being cannot, in the very nature of the case exist". From the fact that an object d as such is beyond being it does not follow that d does not exist. On the contrary, for some d, $\lambda E \operatorname{ext} d \ \& \ dE$. Gram has erroneously supposed that if $\lambda E \operatorname{ext} d$ then $\sim dE$. Gram has, however, a second string to his bow, a further invalid argument, from the observation "that *Aussersein* is not governed by the Law of Contradiction while existent and subsistent objects all obey that law" (p. 125). Regrettably Gram proceeds to infer from the fact that *Aussersein* is not governed by the (subject-predicate form of the) Law – by which is meant that not all objects that have *Aussersein* satisfy the Law, i.e. that *some* do not – that *no* object with *Aussersein* conforms to the Law, (which would contradict the fact that existing objects which as such have *Aussersein* conform to the Law). That is, his second argument rests on a *some*-to-*all* fallacy.

A not entirely unrelated, again referentially-based, interpretation is to be found in Rapaport, who makes things easier for himself by counting several of Meinong's

[1] *Realm* is a term best avoided in neutral theory. It tends to carry existential loading; and it implies placement. But it makes no more sense to ask where *Aussersein* is than it does to ask where various nonentities are, e.g. where abstractions are.

[2] Gram's response: "There are it must be admitted, misleading descriptions of *Aussersein* to be found in Meinong" (p. 125, n. 11).

statements (including those formalised) as "metaphysical formulations" (Rapaport 1978, p. 157).[1] Rapaport's case, like Gram's, depends on a non-sequitur. Meinong

> concludes that "neither *Sein* nor *Nichtsein* can be situated essentially in the object itself". The point of view which emerges here is that *Sein (or* Nichtsein*) is properly predicatable only of objectives* (Rapaport, p. 157).

Meinong's conclusion means only that the properties in question are not part of the essence or nature of an object as such (as the further text reveals). It would be a mistake to read his conclusion as saying that the properties were never essentially held, since nonexistence sometimes is. But even if it were read in that way, it would not justify Rapaport's inference, since existence and nonexistence could be still contingently had by objects – as they obviously are. Of the two drawbacks Rapaport finds in the doctrine of *Aussersein*, one, the spectre of an infinite regress, is a result of his misconstrual; the other reflects the referential drive that surfaces in Rapaport's own (ultimately trivial) theory:

> there remains the ever-present urge to say that, in some yet-to-be-explicated sense, objects must "be there" in order for them to be non-committally quantified over and to be objects of psychological acts (p. 157).

If *being there* implies *being some place* or *having a location*, then the urge is irrational: luckily not all of us have it.

There does however remain "a small but irritating problem", which leads Findlay to say that "the conception of *Aussersein* [earlier] sketched ... requires considerable modification" (1963, p. 102). Not so: the problem Findlay goes on to outline,[2] arises, not from the conception of *Aussersein*, but from another part of Meinong's theory, from the (existence) *acquisition thesis* that *objecta* only acquire (or have) existence, or nonexistence, by virtue of their inclusion in objectives. Findlay presents this thesis as if it were an immediate inference[3] from the thesis of *Aussersein*. But it is doubtful that it even follows.

[1] Lambert, who also gets the thesis of *Aussersein* wrong (mixing it up with existence acquisition conditions), likewise describes Meinong's notion of indifference to being as "metaphorical", and as "difficult" (1973, pp. 224–5).

[2] The problem outlined on p. 102 differs from the "small but irritating problem" mentioned which concerns the modal moment (i.e. modal factor), discussed below.

[3] Or even a restatement of the thesis, which may account for Lambert's confusion of theses, remarked upon two footnotes above.

And it is doubtful that the acquisition thesis is true. Mere inclusion in an objective is evidently not sufficient for existence: it has to be both the right sort of objective ("... 's being red" is not) *and* the case. Moreover d's inclusion in a *factual* objective of the form "... existing" is not – except in a devious sense – the *reason* for d's existing. Rather it is the case *because* d exists.

There is, however, a *weaker* acquisition thesis which is true, that objects only have existence or nonexistence *when* (not because) the corresponding objectives attributing existence or nonexistence, respectively, to them – and so including them – are the case. The weak thesis suffices to preserve almost all the things Meinong has to say as to the relations of objects and objectives that contain them. With object a there are associated, in particular, two objectives, a's existing, represented symbolically a^*, and a's not existing, $-a^*$. The (ambiguous) notation is chosen to match exactly that of Grossmann MNG, pp. 118–9, so that what is right in what Grossmann says can be taken over. In particular, the six "things Meinong says about *Aussersein*" that Grossmann brings out can be brought out in Grossmann's way – or better. Consider, e.g., (1) "the contrast between existence and nonexistence is a matter of the objective, not the object". The contrast does not occur with mere consideration of the object, but in making the contrast we are automatically concerned with a's existing or not existing, i.e. with a^* or $-a^*$. (2) is the principle of an excluded middle, aE or $\sim aE$, already a thesis. (3) is the point that the nature of an object sometimes implies its nonexistence. (4) is the thesis of *Aussersein*; and (5) is the contrasting thesis that the so-being of an object is internal to it. Simply define $\psi \operatorname{int} d$ iff $\psi \in C_d$. (6) is the following formula: "the object contrasts with the objective in that the former may, under favourable circumstances, *have* being, while the latter *is* itself being" (p. 118). Under favourable circumstances, $ai\lambda E$, i.e. a *has* existence, whereas an objective a^* obtains i.e. in Meinong's terms, subsists, or *is*. Grossmann's conclusion from all this, that on "Meinong's view on *Aussersein* ... there are no such [objects] as existence and subsistence" (p. 119) is unwarranted, and mistaken (existence and subsistence are types of being, and accordingly objects).

6. *The modal moment, and the semantical factor, formalised?*. Meinong's doctrine of the modal moment (which receives its fullest discussion in English in Findlay 1963, p. 102ff.) is variously described as obscure, difficult and cumbrous. But the basic trouble seems to be that Meinong tries to combine, in the one operator, two important but conflicting roles, namely roles both:

(i) as a predicate modifier interconverting full-strength and sub-strength status predicates; and

(ii) as an internal semantical indicator (reflecting the state of the world $\underline{\underline{T}}$).

Interestingly, Findlay tends to view the modal moment in way (i), Grossmann sees it in way (ii) (MNG, p. 222). Consider firstly role (i), which formally reflects the way Meinong introduces the modal moment, as the factor which makes the difference between full-strength and sub-strength factuality (between f and $s(f)$, where $\sim(f \approx sf)$). The modal factor is restricted in Meinong's examples to status predicates, "exists", "is possible", "is factual", and a similar restriction could be imposed formally. The modal factor applied to a predicate yields another predicate; that is, it is a function on predicates (wrt $\approx$), given, as can be assumed without loss of generality in the formal theory, that where $f \approx g$, $m(f) \approx m(g)$. It is also supposed that function m has an inverse, i.e. where $m(f) \approx m(g)$, then $f \approx g$.

To set things down exactly:– A symbol m is added to the working logic, subject to the formation rule: where f is a previous (status) predicate mf is a (status) predicate. The following postulates are adopted:

(m1) m is a 1-1 function, i.e. the conditions above hold.

(m2) $m(sf) \approx f$.

Axiom (m2) implies the principle that sub-strength factuality plus the modal factor yields full-strength factuality (Mög, p. 266). Similarly the modal factor applied to presented existence yields existence. Also $\vdash m^{-1}f \approx sf$, which implies that full-strength factuality minus the modal factor yields sub-strength factuality (Mög, p. 266). Proof is this: $m^{-1}f \approx m^{-1}m(sf) \approx sf$. Thus m is what makes the difference between f and sf.

Furthermore, the theory can render logically correct Meinong's notorious response to Russell: the existent round square is existent, but it does not exist, because "exists" lacks the modal moment. Here, existent $\approx s(E)$. Then, by JCP or HCP, $(\imath x)(x\text{rd} \,\&\, x\text{sq} \,\&\, xsE)sE$, since $\text{ch}(sE)$. But it does not follow that $(\imath x)(x\text{rd} \,\&\, x\text{sq} \,\&\, sE)E$, i.e. $(\imath x)(x\text{rd} \,\&\, x\text{sq} \,\&\, xsE)msE$, applying (m2), for that would require $msE \approx sE$, that sE has the modal moment – where the *modal moment predicate* is defined; $mm(sE) =_{\text{Df}} msE \approx sE$. But $\vdash \sim mm(sE)$, i.e. sE demonstrably lacks the modal moment. For $\text{ch}(sE)$ & $\sim\text{ch}(E)$. So $\sim(E \approx sE)$; and $\sim(msE \approx E)$.

The argument has led to a second role for the modal factor, as a predicate mm. This is certainly a role Meinong assigns to the modal moment, the main role: some features have the modal moment some lack it.[1] What Meinong apparently wants the factor to do is, however, to include *genuineness* of status, to fulfil role (ii).[2] If one *supposes* that an objective has factuality and the factuality carries the modal moment, then the objective is a genuine fact; if one assumes that aE and $mm(E)$ then a genuinely exists. To express this semantical feature, of genuineness of status of properties, a further functor is first required, H say, read "It is supposed (hypothesized) that". In terms of H, an important freedom of assumption principle is readily expressed:

FAP1. $\Diamond HA$, it is possible that anything at all is supposed.

The principle of genuineness of status can now be stated as follows:

GS. $(Ua)(mm(f)\ \&\ Haf \supset .\ af)$ [alternatively, it could be used to *define* $gs(f)$].

But now Findlay's "second wave" arises to overwhelm Meinong's theory. For suppose Meinong grants, as he appears to have, that *factuality* has the modal moment. Further Findlay assumes $2+2=5$ has *factuality*, whence $H(2+2=5)$ has *factuality*. Thus by GS, $2+2=5$ is a genuine fact, i.e. $2+2=5$.

Faced with such serious difficulties over assumptions involving the modal moment – for instance the assumption that $2+2=5$ has factuality with the modal moment, which if defensible would make it *true* that $2+2=5$ – Meinong retrieves the situation

[1] Grossmann (MNG, p. 222) speaks of "objectives having the modal feature". This appears at best to be a derivative use, for *certain* objectives. Objectives ascribing factuality can be said to have the modal factor iff the factuality has the modal factor.

[2] To help explain why Meinong seeks such a factor it is not enough to look merely at Meinong's use of the modal moment in meeting difficulties for the theory of objects. It is also important to look at Meinong's theory of factuality (or truth), which would, if successful, afford a simple answer to serious sceptical arguments (cf., but critically, Grossmann MNG, p. 222).

Meinong accepts not only the weak existence acquisition thesis, but is tempted by and appears to assert the strong acquisition thesis. Why? The reason seems to be this: there is a marked tendency in Meinong's thought to take the determination of factuality (of being the case, or in non-Meinongian terms, truth) to be an (entirely) *internal* matter, as if objectives carried a sign of their obtaining with them (as they might do if those that obtained were illuminated, the light being the modal factor); to leave out, or rather internalise, semantical factors – especially the critical factor of *relation* to the factual world $\underline{\underline{T}}$ – in favour of internal assessment through (inspection of) objectives. A main objective and main difficulty with the doctrine of a (modal) factor – serving as a semantical factor, indicating how things do stand – is that Meinong tends to convert it too, to an internal evidential feature, something that a suitable status predicate can simply *show* and that can be discerned by contemplation. This is like trying to write the semantics into the syntactical theory and then expecting that the symbolised theory will deliver information about what is in fact true. Neither is on.

> by holding that we *cannot*, by means of a judgement or assumption, attribute the modal moment to an objective that does not possess it (Findlay 1963, p. 107),

that is, by qualifying the unlimited freedom of assumption principle, FAP1. This retrieval rapidly leads to new difficulties, to Findlay's "third wave". The trouble is that we seem to be able to think of, and do, what Meinong has said we cannot.

> According to Meinong, we can think or believe that a round square is existent ..., but we can neither think nor believe that it exists. How can Meinong make such a statement without thinking of a round square which exists as well as of one which is merely existent? (Findlay 1963, p. 109).

Meinong's "analogical thinking" reply to this objection (in Mög, c.p. 283) is entirely unsatisfactory; the best even Findlay can manage to say of it is that it is not "obviously fallacious", not "wholly unplausible" (p. 110).

There are alternative and much superior ways of retrieving the situation, namely abandoning GS or abandoning the assumption that genuineness-revealing status predicates can be found, or both. GS should certainly be changed, because, as Haf can always be got, it reduces to $mm(f) \supset af$. The latter principle will only hold for necessarily-held predicates or the like, *never* for contingently-held predicates such as "exists" and "is a fact". Assumptions like $mm(E)$ and that *existence* and *factuality* have the modal moments also have to be rejected, unless mm is redefined. For the predicate mm has a role linked with reliability. Indeed $\vdash mm(f) \rightarrow \mathrm{ch}(f)$, for every f for which mm is defined. The proof is like that of $\sim mm(sE)$. That is, whatever predicate (and so derivatively, feature) has the modal moment is characterising. Thus contraposing, since $\sim\mathrm{ch}(E)$, $\vdash \sim mm(E)$. Similarly $\sim mm(\mathit{factuality})$. These results point the way directly out of Meinong's difficulties. The way is not the way of qualifying freedom of assumption principles such as FAP1, not the way of restricting what can be thought about or assumed. Thus the "third wave" is avoided and therewith and Meinong's unconvincing response to it. The way is of course the way of qualified Characterisation Principles. Findlay can assume that $2 + 2 = 5$ has *factuality*. We can consider the objective d that $2 + 2 = 5$ has *factuality*. It simply won't follow that d has *factuality*, because "has *factuality*" is not characterising. Thus the "second wave" is averted.

The moves were averted, however, without appeal to the modal moment, but through requisite qualifications on Characterisation Postulates. Is there a point in retaining the modal moment(s)? Perhaps, to tidy up connections, e.g. between full and reduced strength predicates. On the other hand, extra and rather unnecessary auxiliaries such as the modal moments are not carried at zero cost, e.g. they complicate the theory and they increase the risk of logical disaster (at least until a relative adequacy proof is given). There is, naturally, no ontological objection to such auxiliaries, so long as they are not assigned unwarranted ontic features, e.g. taken to exist. But in excess in a theory, they are a bit like an excess of drones in a hive: they do not work and they reduce the quantity of honey.

7. *Restrictions on the Characterisation Postulate versus restrictions on freedom of assumption principles*. Very serious for the coherence of Meinong's theory of objects are Meinong's vacillation and ambivalence about:

(i) whether, and how, the Characterisation Postulate (in Meinong's principal form $A(\imath xA)$, the object has the nuclear features ascribed to it) should be restricted; and

(ii) whether, and how, the freedom of assumption principles should be qualified.

But (i) and (ii) are not entirely separate worries for Meinong, as he tended to conflate the issues (see especially the discussion in Mög, p. 276ff.). As to (ii), the unlimited freedom principle of UA, p. 348, which Meinong ascribes to commonsense, is restricted in Mög, p. 283ff., to prohibit assumptions in which the modal moment is present. As to (i), the principle was qualified by Meinong in respect of certain status and theoretical features (see chapter 5 [Vol. 2 *—Eds.*]). Indeed all the distinctions required for an appropriately quantified and apparently adequate theory were available to Meinong and appear, with more or less precision, in his work. Why then didn't Meinong investigate some of the other options open to him, and so work himself out of the difficulties in which he found himself in Mög and EP? That is a hard, and open, question. But it *seems* that Meinong, despite the qualifications he from time to time imposed on the CP, was striving for a resolution which placed no restrictions on the CP, and but minimal qualifications on FAP. That way however lies a dead-end. There is no way that avoids sharp, but very natural, qualifications on CP, and given these there is no need to qualify FAP at all.

The theory of items disentangles and sharply separates questions (i) and (ii). It

imposes *no* restriction on freedom of assumption: assumption is absolutely free. Thus $\Diamond HA$, whatever A. But it limits characterisation. In order to reduce difficulties or uncertainties about what shape these restrictions should take, the theory breaks the problem down into easier problems, the problem of appropriate characterisation principles for each logically different sort of item (cf. chapter 5). The question of appropriate restrictions then becomes much more straightforward, several principles being natural and obvious, e.g. Characterisation Postulates for abstract sets and properties as well as for bottom-order objects.

8. *Did Meinong sell out?*. According to Grossmann (1974, p. 82) Meinong in the end comes close to abandoning the most distinctive thesis of his theory, that the round square really is round and more generally, that nonexistent objects really do have their characterising features. The damaging passage in Meinong's work is given as Mög, p. 287–88.[1] But Meinong asserts categorically on p. 287 that the round square is round, and on p. 286 that the moonlike round square is certainly just as moonlike as it is round and square. That is, there is first rate evidence that Meinong is not abandoning his distinctive thesis. What Meinong does allow is that the judgment that the round square has *konsekutive* roundness is not analytic and the predicate goes beyond the first occurrence of "round". It is evident that Grossmann has travestied the point by assuming that it is only when "round" occurs in the predicate of such a judgment as *konsekutive* that the object of which "round" is predicated is "really round".[2] It is a bit like saying that Routley rejects FCP and doesn't really believe the round square is round because he rejects the claim that the round square is round^{E}.

Though it should be obvious it probably needs saying that even if Meinong did in the end sell out, that sell-out would not transfer to other different theories of objects. Whether or not Meinong sold out, the theory of items in particular is not being sold up. In fact however Meinong, unlike Mally, did not sell out. The Meinongian opposition has been up to its old tricks of misinterpretation in a further effort to discredit the theory of objects.

9. *Was Meinong committed to a reduction of objects?*. While Grossmann insinuates without introducing any substantial evidence that Meinong was working with a reduction model,

[1] There are also some damaging passages in EP where Meinong seems, at first sight, to be giving away crucial features of the theory of objects (cf. 6.3 [Vol. 2 —*Eds.*]).

[2] Nick Griffin made this point.

of objects as complexes, i.e. certain sets of properties (e.g. MNG, p. 43), Dyche goes further and claims that "for Meinong objects are not individuals. They are *not* individuals of any sort at all, whether complex or incomplete" (1976, p. 145); "... Meinong's whole metaphysics is a metaphysics of properties and states of affairs" (p. 147). According to Dyche (p. viii),

> Meinong's possible and impossible objects are natures, that is they are universal properties or universal complex properties;[1]

but Dyche also states his reduction thesis in various other, sometimes non-equivalent, ways, e.g. "while individuals *are not* properties, they *are* functions of properties" (p. 147), "we can analyse any given individual into a complex of so-being determinations, e.g. into its nature" (p. 169).

But the "straightforward" evidence Dyche assembles for his reduction thesis is extremely tenuous; and, incidentally, he assembles some counter-considerations, e.g.

> Speaking of objects which are natures is a revision of Meinong's own way of expressing himself, since he speaks of the nature which incomplete objects have (p. 167).

Dyche says that the evidence begins in Erfgl. and becomes most explicit in Mög. Part of Dyche's case is that (bottom order) nonentities are not individuals (individuals he proceeds erroneously in the course of his presentation to equate with existing individuals), and so must be universals. Thus he takes it as an important evidential point that "Meinong systematically distinguished ... between individuals on the one hand, and possible and impossible objects on the other" (p. 146). Unfortunately for this point, the section of Erfgl. with which he deals "does not once use the term 'individual'" (p. 148). However, Dyche claims, while admitting that his point is "controversial", that in Mög "it becomes contextually clear that *Individua* and *Dinge* are the same entities" (p. 150). The very thin evidence offered for this claim leaves it open, however (p. 150), that nonentities are individuals! Moreover the fact that Meinong sometimes distinguishes "*Dinge der Wirklichkeit*" does *nothing* to show that all individuals are actual.

[1] Thus too, as on Grossmann's model, instantiation usually reduces to inclusion: the round square *is* round because roundness is part of the complex ⟨Round, Square⟩ (MNG, p. 167); "to say that Pegasus is winged and equine is to say that the complex (and uninstantiated) property (or nature) which Pegasus is implies its constituent parts, among which being winged and being equine are to be found" (Dyche, pp. 168–69), *but* "it is not true that Pegasus *instantiates* the property of being winged" (p. 169)!

In fact Dyche adduces no direct evidence that Meinong contended that nonentities were not individuals. Instead he switches to examining

> *some indications* that Meinong either explicitly thought of the objects in question as being properties or that, at a bare minimum, he, *consciously or not, tended* to think of them in that manner (p. 153, initial emphasis added).

All that some of the indications (e.g. p. 153 bottom) show is that we *might* try modelling *some* of Meinong's theory in the Grossmann–Dyche fashion, all that others of the further "systematic considerations" reflect (e.g. the questions of p. 154) is the fact that there are features of Meinong's theory that are puzzling and not so far well understood. Dyche's "almost conclusive" argument – that apart from individuals, which he by now proceeds to *equate* with entities, all objects are attributes or conditions, i.e. are of higher order – is anything but almost conclusive. The obvious construal of the evidence presented, which he mentions, is that the principle in question, LEM, holds not merely of individuals but of higher order objects as well. Dyche's response is feeble: "For this reading to go through, however, there need to be some appropriate contextual indications which I fail to find in the text at that point" (p. 156).

Dyche tries to argue a little more directly that incomplete objects such as "something blue" do reduce to properties on Meinong's theory: "whether Meinong explicitly recognizes this or not, he in fact collapses 'something blue' into the *property* blue" (p. 160). Again the evidence is simply not there in Meinong's remarks (Mög, pp. 170–71); and the objects are quite obviously different. (Dyche's points depend in part on confusing, what are also distinct, *the Blue* (*das Blau*) with *blue* (*Blau*) and the property *blueness*.) The fact that *Blau* and *Schwer* are universals does nothing "to show that *irrealia* are both universals and (complications of) properties" (p. 162). With that non-sequitur Dyche completes his case.

It is evident that Dyche's case is no case. There is, it seems, *no substantial evidence* (else proponents of the reduction like Dyche and Grossmann would have found it?) that Meinong's theory of objects reduces; and there is in fact a good deal of counterevidence, which is not merely circumstantial. Now two important things emerge. Two classes of representation of Meinong's theory are misrepresentations.

Firstly, the attempt to represent, or claim, Meinong as an ontologist, as a metaphysician who could easily take an honourable place in an American midwestern school, such as the Bergmannian school,[1] fails and fails badly. For Meinong's work[2] involves a paradigm shift (as Parsons 1980 observes), which shifts it right outside the Anglo-American setting of ontology and the set midwestern positions of the nominalism-realism game. Had the Grossmann–Dyche reduction succeeded it would put Meinong right back in the game. For the main sought corollary of the reduction is of course referential: Meinong's

> metaphysical assay of the constituents of reality does not open the door to nonactual, e.g. possible and impossible, *individuals*. ... possible and impossible objects ... are real entities ..., in our representation of Meinong, ... properties and complications of properties (Dyche 1976, p. 164).

Secondly, recent attempts to reconstruct (parts of) Meinong's theory of objects with objects identified with sets or set-theoretical functions of properties or the like are – whatever their adequacy to the facts about nonentities – inadequate to the data from Meinong's work. This includes theories of the new Lockeans (discussed in §4 below). While such representations can valuably serve as *un*intended models for a more formal explication of Meinong's theory, useful (as in Parsons 1980) for establishing such results as relative consistency, they do not reflect at all faithfully Meinong's theory.

10. *The bounds of objecthood: paradoxical and contradictory objects*. Meinong's theory includes objects of a rich variety of sorts, with many of these sorts – in particular that of bottom order nonentities – irreducible. How far does objecthood extend: what are its bounds, if any? More down to earth and exactly, are there any "things" we can talk and think about that are not objects? By the general principles of the theory, where any such thing is an object, any target of thought or talk is an object, there should not be *any* such exceptions.[3] Any consistent theory is *bound* to make exceptions in one way or

[1] This is a not unfair caricature of the approach taken in Grossmann's MNG: see especially the first few pages. It is also the approach of many other theses and papers on Meinong, e.g. Dyche 1976, Gram 1970, and Bergmann himself.

[2] That of the flawed hero, considered earlier.

[3] The thesis, part of M1, that everything is an object is intended to say as much, but it is only as general as the quantifiers used in formulating it. If these are sufficiently restricted even a theory as narrow as Quine's can satisfy the thesis. Hence the point in Ml of specifying various classes of objects.

another – on pain of inconsistency otherwise, e.g. if a contradictory object is an object that contradicts the theorem that no objects are contradictory. That is one of the reasons for proceeding to a paraconsistent theory.[1] Meinong's theory *appeared* similarly to admit exceptions, for defective objects.[2]

Meinong did not really know, so it seemed to emerge in chapter 5 [Vol. 2 *—Eds.*], what to say about paradoxical, or defective, objects. But he seemed to come down in favour of a consistent theory, with defective objects either to be reduced in properties to fit into such a theory or to be ruled out as objects. By contrast, the really exciting theory of items, on which somewhat heavier bets are placed in this text, is the paraconsistent theory in which paradoxical objects are accounted full values of variables. But of course, as is quite legitimate, bets are placed both ways, on both sorts of theories of objects, paraconsistent and consistent, as against rival theories, such as referential ones.

Meinong's theory of objects, despite its unfortunate commitment to kinds of being, and other unpalatable doctrines, is not referential, so it has been contended. It contains however far too many referential elements, which the theory of items properly removes. Some of these referential aspects are now alluded to briefly.

11. *Identity and essentialism*. A central feature of the theory of items is the thoroughgoing rejection of the Reference Theory, not merely its existence requirements (as incorporated in the Ontological Assumption) but its identity requirements (as embodied in the Indiscernibility Assumption).[3] The rejection of the latter is especially important in obtaining a satisfactory treatment of intensionality. It is primarily through its identity theory, furthermore, that the theory of items avoids essentialism of damaging kinds. (The other main way, not all of it systematically elaborated, is through use of indeterminacy and of, what amounts to, fuzzy or partially indeterminate sets.)

[1] Again however there are limitations, though now artificial ones, e.g. *theory-trivialising* objects. As to *absurd* objects – which can be included unproblematically upon significancizing the theory – see Slog, chapter 7. Of course all these objects are objects of thought and quantification: they simply will not have their damaging features whichever they are. (A consistent theory can say the same.) No good theory will have a trivialising object that truly says of itself that it is trivialising. Here lie the "limits" of paraconsistency. The limits appear however undisturbing. For, in contrast to the paradoxical statements that Gödel, or at least Rosser, mapped into formal arithmetic, it seems that damaging systemic conditions are not going to be forthcoming as regards parallel mappings of statements concerning trivialising objects.

[2] Meinong was continually bothered by the question as to whether anything contrasted with objecthood, with *Aussersein*. The fact of the matter is that there are perfectly good notions which have no contrast.

[3] These follow (with but few further principles) from the Reference Theory in the form that truth is entirely a function of reference.

Meinong however, nowhere gets to grips with the modern problems concerning identity (which is unsurprising, since, though they were known to Meinong's contemporary, Frege, these problems only become severe with the ascendancy of classical logical theory). Nor, more important, does he work out a non-referential theory of identity and thereby dispose of the second main facet of the Reference Theory. Nor does he escape essentialism. There is in fact no clearly worked out theory of identity in Meinong. The lack of a suitable non-referential identity theory may help to account for his failure to see through various of the sceptical arguments, e.g. those considered in 8.10 which exploit identity features, and thus indirectly for his failure to eliminate the usual middlemen introduced in trying to meet sceptical arguments.

12. *The excess of intermediaries*. Meinong does not use the theory of objects to advantage to eliminate parasitic middlemen from his philosophical system. On the contrary, his system is very complex and stuffed with more intermediary and auxiliary objects than the theories of the empiricists and theories that accept the doctrine of ideas – with an enormous bureaucracy of middlemen. Yet the theory of objects enables one to dispense with almost all these objects – epicyclic objects discerned by philosophers to prop up faulty referential theories and to prevent their straightforward falsifiability, and increase their untestability. The points are readily illustrated; and examples are instructive in revealing the differences in orientation and direction between Meinong's theory of objects and the theory of items.

Although Meinong adhered to a simple designational account of meaning, according to which the meaning of every noun phrase or sentence is an object (UA, p. 25, 60),[1] his *theory of designation* (or reference, as it is commonly called) adds a further auxiliary object. The point of introducing this auxiliary object as well as the object designated (or target or ultimate object) is to resolve the incompleteness argument (studied in 8.8). The argument Meinong relies upon is (Mög, p. 181ff.) basically this: the objects we signify are sometimes complete and hence infinitely complex. Since we cannot mentally apprehend this infinite complexity, how do we ever manage to signify such complete targets? The conclusion Meinong draws is that there have to be appropriate auxiliary objects. These intermediaries are incomplete objects; and it is through these incomplete objects embedded in complete objects that complete objects are given to our thought. The ar-

[1] An account derived in 1.24 [Vol. 1 —*Eds.*]. Thus the theory satisfies Meinong's important requirement that every subject signifies an object. (Parsons 1980 violates this requirement.)

gument resembles the incompleteness argument already examined: it is similarly based on a faulty identity notion and similarly invalid. Given suitable identity and other relations, such middlemen can be paid off. Meinong's penchant for intermediate objects does not stop there: he can find a place for a further intermediary between the intermediary object and the complete objects. As Findlay, expounding the theory, remarks (1963, p. 179), it "raises formidable difficulties". These difficulties infect Meinong's whole theory of perception.

The *theory of content*, which pervades much of Meinong's work, affords a further example. Meinong, following Twardowski, adopts a three term theory of presentation, of the relation between experience and object presented or selected. In every experience, as well as an *act* or experience-moment and an object experienced or indicated, a further term, a *content* was said to be required to explain how an experience can point beyond itself, to direct the act towards its object. Hence the thesis (which was intended to apply to "experience" construed broadly, e.g., to thinking, judging, assuming):

TC. Every experience-act is directed, by a content, towards a target, its object.

The theory encounters very many of the problems of the parallel, but different, theories of sense data and ideas, and more, e.g. it is difficult, if not impossible, to discern contents (for some elaboration see Findlay 1963, chapter 1). Freed from the pull of referential arguments, contents, like sense data, can be dispensed with theoretically, and TC contracted to the simpler thesis that every experience has an object. As for direction, an experience can simply be about an object.

13. *Referential considerations at work elsewhere in Meinong's philosophy.* Meinong had, his philosophical development reveals, a considerable struggle freeing himself from residual forms of the Ontological Assumption, that whatever is thought of, contemplated, or otherwise has properties, has some kind of being. Even when he did break free of the Reference Theory, with the doctrine of *Aussersein* and rejection of *Quasisein*, he did not entirely resist the referential temptation to slide back into accounting *Aussersein* a further way of being and ascribing a kind of being (minimal-existence) to nonentities. But although Meinong did manage to break free of the Reference Theory in his main published work on the theory of objects, he did not succeed elsewhere in his philosophy; or rather he did not apply the hard-won results from the theory of objects elsewhere, to remove referential considerations or referentially-motivated intermediaries. Thus, for

example, he did not observe, in the sharp way Reid had, the theories of ideas at work in philosophy, or the damage it wreaked.

It is worthwhile trying to bring out how some of Meinong's doctrines only more loosely connected with the theory of objects have been adversely affected by referential considerations. But the attempt is perforce a very limited one. For Meinong's philosophical position is vast in its spread – though not entirely comprehensive, for there is no political and little social theory – and it is elaborate,[1] in part because of the excessive wealth of intermediaries. Some cases of referential considerations at work will have to suffice. One case, the theory of act, content and object,[2] has already been considered (in this section) and another case, the *theory of values*, has been alluded to (in chapter 1 [Vol. 1 *—Eds.*]). The basic notion of value theory, according to Meinong is value feeling. But Meinong's theory of values is distorted throughout by the assumption

> that value-feelings are all cases of concern with *existence* or *nonexistence*. It is never mere objects or properties of objects that have value, but always the fact that there are, or are not, such objects (Findlay 1963, pp. 267–8).

The assumption, which runs quite counter to commonsense, appears to be based on Brentano's thesis that all judgments are judgments (affirmative and negative) of existence, a thesis that is a direct product of the Reference Theory in combination with traditional logic (for according to traditional logic all judgments can be represented syllogistically and these forms can be reduced to I and O forms, which, given the RT, are always either affirmations or denials of existence).

By contrast the theory of items removes part of the usual reductionist reasons for trying to confine value judgments to such set canonical forms, e.g. reasons such as worries about nonexistence, intensional objects and non-natural properties. In contrast to canonical form positions like Brentano's, the theory of items tolerates, and sometimes welcomes, a richness in logical and expressive forms. While various different theories of value can be coupled with the theory of items, the theory when followed through tends to

[1] Naturally and predictably then, there are many things in Meinong's philosophy, some of them elaborations of the theory of objects to fill it out or to meet objections, others of them only more loosely connected with the theory of objects, that have not been considered in this very preliminary account.

[2] While there is a fair measure of truth in the claim that "the theory of objects, as Meinong presents it, is firmly entrenched in the act-content-object analysis of psychological experiences" (Rapaport 1978, p. 154), the theory of objects can be presented in a way that is largely independent of that analysis.

lead to a theory of values[1] very different from Meinong's. Such an alternative theory will no doubt include suitably neutralised versions of some of what Meinong calls *dignitatives* (roughly, primary axiological universals, such as the Good and the Beautiful) and perhaps also of *desiderata* (primary deontic universals). But contrary to Meinong, such objects do not have being, of any sort (for reasons given in chapter 9); nor do Meinong's (*a priori* and quasi-empirical) arguments, which turn on versions of the Ontological Assumption, show that they do.

Although Meinong's theory has its referential troubles, these are modest compared with those of modern referential theories, and some of the troubles are easily rectified. Meinong's theory is then a superior basis on which to try to build a satisfactory theory than the more illustrious modern referential alternatives we are usually offered.

§3. The failure of modern direct reductions of nonentities to surrogate objects

Despite the small new wave of enthusiasm for nonexistent objects, the overall record of post-war philosophy is little better than that of earlier philosophy. The prevailing theories are referential and the prevailing moods are accordingly platonistic or, more commonly, reductionistic. Thus, for example, some who have been represented in the literature as Meinongians are not, but hold platonistic positions. One example is Chisholm, whose recent work, considered shortly, is overtly platonistic, indeed, as Chisholm himself says, "presupposes an extreme version of Platonism" (1976, p. 119). Another very different example is D. Lewis, whose platonistic work is represented as relentlessly Meinongian in Lycan 1979. Yet other examples are the new Lockeans, Castañeda and Grossmann (see §4 below); again they are but doubtfully and controversially accounted Meinongian.

But where serious attempts are made to take account of nonexistent objects, the attempts are usually reductionistic in part at least (thus all the referential platonistic positions). Invariably these are reductions of nonexistent objects to what are taken to be entities, sometimes they are reductions to what are taken to be intensional entities. The usual attempts, which comprise reductions to the following enumerated kinds of objects, may be classified thus:

[1] For details of such a theory see ENP1.

A. *Reductions of the nonabstract, to:*

(1) *Linguistic objects.* In crudest form, God is a mere word, "God" (a *flatus vocis*, in the transposed terms of medieval nominalism). The inadequacy of the crude view is apparent from translation objections; e.g. "God" and "Deus" both signify the same object, but the names are distinct, so the object can coincide with neither name. Meeting the translation objections usually leads to an abstract reformulation of the view, e.g. objects are sets of synonymous (or equivalent) words, again plainly inadequate. Practically all the standard objections to attempts to construe propositions as collections of sentences and worlds as collections of sentences, apply against attempts to reduce nonentities to linguistic objects or collections of them, e.g. there are insufficiently many sets of words, the specification of the correct sets of words involves a circular appeal to the object to be specified, etc.

(2) *Mental objects*, such as ideas, concepts (in one sense), e.g. Pegasus is the idea of Pegasus. Both Reid, in his elaborate refutation of the Theory of Ideas, and Meinong (cf. chapter 3 [Vol. 2 *—Eds.*]) made telling criticisms of such reductions. And once again ideas, especially if they comprise only actually had ideas, are insufficient in number to accomplish such a reduction.

The best hope for retaining reductions of this sort, to the nonabstract, is to replace them by contextual definitions, of statements apparently about nonentities by statements about entities, e.g. in the style of Russell's theory of descriptions. But such paraphrases are also (as we have seen in chapter 1 [Vol. 1 *—Eds.*] and 8) inadequate, if less conspicuously so than direct reductions.

B. *Reductions of the abstract, to:*

(3) *States-of-affairs.*

(4) *Propositions.* Attempts (3) and (4), which are occasionally separated, are commonly assimilated. Certainly the proposals to reduce propositions to states-of-affairs (e.g. Meinong, Chisholm 1976) and, conversely, states-of-affairs to propositions (e.g. Russell) are commonplace; and the line between them has been too fine for many philosophers to discern. Yet the linguistic forms are clearly distinct, and there are important functors which can take one form but not others. Examples help make both points clearer.

Propositions	State-of-affairs	Featurestances
That the city is ugly.	The city's being ugly.	The ugliness of the city.
That Illich is happy.	Illich('s) being happy.	The happiness of Illich
That all holes are black.	The being black of all holes.	The blackness of all holes.
Generally		
That A, where *A* is a declarative sentence.	Transformations of *A's being so*; notably, where *A* is of the form *S is P*, *S('s) being P* or *the being P of S*.	Where *A* is the form *S* is *P*, *the P-ness of S*.

The method of *functorial separation* separates the objects. Functors of the order of "*a* believes" (e.g. "*a* conjectures", also "*a* hopes") can collect propositional expressions but not state-of-affairs and circumstance expressions; consider e.g. "*a* believes the being black of the hole", "*a* believes the blackness of the hole". For the converse separation consider, e.g., "*a* studied". The functor "*a* knew" separates all three classes; for "*a* knew that the city was ugly" means something rather different from (and does not entail) "*a* knew the ugliness of the city", while "*a* knew the city's being ugly" is usually rejected as ungrammatical. What, for want of a better term, are called "featurestances" may be separated by functors such as "the revolutionary council remedied" which couples satisfactorily with "the ugliness of the city", but not grammatically with "that the city is ugly" and at best curiously with "the city's being ugly". Finally consider such separating predicates as "is true", "obtains", "ended". Naturally many functors apply to all three classes, e.g. "what Egberta is thinking about is", "that which Ramsey fears is".

Because of the separation the orthodox assumption that three different classes of objects (and others) can be satisfactorily reduced to one fails: reductions will serve for limited purposes only. A corollary is the failure of a basic premiss, identifying the classes, in Chisholm's 1976 ontological reduction (a reduction that fails also on several points of detail).

How do any of these sorts of objects help in a general reduction of nonexistent objects? It is clear enough how they are *supposed* to help in accounting for all objects of certain sorts, e.g. for all those circumstances of classes (3) and (4), and perhaps also

for such items as events (cf. Chisholm's case). But what of objects such as Pegasus? One approach has been that such terms as "Pegasus" and "the round square" only occur within circumstantial expressions (e.g. statements), and hence their occurrence is already accounted for. This is essentially a free logic approach and inadequate for the same reasons as free logics, namely that there is much true discourse that they fail to account for satisfactorily (cf. 1.8 [Vol. 1 *—Eds.*]). Another approach has been by way of possible worlds. Possible worlds are characterised in terms of, for instance, states of affairs, and then an attempt is made to account for nonentities by way of possible worlds, for instance as individual concepts which are explained through functions which assign an individual at each possible world. (The procedure thus amounts to a semantical analogue of theory of description procedures.) The procedure is a slight improvement on methods which simply assign a null entity, e.g. to "Pegasus". For example, it can account for the truth of "it is possible that Pegasus is winged"; in some possible world "Pegasus" is assigned, say, the cock Balthazar. But really each link in the attempt to so account for nonentities is weak. Firstly, the description of a state-of-affairs does not give a possible world in the usual sense of complete-consistent world. Rather many states-of-affairs have to be consistently combined; in this sense a possible world can be *represented* by a maximal consistent set of states-of-affairs. But with sets at hand and functions also required, a more direct approach to the problem of accounting for nonentities can be had. Secondly, the framework is too narrow to account for impossible objects. Thirdly, the attempt to treat nonexistent objects as individual concepts on the theory not only makes them all existent but inevitably leads to the assignment of the wrong truth-values to many statements about them.

(5) *Sets, and compositions of sets.*

(6) *Properties, and sets of properties and complexes of properties.* Attempts (5) and (6) differ (or at least appear to differ – for functional analyses of properties by way of sets at possible worlds may make the difference vanish) in the extent to which intensionality is pumped into the analyses. The attempts are modern objectified descendants of Locke's attempt to account for mythical objects through combination of ideas. Most modern attempts to reconstruct parts of Meinong's theory of objects or something like it fall into these classes, which call for more detailed discussion (see §4 below).

(7) *Natures, and individual universals.* There are two suggestions to consider: firstly, that nonentities are nothing other than natures or essences, and, secondly, that Meinong's nonexistent objects were really natures (a thesis of Dyche 1976). While it is true that nonexistent particulars have a good deal in common with (nonexistent) universals, especially universals singled out by "the" as essences or forms can be, nonetheless there are important differences. Pegasus is a particular, and differs from both the Horse and the Winged Horse, neither of which is a particular (though both are singular objects). Pegasus is in principle only one among many different winged horses, and not all of these can be identified with the Winged Horse, or they would be the same and not different. Furthermore, Pegasus has many properties the Winged Horse does not have, e.g. he was born, he sprang from the blood of Medusa, he raised the fountain called Hippocrene. Conversely, the Winged Horse is exemplified in particular winged horses such as Pegasus, but Pegasus is not (significantly) so exemplified.

Though the emphasis in what follows will be on reduction attempts of classes (5) and (6), many of the points to be made are more general. All the reductions fail for the same obvious reason: they assign to nonentities properties they do not have, most conspicuously existence. For instance, if a nonentity *is* a set, or a complex or whatever, and sets (or the sets of sets in question) exist, then the nonentity exists, by the transparency of "exists", contradicting the nonexistence of the nonentity. Again, a way out through a distinction of types of existence may be attempted, e.g. nonentities do not have concrete existence but have set-theoretical, or abstract existence: but this is an approach that has already been rejected. A more appealing resolution (for noneism) is simply to say that sets – to continue with this example – do not exist: but to say this is to destroy the usual point of the reduction exercise (which, linguistically viewed, is to reform all discourse which strays from preconceived referential norms). For nonentities are no longer constructions from things that do somehow (manage to) exist; "ontological reduction" is no longer effected. As conceptual exercises however such reductions may still be of interest, just as such logistic reductions as those of natural numbers to certain sets and real numbers to certain other sets are of much interest even after it is made clear that none of the objects in question exist. Can nonentities be reduced, then, to nonexistent sets? Again, the answer is No, not preserving requisite properties. For consider Pegasus. Either Pegasus is identified with a nonnull set, a say, or he is identified with a (the) null set Λ. Since a is nonnull, for some b, b is a member of a, whence since (on the

first alternative) Pegasus = a, b is a member of Pegasus. But this is not true (it is either false or nonsignificant), for Pegasus has (sensibly) no members. If however (on the second alternative) Pegasus is identified with Λ there are equally severe problems. For one thing, Pegasus is assigned many features he does not have, such as being a subset of every set, having Λ as a subset, and so forth; for another, Pegasus gets identified with other (eventually, upon reconsidering the first alternative, *all* other) nonentities. Hence the proposed neutral reduction fails; for the putative identity fails to preserve even extensional (set-theoretical) properties. This does not imply that there are no connections of interest that hold between nonentities and sets (or bundles) of certain sorts – much, again, as the failure of set-theoretical reductions of natural numbers, for parallel reasons, does not imply that there are not important connections between natural numbers and certain sets. In each case there is an isomorphism, a similarity in structure; specifically, a one-one function which preserves *certain* properties (relations and operations), those of a given preassigned sort. For example, in the case of the set-theoretic "reduction" of natural number there is a 1-1 function h under which all the usual arithmetic operations, most importantly addition and multiplication, are preserved; specifically where o is a two-place infixed operation on numbers and $o' = h(o)$ is its image (defined) on certain sets, $nom = h(n)o'h(m)$, where $h(n)$ is the set-theoretic image under h of number n. (Similarly, since h is 1-1, in the other direction, from sets to numbers.) But *such isomorphisms do not furnish reductions*, because they preserve only limited classes of properties; enough for similarity but not sufficient for identity.

The isomorphism between cardinal numbers and sets of equipollent sets is especially striking (and preserves an extensive class of properties) because at the back of it there is a genuine identity, namely an identity of cardinal numbers with properties of certain manifolds. In these terms the striking isomorphism between cardinal numbers and sets is induced (primarily) by another prominent isomorphism, that between properties and sets, or, more generally, between relations and relations-in-extension. (One important difference, not the only difference, between properties and abstract sets lies of course in their identity conditions, which in turn guarantee different interchangeability features.) Is there a parallel identity at the back of the rather less striking, but still useful (as Parsons 1974 has shown), isomorphism between nonentities and set-or-property-theoretic constructions? No, no non-trivial one it seems. Certainly the obvious parallel breaks down. Nonentities can no more be identified with properties of certain

sorts than they can with sets or aggregates (or, in *this* sense, bundles)[1] of certain sorts; e.g. properties are instantiated, nonentities such as Pegasus are not (significantly).[2] Can the argument be generalised?

Any identity that will serve for reduction purposes must be an identity of nonentities – either with concrete entities – an option that can be ruled out immediately, since the nonentities would really exist in the ordinary way[3] – or with abstract entities. It is more than an accidental fact that all the suggested reductions of nonentities turn out to be reductions to abstractions of one sort or another (to objects of higher order). *Prima facie* no such reduction is likely; for abstractions are abstract objects and have

[1] In the literal sense, where a bundle is a "collection of things fastened together" (OED), many nonentities, like many entities, are not bundles: Pegasus is no more a bundle than an actual horse. In the intended non-literal senses, bundle theories of objects oscillate between the false and the rather trivial. It is trivial that the object a is identical with the object a with a's properties, and so with *something* with a's properties. But remove "the object a" from the right-hand side of the identity and replace it – for a *subject* is required – by what the bundle metaphor suggests, "a collection", "a set" or the like, and the upshot is falsity. More problematic are the substance and bare particular transformations of bundle theories, where the "something" is replaced by "undifferentiated substance" or "a bare particular" ("an individual substance" raises no such problem, for *that* substance can simply be equated with a). The picture is the traditional one where all a's properties have been peeled off (more accurately, abstracted from) a, and only "bare undifferentiated particularity" or the "nonspecific object notion" remain. It is not difficult to represent the picture formally; the object operator is like the set operator $\{- :\ \}$, which gives, so to say, the set notion without specifying any particular set. What is required is an object operator which takes a collection, or set, of properties into an object, say $I\{\ \}$. For instance, $I\{f, g, h\}$ is the object with properties f, g and h; $I\{f : A(f)\}$ is the object with all properties satisfying condition $A(\ )$. That is, at least where $\{f : A(f)\}$ is a set of properties, $I\{f : A(f)\}$ is a well formed term. What the logic of I is is another, and difficult, if familiar matter. For to allow $(I\{f : A(f)\})f$ for every f such that $A(f)$ would simply be to reinstate an unqualified CP. $(I\{f : A(f)\})f$ presumably only holds for such f as are consequences of characterising f' such that $A(f')$. Such necessary restrictions remove the straightforward identity that could otherwise be made between each object a and $I\{f : f$ is a property of $a\}$ i.e. $I\{f : af\}$. The connection can however be made good under certain assumptions, specifically the tempting:

ST. Every extensional property is determined by (extensional) characterising properties. (*Supervenience thesis*)

Let g be an arbitrary characterising property of a. Then ag and also by CP, $I\{f : af\}g$. Let h be any characterising property a does not have. Then $\sim ah$ and, by HCP, $\sim I\{f : af\}h$. Hence for all (extensional) characterising properties g, $ag = I\{f : af\}g$. Hence, by ST, the formal equivalence extends to all extensional properties, and so extensional identity follows, i.e. $a = I\{f : af\}$. If such an identity gives what is right in the view of objects as bundles of properties adhering in bare particulars (the bundle $\{f : af\}$ objectified by the nonspecific glue I), *the view offers no reduction, only a different perspective on objects.*

Note that ST also justifies the identity principle, that if objects coincide on all characterising features, they are extensionally identical.

[2] It is for this sort of reason that Quine's identification, in ML, of individuals with their singletons, convenient as it might be, is wrong. Socrates does not have members, and is certainly not himself an element.

[3] In any case, Pegasus is not a word or an idea but a winged horse.

the features that belong therewith, whereas bottom order nonentities are not and have the same sorts of properties as concrete entities. For example, Pegasus is a horse, but no such abstractions as states-of-affairs, propositions, properties or sets are, or can significantly be, horses. Only natures, it would seem, might have such properties: the Horse is a horse. However any direct identification of particular horses, such as Black Beauty or Thunderhead, with the Horse would obviously be mistaken.

On general grounds, then, no sweeping reductions of nonentities to entities or to higher order objects are to be expected. The irreducibility thesis gets further confirmation from the many attempts to provide reductions of nonentities to such things, all of which appear to fail.

§4. The new Lockeanism: theories of Castañeda, Parsons and others

Modern empiricism (from Bentham and Mill on) has relied primarily upon theories of paraphrase and descriptions to reduce what discourse about nonexistence it permits to approved discourse about what does exist. The approach of traditional empiricism was different. Reductions were accomplished through the pervasive theory of ideas (criticised in §1). Such nonexistent objects as were tolerated (and these varied with the theory), were constructions from the basic building blocks, ideas.[1] Now that the shortcomings of the modern approach are becoming increasingly evident, there has been what amounts to a revival of the traditional approach. What amounts to – for it has not been seen as a revival and it is a revival with significant differences, e.g. the psychologism of the theory of ideas is removed in favour of constructions from aseptic properties or from other abstract entities.

1. *Locke's representation of objects in terms of complex ideas*. The new Lockeans are those who try to represent nonexistent objects in terms of set-theoretical constructions of properties, or to reduce them to such. The theories of Castañeda 1974, Rapaport 1978 and Parsons 1974 are all of this sort; so is Grossmann's representation of Meinong's theory (MNG, pp. 42, 119, 167), a blatantly reductionist representation. In order to show how very similar the models of the new Lockeans are to Locke's picture, it is

[1] An advanced Lego set provides a partial physical representation of the construction method of the theory of ideas. Out of basic building blocks, simple ideas, an enormous variety of complex ideas (sometimes equated with objects) can be built.

best to assemble salient features of Locke's view. It is worth noting first, however, that Locke's combination-of-ideas theory did not have any great originality. The theory of ideas, developed by the Cartesians, was, in many ways, a continuation of the Scholastic doctrine of species. It is convenient to consider Locke's version of the theory because it is comparatively clear and easily accessible, because it removes entirely the innate ideas of Descartes, and because, unlike Hume's theory for instance, it imposes no possibility restriction on combinations of ideas. According to Hume,

> 'Tis an established maxim in metaphysics, *That whatever the mind [clearly] conceives includes the idea of possible existence*, or in other words, *that nothing we imagine is absolutely impossible.* We can form the idea of a golden mountain, and from thence conclude that such a mountain may actually exist. We can form no idea of a mountain without a valley, and therefore regard it as impossible (1888, p. 32).[1]

Hume applies his principle in a ruthless, and completely invalid, way to show the freedom from contradiction of whatever we have an idea of (one example immediately follows the passage quoted). It would be all too easy to give a Humean proof the consistency of arithmetic (entirely within the framework of his *Treatise*) and of analysis and set theory. But such proofs would, and should, carry no weight.

On Locke's theory nothing prevents the formation of the complex idea of a mountain without a valley; it is obtained merely by combining the simple ideas that go to making up the idea of a mountain with those that make up the idea of lacking a valley. Similarly for complex ideas of other impossible objects. In fact, Hume's example is ill-chosen, the object is not impossible: imagine a planet that is perfectly spherical except for just one mountain. Granted we can form ideas of inconsistent objects by Lockean principles (this is a matter of the logic of complex ideas), can we imagine the objects? Though Locke has reservations about the imaginability of such objects, there need be no reservation. For many humans can imagine, indeed can visualise (as Escher's work helps show), impossible objects. Their conception of those objects does not imply the

[1] In later formulations of this "evident principle" (e.g. p. 250) and in the version Reid quotes, and criticises (1895, p. 377ff.), the word "clearly" is omitted. Evidently a redefinition of "clearly" could be pressed into service to render the (first) maxim analytic – whatever conception did not entail possible existence would be dismissed as "confused" – but then (1) the maxim is *not* equivalent to the second maxim restricting imagination and (2) Hume's applications of the principle require much further ado and more argument than Hume offers, i.e. he has to show not only, what he claims, that we have an idea, but that it is *clear*.

existence, or, what is different, possible existence of the objects. To assume so is tantamount to reading in a possibility version of the Ontological Assumption, that whatever true discourse is about must possibly exist, i.e. must be such that it could exist. Such an assumption is seriously mistaken.

Ideas, according to Locke (and according to many following him, e.g. Hume), divide into simple and complex "All complex ideas are made ... [by] combining several simple ideas into one compound one" (Locke 1975, p. 163). For example, the idea of Swan

> is white Colour, long Neck, red Beak, black Legs, and whole Feet, and all these of a certain size, with a power of swimming in the Water, and making a certain kind of Noise ... (p. 305),

while the idea of God is a

> complex one of Existence, Knowledge, Power, Happiness, etc., infinite and eternal (p. 315).

(The hopelessness of these particular explications as conceptual analyses is transparent.)

The modern Lockean conception of objects as represented by classes of properties coincides with Locke's representation in terms of complex ideas. For the combinations are class combinations, and the simple ideas involved are properties or concepts, mentally construed. As to the first, Locke writes of "complex ideas being made up of collections" (e.g. p. 368). As to the second, consider, to begin, Locke's examples of simple ideas: his initial list of ideas (p. 104) includes just these simple properties: whiteness, hardness, sweetness, thinking. More generally, simple ideas are either ideas of sensation, which are simple *qualities* conveyed by the senses, or ideas of reflection, which are concepts furnished by such operations of reflection as thinking, doubting, believing, reasoning, willing. As to representation of objects, consider Locke's division of ideas into real and fantastical (p. 372ff.). The important cases for comparison of the old and the new are the complex ideas of substances (p. 374) where real ideas are "such as have a conformity with the ... Existence of Things" (p. 372); more explicitly,

> our *complex* Ideas of *substances* being made all of them in reference to Things existing without us, and intended to be *Representative* of Substances, as they really are, are no further *real*, than as they are such combinations of simple *Ideas*, as are really united, and coexist in Things without us. (p. 374, my wavy italics).

i.e. real complexes represent entities (the representative account of perception is a special case). The contrast is with *fantastic* ideas,

> which are made up of such *Collections* of simple *Ideas*, as were really never united, never were found together in any substance; v.g. a rational Creature, consisting of a Horse's Head, joined to a body of humane shape, or such as the *Centaurs* are described ... such Collections of *Ideas*, as no substance ever showed us united together, ... ought to pass with us for barely imaginary (p. 374, my wavy italics).

Some of the fundamental classifications of objects, but made with respect to substances, can be glimpsed also in Locke. For instance, inconsistency of an imaginary substance is allowed for though inconsistency or contradiction of the components of the corresponding collection. Incompleteness is also considered (p. 365).

Locke tries to take his theory much further than modern cautious counterparts have dared to venture, to include for example a range of higher order objects, also complex and collective objects. To establish his empiricist thesis (p. 104) Locke has, strictly, to consider *all* objects with which knowledge may be concerned. This he never does in a systematic way: thus he does not establish the thesis of conceptual empiricism. Indeed since that thesis is false (cf. chapter 9), the theory is bound to fall short.

Not only is the theory incomplete: its consistency is in serious doubt. The reason is that Locke is open to the two main objections Russell made to Meinong's theory, inconsistency and novel ontological proof: for objects appear to have the properties given in their representing class of ideas, e.g. God does exist, is powerful, etc. Consider, e.g. the complex of ideas that yields the existing 10,000 m mountain in Ireland. Ireland has no such mountain.

2. *The new representations of objects in terms of sets of properties*. The new theories attempt to place, or reflect, theories like Meinong's theory of objects, and to account for nonentities, within a fairly standard classical referential framework, within the framework of an enlarged "empiricism" (with sets, properties, etc.). Where the theories differ from Locke's is in having *much* more technical apparatus than that of the theories of ideas, with which to carry through the enterprise. What the new theories have in common is, in the first place, an ontology of properties and sets. Properties exist, all of them, according to Castañeda and Parsons 1974. In fact in Castañeda 1974 they are (much

as ideas are for Berkeley) the main constituents of the world; and it is from sets or complexes of these entities that objects are composed – at least that is the working model, even in Parsons' 1974 theory. Since (in the second place) nonexistent objects are or are represented by sets of properties, i.e. are set-theoretic functions of certain sets of properties, they all exist. (Parsons regularly quantifies over them using the "existential quantifier", regularly applies what he calls "existential generalisation", etc.) For example, the round square *exists* because the set of properties {roundness, squareness} exists. Admittedly the theories do not assign to impossibilia *individual* existence (which is as well for their consistency). The objects that really do exist are assigned a special status among the existents; in this respect the theories are like the realism of D. Lewis according to which all possible objects exist but some (those that *do* sometime-exist) are distinguished as actual.

The theories are accordingly platonistic kinds-of-existence theories. The theories thus diverge fundamentally from Meinong's theory of bottom order objects, and from the theory of items advanced, according to which non-existent objects do not exist, and indeed in general have no kind of being. Parsons tries to minimize these differences by saying that he is using "exist" to mean "exist or subsist" in Meinong's sense. According to Meinong however, many objects neither exist nor subsist: whereas Parsons' analogues of these objects exist. The divergence from the theory of items is still greater; for not only are sets and properties among nonentities, but on it no *non*entities subsist, so sets and properties neither exist nor subsist. But on any theory that rightly holds that sets *or* properties do not exist, the objects the new theories supply as *entities*, e.g. $\{f : (\text{Kripke})f\}$ for Kripke, do not exist! Nor, as we have seen, are the differences between a theory which talks neutrally about properties and one which holds they exist, trivial or merely terminological – any more than the differences between parallel theories about impossibilities or theories about minds or ghosts. Moreover, according to the theory of items (as for Meinong's later theory) there is only one way of existing, that in space. But $\{f : (\text{Kripke})f\}$, unlike Kripke, does not exist in space.

The reductions mistakenly assign to nonentities not just existence but the wrong categorial features. For "entities" are, as on Kripke's theory of fictions, abstract entities; and similar objections may be lodged. Thus it is true on each of the theories that Pegasus is a set, has elements, is a subset of the universal set, and so on, though none of these things are true of Pegasus (cf. the criticism of Parsons 1974 in 8.3).

Since the new theories frequently assign the wrong categorial features and wrong status features, they are going to go badly astray with intensional features. Consider, e.g., RR believes Holmes is a set; RR believes Holmes is distinct from $\{f : \text{Holmes } f\}$, etc.

The *nonreductionist point* of a theory like Meinong's has thus been lost. And many of its applications have likewise been sacrificed. It is true admittedly that the new theories can serve some quite limited purposes, e.g. they are useful for modellings, and perhaps (should this be thought worthwhile) in convincing hardliners that we can talk sensibly about objects and make "good" classical sense of much of Meinong's theory – by rendering it another platonistic extravagance. But these are trifling gains (with their own costs). The net result is very serious nevertheless. For a great many of the philosophical and theoretical tasks to which a theory of objects can be fruitfully applied (e.g. those noted in 1.1 [Vol. 1 *—Eds.*]) are ruled out by the new theories.

3. *Some remarks on Castañeda's theory of "Thinking and the structure of the world".* Castañeda sees his "basic system of ontology" as

> a nice formulation of a conception of the world that was started by Plato, was envisioned by Leibnitz, guided Frege, at least in part, and was defended by Meinong (1974, p. 3).

The system is said to solve very many fundamental philosophical puzzles (pp. 3–4, p. 39), but it is left to the reader of Castañeda's 1974 to "assure himself that this is so" (p. 39). Unfortunately the reader is severely handicapped in this task by having only an informal presentation (p. 10ff.) of the system giving the ontological structure of the world to work with.[1] Even the underlying logic is not stated, though it can be inferred from the use of classical symbols and such remarks as "genuine identity is as it is normally conceived to be" (p. 12) and "provided that 'F_1 & ... & $F_n \supset G$' is a theorem in standard quantification logic" (p. 16), that the underlying logic includes classical quantification logic with Leibnitz identity and with several additional improper symbols, in particular

[1] Nor, a search of the literature appears to disclose, is an explicit formal presentation to be found in Castañeda's more recent publications, several of which depend on the theory of Castañeda 1974. In later papers the reader is regularly referred back to Castañeda 1974, as if it were definitive ("all of this is explained" in Castañeda 1974).

predicate (or property) negation, which appears without previous notice in a thesis of the informal system, and the cosubstantiation relation C^*.[1]

It is a mistake to see Meinong's theory of objects in the historical tradition in which Castañeda sets it, especially that of Plato. For "the fundamental assumption of the system, namely its Platonism" (p. 39) was very definitely not an assumption of the theory of objects. According to Castañeda "the ultimate components of the world are *Forms*, and these divide into *properties* and operators". The properties of the system are n-place relations, for any natural number n (thus propositions are 0-place, or *0-rank*, properties). An operation of *variabilization* transforms these properties (identified with *abstract* properties) into *propositional functions* (identified with *concrete* properties),[2] from which individuals are composed. An operator, represented by braces, operates on components and forms sets (said to be abstract individuals). The composition operator c, "operates on sets of monadic properties (or propositional functions), whether single or complex, and yields *concrete individuals*", i.e. individuals, said to be, "*roughly*, Frege's senses of definite descriptions" (p. 11). Three distinct individuals given as examples (again the examples do not exactly match the final account and extra assumptions are involved) are these: the round square $= c\{$being round and square$\}$; the individual composed of the properties of roundness and squareness $= c\{$being round, being square$\}$; Meinong's favorite impossible object $= c\{$being Meinong's favorite impossible object$\}$. Castañeda says "Clearly whatever property Fness we consider, the Fer is F, and necessarily so" (p. 11) for the primary predicational sense of "is"; and quite erroneously attributes such

[1] The logic that is presented appears to contain certain, rather common, errors. For example, Leibnitz's law, presented as a "fundamental ontological principle" for "genuine identity as it is normally conceived to be", is stated in reverse notation thus:

Id. 2a. $x = y \equiv (x(F) = y(F))$,

instead of the normal quantified form: $x = y \equiv (F)(x(F) \equiv y(F))$. (Id. 2a. persists through three different versions of Castañeda 1974, two published and a preprint, reducing the likelihood of the two (?) defects being more misprints.) Castañeda's Id. 2a. has the consequence that if individuals x and y are identical in some *one* respect, they are identical. The fact-indiscernibility of individuals, (law Id. 2b, p. 12) is formulated using the notation $\phi[a/b]$ explained without due restrictions on replacement to exclude binding of variables upon replacement. It seems to be assumed that the indiscernibility principle follows from Id. 2b, but it does not without both a principle linking the unexplained connective $=$ with $\equiv$ and either some powerful second-order principles or else (for first-order induction) several further principles for new improper symbols (to facilitate proof of the induction step). And so on. However all these things are easily rectified, and do not tell against the intended theory.

[2] The examples that can be found of the operation do not blend with the description: e.g. roundness transforms to *being round*, instead of (—) *is round* or x *is round*, what it seems it should be for variables to enter and the result to correspond to Russell's notion.

a claim to Meinong. Nor it is at all clear without further assumptions: to suppose so is to make the serious mistake of taking it for granted that an object has all the properties it presents itself as having or is described as having. Castañeda does however supply the further – very damaging – assumption in the form of a truth condition: that $a(F)$ [intended to be read "a is F"]

> is true, if and only if the property denoted by "F" is member of the set of properties constituting the individual denoted by "a" (p. 1).

The result is systemic disaster. For no restrictions on properties are even hinted at and complex properties are freely admitted. Consider, for instance, the individual $c\{E, R, R^-\}$, d say, where E is the property of self-consubstantiation,[1] in terms of which existence is defined (p. 15), R is roundness, and R^- is the property of being false that roundness applies (i.e. $\lambda x{\sim}xR$). By the truth condition, applied three times, dE, dR, dR^-. But $dR^- \equiv {\sim}dR$. Hence, by adjunction dR & ${\sim}dR$, violating noncontradiction, and dR & ${\sim}dR$ & dE. Since $dE \supset dR \equiv d{\sim}R$ (see p. 15), dR & $d{\sim}R$, whence (p. 15) ${\sim}dE$. So too dE & ${\sim}dE$. Further, since the underlying logic is classical, the system is trivial. In fact the derivation of a contradiction from $c\{R, R^-\}$, the round not-the-case-that-it-is-round-object, is enough to collapse the system, since on it "the law of contradiction must prevail throughout the realm of truth" (p. 21). Almost all[2] the objections brought against unrestricted Characterisation Postulates apply against Castañeda's theory. Triviality results very directly as follows: Let s be an arbitrary false proposition not in the system, and consider $p = c\{\text{being true, materially implying } s\}$. Then, by the truth condition (and the Tarski biconditional), p and also $p \supset s$, whence s.

Thus Castañeda's theory requires substantial revision as well as more precision. Some restriction of the class of properties that are reliable is essential; and this is Parsons' theory, with its distinction (after Meinong) of properties into nuclear and extranuclear properties, provides. No doubt the requisite formal revision and elaboration could be undertaken. Even so the theory would remain thoroughly unsatisfactory in fundamental ways, in particular because

[1] Alternatively in terms of Castañeda's "propositional function" E is being self-consubstantiating.

[2] The qualification is called for because it suggested, firstly, that some predicates ("exists" perhaps) do not fully express properties, and, secondly, that some restriction on predicate abstraction is supposed, e.g. (p. 12) "entering into a fact is, of course, *not* a property".

Subsequently in his 1976, Castañeda asked what "criteria for the selection of properties" says "I do not mind saying that they are first-order properties" (p. 114): even if adopted this is still not sufficient for simple consistency.

(a) the Reference Theory is deeply embedded in the theory, and

(b) the theory is based upon the assumption that there are several (at least three) different modes of predication (indeed this is the way in which it can live with the Reference Theory).

As to (a), the platonism of Castañeda's theory has already been observed: it is a conspicuous and much emphasised feature of the theory (see, e.g. p. 39). The items of the theory are one and all entities,[1] and the investigation of the theory is ontological. Identity is Leibnitzian.[2] However much of Castañeda's theory can be recast non-referentially, and many of his important insights can be recovered in a more satisfactory setting. As to (b), the main distinction is that between (what is variously called) "Meinongian predication" and "consubstantiation" (pp. 12–13) or between "fictional predication" and "actuality predication".[3] The distinction involves finding ambiguities where (so it has been argued) there are none, e.g. in "The golden mountain is golden", "Pamela had rented again the old bungalow at 123 Oak Street". Castañeda's argument (in his 1979) for the ambiguity of the predicate in the latter sentence (in the *two* different contexts in which he sets it) is basically that the sentence is ambiguous, and that the ambiguity cannot be satisfactorily located either in the subject or in the predicate term. But the sole argument that the sentence is ambiguous[4] is that in different contexts (one fictional and one "real") it yields

[1] Castañeda's theory is at root, and requires, a *levels of existence* theory, with at least two modes of existence (corresponding to the main modes of predication): that of (underlying) reality and that of actuality. Both are said to be "mysterious". "Actuality, which accrues to concrete individuals, is most mysterious" (p. 12):

> Existence is mysterious. It is rich and complex as shown by its laws; it is *what in the end the whole of thinking and acting is about.* Yet it seems redundant and empty. As Kant put it, "the real contains no more than the merely possible". More specifically, for any property Fness, the existing Fer is the same as the Fer (p. 21, emphasis added).

Arguments have already been adduced in earlier chapters against all these claims.

But Castañeda is not altogether happy about the two modes and regards "the nature of existence" as "a most serious problem". For he is reluctant to say *both* of what he does say, that, on the one hand, all objects of thought exist and that, on the other, existence differentiates among objects of thought (cf. p. 9ff.).

[2] "Identity is, naturally, as always exhaustively totally reflexive and abides by so-called Leibniz's law", "so-called contingent identity is not strict or genuine identity" (Castañeda 1975, pp. 129 and 133). "I am committed to a strong version of indiscernibility" (Castañeda 1976, p. 115). Castañeda's complex theory of guises (or appearances) is required principally in order to prop up Leibnitz's Lie.

[3] There is also a parallel (but doubtfully identical) distinction between "internal" and "external" modes of predication: there are said to be several cases of external predication.

[4] Elsewhere there is little argument to be found either for the alleged differences in modes of predication or that there are the ambiguities the differences imply and that call for the distinctions; e.g.

different statements; and *that* does not establish ambiguity (as Castañeda's example "This is red" should have revealed: see also Slog, chapter 2). The case for ambiguity of the copula, for two modes of predication, is however argued directly by Rapaport, who presents (in Rapaport 1978) a theory with much in common with Castañeda's.

4. *Rapaport's case for two modes of predication and two types of objects*. Rapaport's "modified Meinongian theory" (of Rapaport 1978) is yet another reductionistic theory of a referential cast, aimed at reducing nonentities to entities, once again sets (or bundles) of properties: "Meinongian objects which are constituted by properties" (p. 162) "are actual" (p. 162, p. 167). Rapaport argues from a distinction between two modes of predication, to a distinction between two types of objects, actual physical objects and Meinongian objects – the aim being to expand Meinong's act-content-object distinction to a four part distinction with the two types of objects. (Main difficulties with the act-content-object distinction simply transfer to this distinction.)

According to Rapaport,

> the paradoxical flavor of Meinong's famous statement that there are objects of which it is true that there are not such objects can be tempered somewhat by suggesting that while there is always an object of thought, there isn't always a physical (say) object corresponding to it. Let us call the former the *Meinongian* object and the latter [the one there isn't] the *actual* object (p. 154).

A paradoxical flavour, which is easily removed by distinguishing "is^{E}" and "is" is not tempered by adding to the appearance of paradox, in particular by saying that when one thinks of President Carter there are *two* objects involved, as well as "a Meinongian object ... there is *in addition* the actual physical object, viz. President Carter"! This does not answer to experience (cf. the scorn Reid poured on the two objects the theory of ideas so frequently delivered in place of the one object of commonsense).

Nor is such a distinction of objects – not part of Meinong's theory – in any way required by Meinong's theory, certainly not the theory encapsulated in the nine theses Rapaport usefully assembles (p. 154ff.). For the nine theses are satisfiable (rather eas-

in Castañeda 1974 there is nothing (but a suggestion on p. 13), the differences are simply taken for granted.

ily, since they include no CP of strength) by theories without distinctions of the type Rapaport makes, of objects or modes of predication.

Nor are the distinctions otherwise required, and the leading argument given (p. 160 ff.) fails.[1] Rapaport claims to find a semantic difference between

(3) My gold ring^{E} is golden (which is contingently true), and

(4) The golden mountain is golden.

For – so Rapaport contends –

R. Nonexisting golden mountains cannot be made of gold in the same way as existing golden rings are (p. 161).

So how is the difference to be accounted for? There are three possibilities:–

(i) a difference in subjects;

(ii) a difference in predicates; and

(iii) a difference in modes of predication.

(The underlying picture is traditional, with judgments consisting of subject and predicate linked by a predication relation.) Rapaport rules out (i) and (ii) which leaves (iii) (cf. Castañeda's procedure above). Possibility (ii) is correctly ruled out on the grounds that there is no difference in the word "golden"; it is not ambiguous, and its meaning can be explained in the same way in each of (3) and (4). But (*mutatis mutandis*) precisely the same could be said, correctly, as regards possibility (iii): "is" does *not* vary in meaning from (3) to (4) any more than "golden" does. And that observation is enough to break Rapaport's argument!

Is there really, as alleged, a semantic difference: is it true that golden mountains cannot (be made of) gold? What is the force of "in the same way"? These crucial things, Rapaport does not explain. The only way Rapaport arrives at a semantic difference is by deliberately imposing one (where there appears to be none), by introducing distinctive symbolism and semantics for "is" as between (3) and (4).

On the intuitive data, Rapaport is astray. Neither (3) nor (4) says anything about "being made of gold", as is assumed in R. Depending on context, the objects could be

[1] The other considerations adduced, e.g. "the historical precedence of Castañeda's" recent theory, carry little weight – particularly since Meinong's theory gives no support to the proposals, and as Castañeda's theory is said not to be "intended as a version of Meinong's theory" (p. 168).

painted gold, bathed in golden light, etc. Rapaport's question should presumably be: Can both objects be golden in the same way? For this a critical issue, already answered at length, is: Can a nonentity such as the golden mountain have properties? The answer is: of course non-existent nonactual objects can have properties; so presumably the nonactual golden mountain can be golden. To deny this would be to reinvoke the Ontological Assumption. But *just* such a move underlies Rapaport's thinking, e.g. (p. 174), where he considers denying "that M-objects [i.e. Meinongian objects] are actual; for then they would not exemplify any properties". The pressure to manufacture a semantical difference is then referential. This explains also why Rapaport speaks of solving "the problem of how non-existents can *have* properties" (p. 161). For without the Ontological Assumption there is no problem to solve.[1]

5. *Parsons 1974 to 1980: transition from reductionism.* In his 1974, Parsons "tried to develop a version of Meinong's ontology that is clear, consistent, and immune to Russell's attacks"; in Parsons 1975 he applies the "theory to an analysis of fictional objects" (p. 73). The theory of Parsons 1974 is set out as a rather formalistic exercise: "I'm going to represent Meinong's theory within a set-theoretic reconstruction of the theory", without arguing "for the truth of the theory ... a first step in Meinongian scholarship is to get a version of his theory that is clearly consistent and to find some interesting uses for it" (p. 563). All very questionable;[2] however, it sets the programme of Parsons 1974 and to a large extent that of Parsons 1980. But for one thing. Already in his 1975 Parsons was looking "for reason to believe that it's *true*". But "the only evidence that we ever have in favor of a general metaphysical theory is that it has interesting applications" (p. 73). The claim is surely mistaken: false theories often have interesting applications, and there are many other factors involved in and constraints upon theory choice (Routley 1980).

The set-theoretic reconstruction is a set-theoretic reduction. Objects are sets of properties (Parsons 1974, p. 565, p. 580), an equation criticised and rejected back in 8.3.[3] The equation is rejected by Parsons 1980: "I am not saying objects *are* the sets of properties that they have" (p. 18, fn 1). The new picture, adopted in his 1975, merely

[1] Rapaport's modified theory appears to be in serious logical trouble on certain points; but since the theory is trivial (see Rapaport 1978, p. 171), there is little merit in considering them.

[2] And not exactly the course Meinongian scholarship has followed, most of it including an attempt to argue to the falsity of the theory – for which purpose a consistent version is something of a handicap.

[3] A body of literature criticising Parsons 1974 and 1975 is beginning to arise; see, e.g. Rapaport 1978, Howell 1979.

correlates objects with sets of properties: objects are not reduced. By Parsons 1980, the new picture and the theory of his 1974 and 1975 has largely vanished into a brief and "crude" introductory sketch, which is at once discarded (except in the subsequent consistency argument): "we can dispense with talk of lists and correlations and present the theory in a more direct manner ..." (p. 19). The fuller theory is a predominantly logical theory of objects, in which objects are not reduced: object terms are taken as primitive, and subject to axiomatic constraints. There would be no justice then in assimilating Parsons' fuller theory to Lockean reductions.

There are other modifications, some of which bring the Parsons 1980 theory closer to the theory of items. In Parsons 1974 it was taken for granted that properties and other abstractions exist: in Parsons 1980 it is not longer, but it is said, truly but evasively, that they exist if they do exist (I9). At least it is left open that they do *not* exist – a definite improvement. As a result, however, of the openness, the theory is cut off from important applications of the theory of items, and is essentially confined to nonexistent particulars. Hence the emphasis in applications on fictional objects and the like.

Several things do however transfer more or less intact to the 1980 theory, most notably the theory of "relations". In a sense, all relations are reduced to properties.

> Syntactically, all relational predicates work in the language by first being converted into complex monadic predicates by having one end plugged up with a singular term (Parsons 1974, p. 575).

It is similar in his 1980: the only atomic formation rule is for one-place predicates. Though no doubt formally sound (because sufficiently restrictive in what it permits), Parsons' difficult theory is decidedly artificial. The formalism does not correspond well to anything given in natural language – except, maybe, what has a much more limited and (usually) different role, hyphenization, and even this connection is lost with predicates of more than two places. The theory is difficult to apply, especially in symbolising natural language, because it forces numerous choices, e.g. as to which way to plug up a given n-place relation, where none are normally made, and mostly are not required. Indeed it induces multiple syntactic, and reflecting this, semantic ambiguity, where there is none. For example, an unambiguous n-place relation can become ambiguous in $n!$ ways on the theory.[1] The theory of "relations" may be something to fall back upon as a last resort, but it is to be

[1] The theory as developed imposes a sharp – an artificially sharp – division between nonentities and entities: all the problematics of plugging up and associated ambiguities suddenly vanish when only

sincerely hoped that the situation with nonentities is not that desperate. The evidence is that it is not (cf. 7.7 [Vol. 2 *—Eds.*]).

Notwithstanding, the theory of Parsons 1980 is *very* congenial to many of the main theses that are argued for in this book, much more so than any work that has been published in the last half century.[1] Naturally there are significant – indeed fundamental – differences on a great many issues (as readers will quickly ascertain). But even these are diminishing as the respective theories are elaborated. It would be pleasant to find that this partial convergence is controlled by the data – logical and linguistic, factual and commonsense – that the theories are trying to reflect.

§5. The noneist rejection of reductionisms and repudiation of mediatorial entities

Two aspects of noneism, not given much prominence in the initial statement of position (p. 1ff. [Vol. 1 *—Eds.*]), that should have emerged clearly in the course of the book are, firstly, the emphasis on irreducibility and, secondly, the proper prejudice against intermediary entities and other middlemen. The aspects are of course interconnected: intermediaries of the right sort are mostly introduced in order to effect reductions, and reductions typically proceed through intermediaries.

In its general rejection of reductionism noneism (which also abbreviates "nonreductionism") joins forces with the modern swing, of ecology and the counterculture (see Roszak 1973, p. 264ff.), against reductionism. Some of the reasons for the rejection are the same, some are different, partly as a result of the difference of subject matter, partly for more substantive reasons. For example, noneist opposition to, say, attempts to reduce religion sociologically is not that there exists a supernatural being or a spiritual

entities are involved. But nonentities are not so very well-behaved relationally, as intensional paradoxes among others show. There is no due recognition of the different types of nonentities, or of the way in which for some nonentities, e.g. those of certain theories, relations can be admirably behaved: again this reflects too limited a focus of the theory on fictional items. However there is some scope for improvement of the theory in these regards.

[1] Largely for this reason, but partly because the work has yet to attain final form and be published, the original idea of a detailed commentary on Parsons' theory was abandoned. The theory, as presented by Parsons, speaks splendidly for itself: it has very considerable virtues – as well as, from a noneist viewpoint, substantial limitations, some of which have already been alluded to, and some of which flow from the fact that, like Meinong's theory, the theory has not succeeded in breaking free of the Reference Theory. To begin pointing out other limitations *would* lead to a commentary.

realm that reductionism is aiming illegitimately to remove. For there exists, it certainly seems, no such being or realm. Even so most religious discourse remains intact (though truth values may change substantially), and cannot be dissolved by mere sociological or psychological analysis. (Of course related analysis may help in explaining motives for adopting such a religious language-game).

Naturally the noneist rejection is not of *all* reductions – some local or limited reductive analyses, or *rather* extensional identifications, no doubt succeed – but of reduction programmes of a fairly comprehensive character, especially philosophical programmes. (Terms such as "programme" are chosen advisedly in talking about philosophical reductionisms, as it cannot be pretended that many of the proposals from the prodigious passing philosophical show have succeeded.) Nor is the rejection merely for the obvious reason that large scale reductions almost invariably oversimplify (and uniformize) and so falsify. The deeper reason is that *with noneism the point of reductions commonly disappears*. The reason is that most reductions arise from ontological worries and are intended to be ontological reductions,[1] to show that the thing eliminated does not really exist, at least not independently, but only as or through something else to which it reduces.[2] Yet commonly the thing reduced does *not* exist, but is taken to exist because it has, or seems to have, properties, i.e, the Ontological Assumption is at the back of the worries. So should one simply say, as noneism does: the thing does not exist though it has properties, the point of such reductions vanishes.

Once again the case of minds affords a good example. Minds have properties, e.g. creatures have minds, some minds are good and others less good, minds develop and deteriorate, and so on. Ontological worries arise because a leap is made – the Ontological Assumption is supposed to justify it – to the existence of minds; whereupon minds become problematic and seem to acquire all sorts of strange and puzzling features (compare

[1] The point applies also to reductions such as those the theory of descriptions, and more generally those of the theory of logical constructions, were intended to effect. For the assumption (again a result of the OA) was that unless a reduction like that of the theory of descriptions was effected one would be forced to say that such items as Pegasus and other "nonentities" existed.

[2] There is something a bit rum about ontological reductions as they are often presented, namely as furnishing identities. For if the reduction is a correct one it identifies (extensionally at least) the thing reduced with something else which (normally) exists. So the thing reduced does exist after all, since existence is transparent, so in a sense no ontological reduction is achieved. It is thus decidedly misleading to present ontological reductions, in the way they are often presented, as showing that certain objects (e.g. minds) do not exist. In another sense something is achieved, because it is shown that the thing reduced is *nothing but* a certain other existent, so a reduction in the *apparent* number of entities is achieved.

the situation with universals as Reid explained it). Minds are queer places with weird, ghostly transactions and happenings: remember especially Ryle's initial build-up of the Cartesian myth in *The Concept of Mind*. So a reduction, or redescription of logical geography, programme and associated therapy is called for; a programme like Ryle's and Wittgenstein's, or differently those of the materialists, etc. But of course minds do not significantly have spatial location, minds are not places, queer or otherwise. Minds do not exist, because they do not satisfy spatial requirements on existence and the like, and accordingly they are not loaded with all the paraphernalia existents are bound to have that cause the main puzzles. Thus the point of reduction programmes, of relocation of concepts, and the rest, disappears.

Reductions in philosophy, especially in the face of sceptical arguments, have lead to the introduction of a great many mediatorial entities, much as the rise of capitalism and bureaucracy have lead to the imposition of many middlemen in production. Thus, for example, as Reid points out,

> philosophers have been led to think that, in every act of memory and conception, as well as of perception, there are two objects – the one the immediate object, the idea, the species, the form [the content]; the other, the mediate or external object. The vulgar know of only one object, which in perception is something external that exists . . . ; and, in conception, may be something that never exists. But the immediate object of the philosophers, the idea, is said to exist, and to be perceived in all these operations (Reid 1895, p. 369).

Of course the philosophers usually had reasons for the introduction of these intermediate entities, much as capitalism usually found reasons for its middlemen. As Grave remarks,

> Most of the familiar reasons for a theory of ideas were curiously ignored by philosophers of the Common Sense school. They are all silent about the objects of false beliefs and memories (Grave 1960, p. 25).

It is not difficult to see however that arguments such as that from false memories to intermediate objects are quite inconclusive. Grave sketches the arguments (already considered from a different angle in 8.10):

> We have false memories and these have no intrinsic marks to distinguish them from true memories. While the object of a true memory could perhaps be a past event as it actually was, the object of a false memory could not be an object as it actually was. The false object must be an idea (Grave 1960, p. 24).

Not at all. The object of a false memory would simply be an event or thing that did not happen or exist. Without an Ontological Assumption, no shift to surrogate entities such as ideas is needed. The argument continues

> ... how could an idea of an event be mistaken for an event? We can only suppose that the direct objects of both true and false memories are ideas, the one corresponding and the other failing to correspond to something that actually happened.

But it is far simpler to say that the objects in both cases are things or events (one doesn't, except in special cases, remember ideas), in the one case the thing did exist, the event did happen, in the other case they did not. Thus it is simply false[1] that

> Nothing but Reid's superstitious horror of the idea theory could have prevented him from seeing that the faculty of memory is necessarily "mediate" and "representative".

Here as elsewhere intermediary entities are not required, or admissible, but are best, to use a term drawn from the opposition, banished. Really, however, it is not that these intermediary entities exist to be banished; rather they do not exist. But in a theory where nonentities are admissible, the intermediaries are entirely otiose.

Intermediaries like the ideas of the ideal theory appear in almost every reach of philosophy, and in each area "banishing" them is a first important step in trying to resolve problems of the area. A central philosophical area where intermediate entities have not been recognised for what they are, or the damage they do, is the theory of meaning.

The customary, and frequent, demand for a theory of meaning derives from the Reference Theory. Some notion of meaning, or sense, distinct from reference, is essen-

[1] Hamilton's claim that

> An *immediate knowledge of the past* [Reid's phrase] is a contradiction in terms (*Discussions*, 2nd edit., London 1853, pp. 49–53);

is likewise false. Where no intermediaries are involved, knowledge can be said, to emphasise the contrast with mediatory theories, to be immediate – without inconsistency.

tial, given the Reference Theory, wherever the extensional account of reference fails, in particular to accommodate cases of empty reference and cases of reference in opaque frames. Hence the characteristic introduction of such auxiliary entities as senses, meanings, intensions, and so on. Without the Reference Theory, much of the point of these introductions vanishes; one can simply take over a modified version of Reid's view, that a word is directly related to the world, that there exist no psychological entities, ideas, concepts, meanings, or the like, floating (or otherwise figuring) in between. Intermediaries and middlemen do not exist, and as objects they are largely otiose.[1] A theory of meaning, as ordinarily understood and sought, is then not a desideratum, but a liability.

But just as the noneist rejection of reductions is not of all reductions, so the noneist repudiation of auxiliary objects is not of all auxiliary nonentities. When auxiliaries really do work, work in making a theory function successfully, instead of complicating or sabotaging it, or work in explicating the data, such as features of (say) fictional discourse, then auxiliaries are welcome.

§6. The noneist and radical noneist programmes

These programmes involve not only a critique of rival programmes and in particular of entrenched positions and of the status quo, but, what is more important, the following: firstly redoing things, things that have mostly been done referentially and badly (in their way, according to their precepts and theses), and secondly doing things that have been left undone, for instance theories that have been dismissed or discarded or never (much) investigated by prevailing or by historical positions.

A major part of the noneist programme will naturally consist in extirpating the Reference Theory, especially in removing all facets of it from its blighting (often paralytic) role in philosophical and foundational thinking. It is most important however to avoid having all research activity caught up in defensive work, such as in disputes with entrenched positions over preliminaries, so that the major tasks of advancing the

[1] Largely but not entirely, as earlier sections indicate. Of course words have senses, and it is sometimes useful to speak of senses, to distinguish different senses, and so forth. But from this it does not follow that senses exist. Nor does it emerge therefrom that determining a theory of sense is a major philosophical enterprise upon which much else turns. It is not. The modern quest for a theory of sense or of meaning is really, as our English friends *should* say, a bit of a bore.

programme and elaborating the theory – what will often be the best way of meeting opposition anyway – never gets done.

Radical noneism goes further than noneism. The classical logical programme is, as Priest has explained (in Priest 1979a), a degenerate research programme. The radical noneist, or ultralogical, programme is a replacement for the classical programme. It is a programme which shares much with what the classical programme possessed in its more vigorous days, a rationally based belief in the centrality of its logic, the importance of argumentative and analytic methods, of counterexamples and refutations, etc. But the classical and radical programmes differ sharply, in the ways that have already been indicated, ways emanating from the respective rejection and acceptance of the Reference Theory and its elaborations, and of the Consistency Hypothesis, i.e. the thesis that the world $\underline{\underline{T}}$ is consistent.

The new programme is only in its early stages of development. How much there is to do, the very considerable extent and ambitiousness of the research programme, earlier sections, especially 1.23 [Vol. 1 *—Eds.*] and 11.2, (should) have revealed. The programme is spelt out in some detail in UL [reprinted in Vol. 4 *—Eds.*] and in DLSM. When so much is still to be done it is bound to remain unclear to what extent the programme can succeed. In particular, it *may* just be that there are sharp limits upon what can be achieved using paraconsistent theories, limits that have not yet emerged.

It is partly for this reason, as an escape route, that the elaboration of the theory has been left open at several points, and that both consistent and paraconsistent options have been investigated. But it is also because the best direction of travel is not yet clear, or, in other cases, certain, that various alternative routes have been left open (especially in the theory of fictions).

Although, as is evident, some of the elaboration of noneism is tentative, the basis is solid, and many of the main features are clear. And it is clear that the theory bids well to resolve or at least sort out a great many philosophical puzzles and difficulties. Hopefully too it is clear from this limited expedition that much in and beyond Meinong's jungle, much concerning the rich and varied logico-philosophical forest and its denizens, is worth exploring and would reward further exploration.

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SUPPLEMENTARY ESSAYS

Hallucination as perceiving nonexistent objects: noneist direct realism of perception

Naoya Fujikawa

Imagine that you had breakfast in a beautiful café. Sunlight comes into the café through a window and illuminates a table in front of you. It was a small but good breakfast (salad, toast, scrambled eggs and coffee). You are now seeing an empty dish and an empty coffee mug on the table. You like the coffee mug – in particular its color and shape. You decide to buy the same one for your friend. You feel today will be a great day for you.

In most situations of this kind, your perceptual experience is *veridical*; there exist a couple of objects in front of you and you perceive them as they actually are. It is common sense that, in cases where a subject has a veridical perceptual experience, she is directly aware of external, material objects around her, like dishes or mugs. Moreover, the properties of the objects of which you are directly aware partly determine the way you perceive these objects as being. For example, if you are seeing the coffee mug as being white, this is because you are aware of it and it is indeed white.

However, not all perceptual experiences are veridical. The coffee mug might have a different color and shape from ones you are seeing the mug as having. In such a case your visual experience is *illusory*. More radically, your perceptual experience might be an *hallucination*; it might be the case that there exists no coffee mug on the table and you just hallucinate it. In such cases, on the one hand, there exists no object such that you are aware of it and it has all the properties you perceive it as having. On the other hand, you still perceive something in the sense that you are aware of a couple of things and perceive them as being thus and so. Then, (i) what is a subject aware of when she has a non-veridical perceptual experience? And (ii) what determines the way you non-veridically perceive things as being?

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A naïve answer to (i) is this: when you have a hallucinatory experience, you are aware of some *nonexistent* object; and when you have an illusory experience, you are aware of some existent object that is not exactly as it appears to you. In chapter 8 of *Exploring Meinong's Jungle and Beyond* ($EMJB_1$; reprinted here as $EMJB_2$), Richard Routley proposes such a view. According to him:

> Perception is a direct relation – the relation implying, in particular, awareness, and directness implying immediacy, i.e. that there need be no intermediary objects – between a sentient object, a perceiver, and a usually independent object, the thing perceived, which commonly (specifically, in veridical cases) exists and is as and what it appears to be.
>
> But the object perceived may not exist and it may not be exactly as it appears. The latter non-referential features of perception are crucial to an adequate theory of perception.[1] ($EMJB_2$, p. 57, this volume)[2]

Of course, such a view must be based on some theory of nonexistent objects. According to Routley, *noneism*, a version of Meinongianism, provides "the logical foundations" (p. 54) for such a theory of perception. So, he calls his theory of perception a *noneist version of direct realism*.

Focusing on hallucination, this paper examines and develops his noneist version of direct realism. In particular, I try to give a noneist answer to question (ii), which Routley does not address in detail. To engage with this, I appeal to the *phenomenal character* of experience – what it is like for a subject to have a (specific) experience – and its relation to the properties of the object of an experience. In particular, by appealing to them, I propose a way to define the properties of nonexistent objects of which a hallucinating subject is aware so that the phenomenal character of the hallucination is dependent on these properties.[3]

[1] Here "referential" means "existentially loaded and transparent". For more detail see Section 1.

[2] NB: all page references to Routley's work are to this four volume reprint, $EMJB_2$.

[3] Even though there are several proposals to the effect that the direct object of a hallucination is a nonexistent intentional object (Smith 2002; Crane 2013), as Smith witnessed, hallucination has not been fully discussed from the view point of full-fledged Meinongianism, except Routley's proposal:

> More importantly, certain neo-Meinongians, as we shall see, explicitly exclude perception from their theories. Indeed, the only philosopher in this camp who

This paper proceeds as follows. In the next section, we confirm the basic idea of Routley's direct realism that both veridical and non-veridical experiences involve subjects' direct awareness of objects, and briefly compare it with three main camps of contemporary philosophical theories of perception: the sense-data theory, representationalism and disjunctivism. Section 2 gives a brief exposition of Routley's noneism. In Section 3, we see that Routley's direct realism is a "literalist" theory, according to which the nonexistent objects of hallucinations actually have many extensional properties like *being square* and so on. In Sections 4 and 5, I develop his literalist view of perception by appealing to the notion of phenomenal character. In Section 4, I introduce the notion of phenomenal character, and examine how it depends on the properties of objects of veridical perceptions. Section 5 applies the consideration of veridical perception in Section 4 to hallucination. In particular, it is shown that noneists can claim that, in a hallucinatory experience, a subject is directly aware of a nonexistent object to the extent that the phenomenal character of the hallucination in question partly depends on what properties the nonexistent object has. In Sections 6 and 7, I consider two concerns with the noneist version of direct realism: first, its relation to the causal theory of perception; and second, the objections raised in Johnston 2004 to a Meinongian theory of hallucination.

1. Existence-neutrality of perceptual awareness

It seems generally to be the case that a perceptual experience is an experience of something, in the sense that when a subject has a perceptual experience, she is directly aware of something. Let us call what a subject is directly aware of when she has an experience *the object of awareness* in her experience, or, in short, *the object of her experience*. Using this terminology, we can phrase a common-sense view of what we perceptually experience when we have veridical experiences as follows:

(1) **The objects of veridical perceptional experiences (OV)**: When a subject has a veridical perceptual experience, she is directly aware of some ordinary ex-

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to my knowledge has defended the kind of blunt intentionalist answer to the Argument from Hallucination to be defended here is Richard Routley (Smith 2002, p. 238)

The difference between Routley's position and Smith and Crane's position is briefly discussed in Section 3.

ternal material object(s) that exists independently of her experience in question. Such an existent material object is the object of her experience.

Keeping this in mind, let us look at two apparently incompatible features of perception on which Routley focuses. On the one hand, as we have seen, when a subject perceives an object, she is *directly aware of it*. Awareness is a direct relation between a subject and an object:

(2) Direct Awareness: Perception is a direct relation between a subject and an object or objects. In particular, the objects of a subject's perceptual experience are what she is directly *aware of*. There is no indirect percept that mediates between a subject and the objects of perception.

On the other hand, perception is *non-referential*; it is existence-neutral and opaque in the following sense:

(3) a. Existence-neutrality: From the fact that one perceives a, it doesn't follow that a exists.

b. Opacity: From the fact that one perceives a and a is extensionally identical with b, it doesn't follow that she perceives b.[1]

In this paper, I focus on existence-neutrality and put opacity aside. Many philosophers have thought that Existence-neutrality and Direct-Awareness are incompatible. A common presupposition of such philosophers is that if two or more things stand in a relation, all of them are existent. Since, then, there is no relation between a subject and a nonexistent object at all, on the one hand, if, as Existence-neutrality says, we can perceive nonexistent objects, perception cannot be a relation between a subject and a nonexistent object; and, on the other hand, if, as Direct Awareness says, what we perceive is what we are directly aware of, and awareness is a relation between a subject and an

[1] Routley defines at least three different criteria of identity of objects corresponding to three different kinds of identity: Leibniz identity, extensional identity, and strict identity (see, in particular, $EMJB_2$ Vol. 1, chapter 1: §17(6); §17(9d); §20):

(4) Leibniz identity: $x \approx y =_{\mathrm{Df}} (U\psi)(x\ \iota\ \psi \leftrightarrows y\ \iota\ \psi)$

(5) Extensional identity: $x = y =_{\mathrm{Df}} (U\,\mathrm{ext}\,\psi)(x\ \iota\ \psi \equiv y\ \iota\ \psi)$

(6) Strict identity: $x \equiv y =_{\mathrm{Df}} \Box(x = y)$

where "$\leftrightarrows$" is "strict (i.e. logically necessary material) equivalence" ($EMJB_2$ Vol. 1, p. 243) and "ι" is the instantiation symbol and "$x\ \iota\ \psi$" is read "x instantiates the property ψ" (*ibid.*, p. 303). While substitution of Leibniz-identicals is valid in both extensional and intensional contexts, substitution of (only) extensionally-identicals is valid in (only) extensional contexts.

object, then, we cannot perceive nonexistent objects. Such considerations have motivated the main camps of contemporary philosophy of perception: the sense-data theory, representationalism, and disjunctivism.

The sense-data theory of perceptual experience is the view that perception is *not* a direct relation between a subject and an external material object, but is a relation between a subject and sense-data. It is supposed that a sense-datum is something existent even when there exists no external material objects that a subject perceives. The sense-data theory thus abandons Existence-neutrality while keeping Direct Awareness. What we are aware of is always existent, no matter whether our perception is veridical or not. Moreover, the sense-data theory often leads to the denial of OV, our common-sense conception about veridical perception. Some sense-data theorists endorse *phenomenalism*, according to which the world consists of sense-data and there is no external, mind-independent material world to which we can access; and some of them endorse a version of *indirect realism*, according to which a veridical perception is an *indirect* relation between a subject and an external material object mediated by sense-data of which a subject is directly aware. Both phenomenalism and indirect realism abandon OV.

Secondly, representationalism. According to representationalism, a perceptual experience is a sort of mental representation. If you perceptually experience, say, a coffee mug, you have a mental representation whose content is that a coffee mug, an external material object in the mind-independent world, is thus and so, no matter whether your experience is veridical or not. The difference between veridical perception and hallucination is in the difference between correctness and incorrectness of their representational contents. In the case of veridical experience of a coffee mug, one's perceptual state correctly represents that there is a coffee mug in front of her; but in the cases of hallucination of a coffee mug, one's perceptual state wrongly represents that there is a coffee mug in front of her – her perceptual experience is about a coffee mug, but it doesn't exist. In this sense, representationalism accepts Existence-neutrality. However, (at least a popular version of) representationalism abandons Direct Awareness, claiming that intentionality is not a relation between representations (and the bearers of them) and the objects they are about.[1] The background assumption of such a view is that, for any relation, all re-

[1] For the denial of the view that intentionality is a relation between subjects/mental states and intentional objects, see Crane 2013 and Kriegel 2008. According to Smith 2002, modern intentionalists including Brentano have "rejected the suggestion that the 'having' of an intentional object is to be construed as a *relation*" (p. 242).

lata must exist. If so, since a perceptual experience can represent/be about nonexistent objects, intentionality is not a relation at all.

Both the sense-data theory and representationalism agree with each other on the idea that veridical perceptions and hallucinations have a common structure that makes them the same kind of mental states. For the sense-data theory, awareness of sense-data is such a common feature of veridical and hallucinatory experiences; and for representationalism, representational contents provide such a common feature. Routley also claims that there is a common structure of veridical and non-veridical perceptions. According to him, this is even a necessary condition that any adequate theory of perception must satisfy. He says:

> Since there is no basis for imposing one analysis for entities [i.e. existent items] and another for nonexistent items in intensional settings when in fact there is no relevant difference between cases (e.g. it makes no difference to the analysis whether x exists or not in "John imagined x in his bedroom"), any satisfactory analysis will have to work in the same way for both entities and nonentities [i.e. nonexistent items]. (this volume, p. 89)

Disjunctivism denies this. A hallucination is not a perception at all. Hallucinations are not the same kind of mental states as veridical perceptions. According to disjunctivism, there is no common structure underlying both veridical experiences and hallucinations. In particular, a veridical perception consists of a subject's direct awareness of some external objects like mugs or apples, but this feature is *not* shared by hallucinatory experiences. One way to understand this core claim of disjunctivism is that, by restricting perceptions only to veridical ones, disjunctivism equates and endorses Direct-Awareness and OV but rejects Existence-neutrality. A part of the reason for disjunctivism to restrict perceptions only to veridical ones is, again, the presupposition that for any relation, all of its relata must be existent. Disjunctivism claims that veridical perception consists of a subject's direct awareness of external, ordinary objects and awareness is a relation. But given the presupposition, this structure cannot be shared by hallucination, since, when a subject suffers a hallucination, there exists no such external objects.

The common presupposition of these contemporary theories of perception is that for any relation, all relata must exist, as Routley had already pointed out with respect

to sense-data theory and representationalism. According to Routley, noneism, a version of Meinogianism, provides "the logical foundations" for denying this presupposition and a way to accept Existence-neutrality, Direct Awareness and OV. In particular, based on noneism, he endorses, together with OV, the claim that when a subject suffers a hallucination, what she is aware of is a *nonexistent object*:

(7) **The objects of hallucinations (OH)**: When a subject has a hallucinatory experience, she is directly aware of some nonexistent object(s). Such a nonexistent object is the object of her hallucination.

So, according to Routley, noneism provides a logical foundation for the acceptance of both OV and OH. To see this, in the next section, I briefly introduce some basic ideas of noneism relevant to the following discussion.[1]

2. Noneism: a brief exposition

Noneism, or more generally, Meinongianism, is the view that some objects are existent but some are not, and that our thought and talk can be about – refer to and quantify over – such nonexistent objects. Unrestricted quantification is not existentially-loaded. So, *contra* Quine, to exist is *not* to be the value of the bound variable. Existence is a first-order property, and an object's lacking existence does not deprive it of objecthood. Without being existent, an object can legitimately have properties and stand in relations to other objects.[2]

Using "U" and "P" as existentially-neutral quantifiers and "E" as an existence predicate for objects, existentially-loaded quantifiers "$\forall$" and "$\exists$" are defined in the following way (cf. $EMJB_2$, Vol. 1, pp. 242-3).

(8) a. $\forall x\phi(x)$ iff $(Ux)(xE \supset \phi(x))$

b. $\exists x\phi(x)$ iff $(Px)(xE \,\&\, \phi(x))$

For example,

[1] For more detailed discussion about Routley's noneism, see $EMJB_2$, Vol. 1, "Introduction".

[2] Recently Crane 2013 endorses a weaker version of Meinongianism that does not admit that nonexistent objects stand in a substantial relation with other objects. For some difficulties of this weak version of Meinongianism, see Casati and Fujikawa 2016.

(9) $(Px)(\text{Round}(x)\ \&\ \text{Square}(x))$

means that something is round and square, and this does not entail the existence of a round square, which is expressed by (10):

(10) $(Px)(xE\ \&\ \text{Round}(x)\ \&\ \text{Square}(x))$.

There are several different versions of Meinongianism today. Routley endorses and develops a specific version of Meinongianism, noneism – a variety of *nuclear* Meinongianism (cf. $EMJB_2$; other varieties include those described in Parsons 1980 and Jacquette 2015). Nuclear Meinongianism makes a distinction between two different kinds of properties: *nuclear* and *extranuclear* properties.[1] Nuclear properties are ordinary first-order properties that constitute the nature or essence of an object, and extranuclear properties are properties that are "more extrinsic and supervene on the nuclear" (Berto 2013, p. 116). According to Routley, the distinction between nuclear and extranuclear properties is "the traditional distinction between essence-specifying [properties] and those that cannot be used in specifying the essence or nature of a thing" ($EMJB_2$, Vol. 1, p. 345), and extranuclear properties are "*consequential*, i.e. depend for their determination on the prior determination of lower order ones [i.e. nuclear properties]" (*ibid.*, pp. 339-40). Routley gives us the following examples of nuclear and extranuclear properties (*ibid.*, chapter 1, §21(6); see also Parsons 1980, p. 23):

(11) a. Nuclear properties: *being dry*, *becoming fat*,[2] *being a triangle*, *sleeping*, *being a king of France*, *inhabited London*, *married Joan of Arc*, and so on.

b. Extranuclear properties:

- Ontic properties: *exists*, *being created*, and so on
- Evaluative properties: *being good*, *being beautiful*, and so on.
- Theoretical properties: *being complete*, *being determinate*, and so on.
- Logical properties: identity, set membership, and so on.

[1] The nuclear/extranuclear terminology is adopted by Findlay 1963 and Parsons 1980. Routley uses a different terminology for this distinction: characterizing and noncharacterizing properties (cf. $EMJB_2$, Vol. 1, chapter 1). There are several differences between Parsons' view of these two kinds of properties and Routley's (cf. $EMJB_2$, Vol. 1, p. 345, n. 2), which do not matter to the discussion in this paper.

[2] As Routley explicitly admits, this entails that nonexistent objects may undergo some changes over time (cf. $EMJB_2$, Vol. 1, p. 346).

- Intensional properties (of the passive form): *being much sought after*, *being often thought about*, *is observed (by d)* and so on.

Based on the distinction between nuclear and extranuclear properties, nuclear Meinongianism formulates a restricted version of the *Characterization Postulate* (henceforth, CP). CP is a Meinongian principle that determines which objects are in the domain of reference and quantification by specifying the connection between objects and properties. Contemporary Meinongian theories have proposed several different versions of CP, and nuclear Meinongianism endorses the so-called nuclear CP:

(12) nuclear CP: For any set that consists of only nuclear properties (such a set is called a *characterization*), some object has exactly those nuclear properties in the set.[1]

For example, consider the set of nuclear properties of *being round* and *being square*. From nuclear CP, some object has these two properties and no other nuclear properties, even though such an object, that is, the round square, is nonexistent.

It is worthwhile noting that, according to nuclear Meinongianism, nonexistent objects have a wide range of nuclear and extranuclear properties *in the same way as* existent ones do. For example, the round square has the nuclear property of *being round* in the same way as the Mouth of Truth in Rome does; the golden mountain has the property of *being a mountain* in the same way as Mount Fuji does; and so on. Nuclear properties of material objects like the Mouth of Truth or Mount Fuji, for example, their color, shape, weight are also ones of nonexistent objects. Existent and nonexistent objects can have the same extranuclear properties in the same way as well. For example, both Meinong and the round square have the property of *being thought of by Russell*.

So far we have given a very brief exposition of nuclear Meinongianism and, therewith, key aspects of Routley's noneism. In the next section, let us see how Routley's noneism provides the logical foundations for his defence of direct realism.

[1] Routley provides several slightly different versions of nuclear CP. The one we call nuclear CP in this paper corresponds to his HCP:

(13) HCP. $(Px)(chf)(xf \equiv A)$, with x not free in A. ($EMJB_2$, Vol. 1, p. 343).

3. "Literalism" about the objects of hallucination

As we have seen, according to Meinongianism, the nonexistence of an object does not deprive it of objecthood; nonexistent objects can legitimately have properties and stand in relations to other objects. In particular, intentionality is a genuine relation between subjects and objects. According to Routley, the same holds for awareness. In particular, awareness is a direct relation between, on the one hand, a subject and, on the other hand, existent objects (when she has either a veridical experience or illusion) or nonexistent objects (when she has a hallucination).

Moreover, based on his noneism, Routley claims that:

> intensional properties must be able to be properties of items [i.e. objects] in the actual world which also have other nonintensional properties: for example, in "The oasis is lush and green and Bookchin is looking at it", the properties must be attributable to the one item, the oasis, which has both extensional [like *being lush* and *being green*] and intensional features [like *being looked at by Bookchin*]. (this volume, p. 85)

When a subject suffers a hallucination, the nonexistent object of which she is aware has *extensional properties in the actual world*. A prominent feature of nuclear Meinongianism is its commitment to *literalism*, as a result of nuclear CP (cf. Fine 1984). Literalism is the view that "objects literally and actually have the properties characterizing them" (Berto 2013, p. 166). For example, fictional characters like Sherlock Holmes literally and actually have their characterizing properties (that is, the properties that the relevant stories describe them as having). So, for example, Holmes is a detective in this actual world. Routley applies this literalist position to the objects of hallucination: the nonexistent object of hallucination has its characterizing properties like *being lush* or *being green* in the actual world.[1]

In sum, the general form of perception is given by (14), no matter whether it is veridical or not (cf. this volume, p. 85 – Routley calls this the conjunction test for directness of perception):

[1] Fine 1984, p. 139 briefly discusses this "literalist" position with respect to hallucination.

(14) ϕo and s is aware of o

where ϕ specifies the extensional properties that o has in the actual world.

It is worthwhile noting here the difference between Routley's noneist version of direct realism and that of Smith 2002. Smith claims not only that what we perceive when we hallucinate are nonexistent intentional objects, but also that to introduce intentional objects one need not commit oneself to any "ontologically dubious" objects, like Meinongian nonexistent objects. According to Smith,

> one [is] able to combine ontological conservatism with the claim to the phenomenological indispensability of reference to such objects [i.e. intentional objects]. Remember that "object" does not mean "entity": the former term is here given an *exclusively phenomenological interpretation*. The intentional directedness of even hallucinatory states of perceptual consciousness is simply a phenomenological fact – one that needs to be recognized in any adequate account of the mind (Smith 2002, pp. 244-245).[1]

Of course, mere possibility does not mean necessity. And Routley's noneist version of direct realism is clearly different from such an ontological conservatism. As we have seen in the previous section, noneism, like other nuclear Meinongian accounts, claims that nonexistent objects are genuine objects and can have various properties as ordinary existent objects do. And, the noneist version of direct realism claims that the objects of hallucinations are such nonexistent objects.

In this way, noneism provides "the logical foundations" and, moreover, the metaphysical foundations for the general form of perception in (14). However, to obtain a more detailed theory of perceptual experience, we need to answer the following two related questions, which noneism itself leaves open: Given a hallucinatory experience, exactly which nonexistent object is the object of the hallucination?; and, exactly which extensional properties does the object of the hallucination have? To answer these questions, it is helpful to appeal to the *phenomenal character* of experience. Philosophers of perception have much discussed it in the last two decades and, as a result, provide us

[1] Such an ontological conservatism about intentional objects is also defended by Crane 2013, in particular, in section 4.2.

with some resources which were not available to Routley due to his premature death. By using them, we can further develop Routley's noneist version of direct realism.

4. The phenomenal character of veridical experience and its dependency on the properties of the objects of experience

When a subject has a perceptual experience, she does not only perceive some objects but also perceives them as being thus and so. The objects of a perceptual experience appear to its subject in a certain way. A distinctive feature of perceptual experience is that the objects of a perceptual experience appear to a subject in association with a certain *phenomenal quality*. The *phenomenal character* of a perceptual experience, e, of a subject, s, is the way things appear to s when she has e; in other words, what it is like to have e for s.

The notion of phenomenal character plays several important roles in contemporary philosophy of perception. In particular, the phenomenal character of an experience e is supposed to have a certain close connection with the objects of e and their properties. Proponents of OV (often called direct realists or naïve realists) admit the following thesis about the phenomenal character of a veridical experience:

(15) The phenomenal character of a veridical experience is partly determined by the properties exemplified by the objects of the veridical experience immediately before (in many cases almost at the same time as) the occurrence of the experience.[1]

It is a matter of fact that the subject of a perceptual experience cannot voluntarily change the way things seem to her when she has the experience. The phenomenal character of a perceptual experience is determined by factors of several different kinds. First of all, the way things seem to the subject of a perceptual experience is crucially dependent on how her external environment actually is. We should distinguish two different constituents of the environment of perception: firstly, what is perceived, that is, the objects of perception

[1] According to Martin, naïve realism commits itself to a stronger claim that:

> the actual objects of perception, the external things such as trees, tables and rainbows, which one can perceive, and the properties which they can manifest to one when perceived, partly *constitute* one's experience, and hence determine the phenomenal character of one's experience. (Martin 1997, p. 93, my emphasis)

and their properties; and secondly, the external conditions of perception like lighting conditions for visual perception. In addition to them, the way things seem to the subject of a perception depends on the internal conditions of perception. In particular, it depends on which sense modality is used: the way things seem to a subject concerning her visual perception is quite different from the one concerning her auditory perception, and so on. Note that I do not count brain states or other neurophysiological states of perceivers as such internal conditions; they are not conditions of perception, rather, perception *per se* or something like the supervenience basis of perception.[1]

Another crucial factor is the spatio-temporal point of view of a perception.[2] When a subject sees a mug from a certain point of view, and then, sees it from a different point of view, she will have two different perceptual experiences with different phenomenal characters on these occasions. A way to understand such a spatio-temporal point of view is to take it as a spatio-temporal location of a perceived object relative to the subject of perception, in particular, its spatio-temporal location in an *egocentric space and time à la* Evans 1982.[3] Egocentric space-and-time is space and time centered at a subject. Its origin is usually identified as here and now and it has four dimensions: up-down, right-left and in-front-behind are three dimensions of egocentric space and future-past is the dimension of egocentric time. Our language has a specific set of vocabulary to locate a space-time region in egocentric space: "here", "over there", "up there to the left", "a bit behind me"[4] "now", "then", and so on. Then, we can specify a correspondence between spatio-temporal points of view and spatio-temporal locations in an egocentric space as follows. Assume that a subject s perceives an external object o. Then, s perceives o from a spatio-temporal point of view p iff o is located in a specific spatio-temporal location l in the egocentric space and time centered at s. In this way, we can take a spatio-temporal point of view as a kind of spatio-temporal property of an object perceived.

[1] See also the comment on the *ceteris paribus* condition made immediately after introduction of PCV below.

[2] All of these kinds of factors that determine the phenomenal character of a perception are discussed in Brewer 2011. According to him, the phenomenal character of an experience depends on factors such as "*a given spatiotemporal point of view, in a particular sense modality, and in certain specific circumstances of perception (such as lighting conditions in the case of vision)*" (p. 96).

[3] Evans 1982, ch. 6 discusses egocentric space "with its co-ordinates given by the concepts 'up' and 'down', 'left' and 'right', and 'in front' and 'behind' " (p. 154). I have just added a temporal dimension to it.

[4] These examples are taken from Evans 1982, p. 153.

Since the phenomenal character of a perceptual experience is determined not only by its objects and their properties but also by its external and internal conditions, the properties of the object of a perceptual experience only partly determines the phenomenal character of the experience. Two different lighting conditions will result in two different experiences of a white mug whose phenomenal characters are different; the phenomenal character of a tactile experience of a mug is very different from one of a visual experience of the same mug, and so on. However, under the same external and internal conditions of perception, there will be no change in the way things appear to a subject without some change in the way things actually are. When the way things appear to the subject of a perceptual experience changes, the objects of her experience actually suffer some change unless there is some change in its internal and external conditions. Now, by taking the phrase "under the same external and internal conditions of perception" as the *ceteris paribus* qualification "other things being equal", the partial determination of the phenomenal character of a veridical experience by the properties of its objects in (15) is properly understood by counterfactual conditionals: (15) is paraphrased as PCV.

(16) **Phenomenal character of veridical experiences (PCV)**: Suppose that a subject s has in a world w a veridical experience e of an object o. Then, there is a set of properties each of whose members satisfies the following counterfactual:

If o did not have a property F immediately before (in many cases almost at the same time as) the occurrence of e in w, then s would have an experience of o whose phenomenal character is different from the one of e in w.[1]

Note that the *ceteris paribus* condition relevant to this counterfactual does not include brain states or other neurophysiological states of subjects: if o lacked the property F, o would causally affect a subject's sensory organs and thus would result in somewhat different brain states or other neurophysiological states than the subject actually has.

Many nuclear properties of the object of a veridical experience satisfy the counterfactual conditional in PCV. For simplicity, let us focus on visual veridical experience. First of all, shapes and colors are such properties. For example, suppose that you have a veridical experience e of a white mug. If the mug were not white, then you would have

[1] Following a suggestion in Lewis 1986, Fish formulates a counterfactual dependence between a perceptual experience and its object as follows: "the phenomenal character of E [a visual experience] is counterfactually dependent upon O [object]" (Fish 2010, p. 117).

a veridical experience of the mug whose phenomenal character is different from the one of e: you would see it as black if it were black, and so on. On the contrary, for example, the weight and taste of the mug do not satisfy the counterfactual in PCV with regard to any veridical visual experience of it.

The spatio-temporal location of an object, that is, the property of being located at a location p at a time t, is also a property that satisfies the counterfactual conditional in question. Suppose that you see a mug in front of you. If the mug were 1 inch left of the position at which it is now, you would have a veridical visual experience of the mug whose phenomenal character is different from the one you have now – you would see it at a different place than the one where it is now. For the purpose of this paper, the spatio-temporal location of an object deserves careful treatment. Some Meinongians take it as the same property as existence,[1] but some don't.[2] Routley has a twisted view concerning spatio-temporal locations of objects. Discussing whether an object's having a spatio-temporal location entails its existence, Routley claims:

> visions and illusions and hallucinations, e.g. mirages or after-images, may occupy positions in perceived space and time (may be "presented in space in time" in Kant's terminology). Such items are not entirely located in real space and time, so that if independent checks are conducted to locate the mirage, it is found not to be there. Thus

[1] According to Lambert, Meinong holds this view: "Meinong held that *existent* objects are objects having location in space-time; objects not spatio-temporally locatable but nevertheless having being he called (merely) *subsistent* objects" (Lambert 1983, p. 13). A similar view is held by Zalta. Zalta 1988, p. 21 claims "By '*exists*,' we mean 'has a location in space' ".

[2] Parsons seems to take spatial properties as nuclear and thus does not equate them with existence. For example, as his reply to Quine's rhetorical question to Meinongianism "how many possible men are there in that doorway", Parsons claims that "at least as many as there are consistent sets of nuclear properties which contain the properties of being a man and being in the doorway" while assuming that the property of *being in the doorway* is a nuclear property (Parsons 1980, p. 28). Given that this can be an answer to Quine's question how many possible men are *there* in that doorway only when the property of *being in the doorway* is a spatial property which specifies a certain location in the space, Parsons seems to accept that spatial properties of the form *being at place p* are nuclear.

Parsons does not discuss tensed properties in detail, for simplicity. However, he says:

> In a less simplified development of the theory, I would use "temporal" nuclear properties instead of their "eternalized" version – for example, being blue, simpliciter, instead of being blue-at-time-t. ... In a development of the theory using temporal properties, objects would be correlated with functions from times to set of properties instead of with sets of properties (*ibid.*, p. 28, n. 10)

> perceived space and time ... must be distinguished from real space and time ... (this volume, p. 131)

It is not very clear exactly what perceived space-and-time is, and how it is distinguished from real space-and-time. As one way to understand this, I propose here that perceived space-and-time in Routley's sense is an *egocentric space-and-time* centered on the subject in question. An egocentric space (and time as well) is closely related to perception. As Evans claims, "an egocentric space can exist only for an animal in which a complex network of connections exists between *perceptual* input and behavioral output" (Evans 1982, p. 154, my emphasis). Henceforth, I assume, as Routley does in the passage quoted above, that not only existent objects but also nonexistent objects can have a specific spatio-temporal location in an egocentric space. Moreover, I also assume that the spatio-temporal location in an egocentric space is nuclear. This is a natural assumption given Routley's account of nuclear properties as essence specifying properties. Indeed, having a specific spatio-temporal location is a property of an object that makes that object different from other objects.

Given this understanding of perceived space-and-time, it is reasonable to claim that the perceived spatio-temporal locations of an object of perception satisfy the counterfactual conditional in PCV. Note that it is possible that while the spatial position of an object in the objective space changes, its spatial position in the relevant egocentric space remains the same. Suppose that you are now traveling by a train; you are now sitting on a seat of the train. There is a small table in front of you on which you put a cup of coffee. The spatial location of the cup in the objective space changes through time, but its egocentric spatial location with respect to you doesn't; it remains in front of you. Note also that in such a case, the phenomenal character of an experience of the object will not change. For example, you will keep seeing the cup of coffee there. In general, any change in the objective space and time of an object will not affect the phenomenal character of an experience about it unless it is accompanied with a change in the object's location in an egocentric space-and-time.

On the other hand, the extranuclear properties of an object of a veridical experience seem not to satisfy the counterfactual conditional in PCV. Consider existence. Again consider an everyday situation where you have a veridical visual experience of a mug in front of you (call this situation s). If the mug did not exist, you would not have any experience of the same mug at all. Therefore, existence does not satisfy the counterfactual

in question. Note that this reasoning does *not* presuppose that we cannot perceive any nonexistent object. It is just reflecting the plausible idea that the nonexistence of an object is not a sufficient reason to suppose it is hallucinated. To make the point clear, let us rely on the standard Lewisian analysis of counterfactual conditionals (Lewis 1973), according to which a would-counterfactual conditional (that is, one of the form "if it were the case that p then it would be the case that q") is true at a world w iff in all p-worlds (that is, ones where p holds) most similar to w, q holds. Now, the situations where you would have a hallucination are the ones in which something abnormal was going on, probably, in your sensory organ, your brain or your environment, and thus less similar to the situation s than the ones where nothing abnormal is going on (recall that s is supposed to be an *everyday* situation). Since, for you to have a hallucination, in addition to the nonexistence of the mug, some abnormal events must happen, it is natural to think that in the situation s, "if the mug did not exist, you would not perceive the mug" is true, but "if the mug did not exist, you would hallucinate a mug at the place where the mug is now" is false. And all of these are compatible with the idea that in abnormal situations where you have a hallucination, you perceive some nonexistent object.

The examination so far strongly suggests (even though it does not prove) that the properties of an object of a veridical experience that satisfy the counterfactual conditional in PCV are, first of all, so-called *sensible* properties; and moreover, they are *nuclear*. In what follows, I assume so.

Finally, let us now introduce the notion of *sensible alternatives* of a sensible property. For any sensible property, there is a set of alternative sensible properties in the sense that if an existent object lacks the property, then it must have one of its alternatives. Let us call the set of all sensible alternatives of a sensible property F and F itself *the alternative set* of F. For example, consider the property of *being white*. Its alternative set contains all color properties like *being black*, *being yellow*, *being white* and so on. Such alternatives are mutually exclusive in the sense that an existent object has at most one property in the set. Moreover, it is reasonable to suppose that each of the sensible properties in an alternative set makes a difference in the phenomenal character of an experience in the following way. Suppose that A is the alternative set of a property F and a subject s has a *veridical* experience e of an object o having F. Then, if o had some F' in A rather than F, s would have an experience of o whose phenomenal character is different from the one of e. The set of all specific values of weight, the one of all specific

individual shapes, and the one of all spatio-temporal locations are also such alternative sets. In this way, any sensible property seems to have its corresponding set of sensible alternatives.

So far, we have had an exposition of the phenomenal character of experience and how it depends on the properties of the objects of *veridical* experiences. Then, how does the notion of phenomenal character and PCV relate to the noneist version of direct realism? First of all, the notion of phenomenal character and PCV constitutes a requisite condition of the properties of the nonexistent objects of a hallucination. Secondly, by using them, we can give natural answers to the two questions concerning the objects of hallucination and their properties stated at the end of Section 3: Given a hallucinatory experience, exactly which nonexistent object is the object of the hallucination?; and, Exactly which extensional properties does the object of the hallucination have? Let us look at them in more detail.

5. What we are aware of when we hallucinate

PCV claims that the phenomenal character of a veridical experience counterfactually depends on some properties of the objects of the experience. This dependency between an experience and its objects constitutes an essential part of the notion of direct awareness.[1] The following is conceptually impossible: a subject is directly aware of an object, but there is no property of the object on which the way things appear to her depends in the way specified by PCV. Indeed, PCV should be and is accepted even by the sense-data theorists who claim that the objects of experiences are sense-data; for the sense-data theorists, the phenomenal character of an experience depends on the properties of the sense-data of which the subject of the experience is aware.

Now, let us return to OH – that is, the claim that the objects of which a subject of a hallucination is directly aware are nonexistent. Since the dependency between the phenomenal character of an experience and its objects of the kind specified in PCV is essential for an object to be the object of awareness, if OH is correct, then, the principle

[1] cf. Robinson's Phenomenal Principle:

> If there sensibly appears to a subject to be something which possesses a particular sensible quality then there is something of which the subject is aware which does possess that sensible quality. (Robinson 1994, p. 32)

corresponding to PCV must hold with respect to hallucination as well; the phenomenal character of a hallucination is partly determined by the properties of the object of the hallucination. More specifically, the following should hold.

(17) **Phenomenal character of hallucinations (PCH)**: Suppose that a subject s has in a world w a hallucinatory experience h of an object o. Then, there is a set of properties each of whose members satisfies the following counterfactual:

If o did not have a property F immediately before (in many cases almost at the same time as) the occurrence of h in w, then s would have an experience of o whose phenomenal character is different from the one of h in w.

PCH constitutes a requisite condition for proponents of OH to answer the two questions concerning the objects of hallucination and their properties: Given a hallucinatory experience, exactly which nonexistent object is the object of the hallucination?; and, exactly which extensional properties does the object of the hallucination have? By appealing to the notion of phenomenal character and PCV, we can answer them at once in a way that satisfies PCH. The key for them is to consider a veridical experience that has the exactly same phenomenal character as a hallucination.

Suppose that h is a hallucinatory experience a subject s has. Further suppose that o is a nonexistent object of which s is aware when she has h. Which object is o? Which properties does o have? To answer these questions, let us consider a *veridical* experience e whose phenomenal character is exactly the same as h's and whose internal and external conditions are the same as h in w (again, brain states or other neurophysiological states are not included in such conditions). That is, for s what it is like to have e is exactly the same as what it is like to have h, and thus she cannot phenomenologically distinguish them. Since e is veridical, all of its objects are existent. Among these existent objects, there must be an object that appears to s exactly the same as o, since, h and e have the exactly same phenomenal character. Let us call this existent object o'. Given PCV, the phenomenal character of e depends on some properties of o' in the way specified in PCV. Let us call the set of such properties of o' P. Given the consideration so far, P contains only nuclear properties. Thus, by nuclear CP, some object has all the properties in P and it has no other nuclear properties than them. Let us call this object n.[1] n is not identical

[1] This object corresponds to what Routley calls the opaque object of the experience. See: this volume, p. 73.

with o', since it has only some of the properties of o' – its sensible properties (with respect to the sense modality in question). Moreover, since this object is incomplete, it is nonexistent. By equating o with n, we can answer the two questions under consideration at once as follows:

(18) **Properties of the object of a hallucination (POH)**: Suppose that a subject s suffers a hallucination h. Then, o is the direct object of h iff o has all nuclear properties that satisfy the following counterfactual and no other nuclear property.

If s had a veridical experience e whose phenomenal character is exactly the same as the one of h and whose internal and external conditions are the same as h, then the object of e would have a property F and the phenomenal character of e would depend on F in the way specified in PCV.[1]

Let us see how the properties of a nonexistent object of a hallucination defined by POH satisfy PCH.

Suppose that a subject s has a hallucination h in a world w. Further suppose that n is (one of) the nonexistent object(s) of h and n has a nuclear property F (for example, the property of *being white*) in w.

To begin with, consider any world such that it is one of the most similar worlds to w among the worlds where s has a veridical experience whose phenomenal character is exactly the same as the one of h in w. Let us call it w^* and s's veridical experience there e^*. From POH, in w^*, an object of e^*, o^*, has a property F and the phenomenal character of e^* depends on F in the way specified in PCV. Note that, by the definition of POH, the internal and external conditions of h in w are the same as the ones of e^* in w^*.

To show that F satisfies the counterfactual conditional in PCH, let us take any world, w', and suppose that it is one of the most similar worlds to w among the worlds

[1] Routley also, but only very briefly, mentions a counterfactual treatment of hallucination of this kind. He says:

> [a] hallucinatory experience, e.g. of a ghost, may be described in terms of an "as if" or a counterfactual physical relation (his optical equipment was affected in much the same way as it would have been if it had in fact been a ghost; it was *as if* he had seen a ghost). (this volume, p. 67)

where n does not have the property F. It is enough to show that the phenomenal character of s's experience of n in w' is different from the one of h in w.

Given that w' is one of the most similar worlds to w among the worlds where n does not have the property F, in w', n is still nonexistent, s is aware of n, and s has a hallucination, h', of n. Moreover, the internal and external conditions of h' in w' are the same as the ones of h in w (as we have seen for PCV, the point of the counterfactual is to implement the *ceteris paribus* condition which includes the internal and external conditions of the experiences in question). Since n does not have F in w', it follows that F does not satisfy the counterfactual conditional in POH (if it satisfies the conditional, then n has the property F. This contradicts the assumption). Therefore, there is a world, w'^*, such that w'^* is one of the most similar worlds to w' among the worlds where s has a *veridical* experience that has exactly the same phenomenal character as h' has in w', but the object of the experience does not have F in w'^* or F does not determine its phenomenal character in the way specified in PCV in w'^*. Let us call the experience that s has in w'^* e'^*. Again, by the definition of POH, the internal and external conditions of e'^* in w'^* are the same as the ones of h' in w'. It follows that the internal and external conditions of e^* in w^* are the same as the ones of e'^* in w'^*.

Now, since e'^* is veridical, the object of e'^* is existent. Let us call it o'^*. Since o'^* is existent and does not have F,[1] it must have one sensible alternative of F. Let us call it F'. Since, first, e^* and e'^* are veridical, secondly, F' is a sensible alternative of F, and, thirdly, the internal and external conditions of e^* in w^* are the same as the ones of e'^* in w'^*, the phenomenal character of e'^* in w'^* is different from the one of e^* in w^*. Now, recall that the phenomenal character of h in w is the same as the one of e^* in w^* and the phenomenal character of h' in w' is the same as the one of e'^* in w^*. It follows that the phenomenal character of h in w is different from the one of h' in w'.

To sum up: The object of an experience, the object of which the subject of an experience is directly aware, is closely related with the notion of phenomenal character. In particular, it is an essential part of the notion of direct awareness that the phenomenal character of an experience depends on the properties of the object of the experience. In

[1] Suppose that o'^* has F. Then, since e'^* is veridical in w'^*, F determines the phenomenal character of e'^* there. From this and the disjunction that, in w'^*, o'^* does not have F or F does not determine the phenomenal character of e'^*, it follows that, in w'^*, o'^* does not have F. This contradicts the supposition. Therefore, by *reductio ad absurdum*, o'^* does not have F.

this section, we have seen how the noneist version of direct realism can accommodate this with respect to hallucination. Defining the object of hallucination and its property by POH, noneists can claim that, in a hallucinatory experience, a subject is directly aware of a nonexistent object to the extent that the phenomenal character of the hallucination in question is counterfactually dependent on what properties the nonexistent object has.

So far I have proposed a way to develop the noneist version of direct realism. In the rest of this paper, I examine two concerns with this noneist version of direct realism. First, its relation to the causal theory of perception; second, the objections to a Meinongian theory of hallucination in Johnston 2004.

6. The causal theory of perception

In the previous sections we have seen that no matter whether an experience is veridical or hallucinatory, its phenomenal character partly depends on the properties of its (existent or nonexistent) objects. Now, it is natural to think that in the case of veridical experience, a certain causal mechanism between subjects and objects underlies this dependency. However, there is no causal relation between subjects and objects in the case of hallucination, since nonexistent objects cannot causally affect any existent object. From this, it follows that the noneist version of direct realism is incompatible with the *causal theory of perception*. Here let us adopt Fish's formulation of the causal theory of perception (cf. Fish 2010, p. 117), according to which a subject s sees an object o only if:

(19) a. o causes the perceptual state of s in question,

b. her perceptual state would have different phenomenal character if o had different properties, and

c. (19a) is a conceptual truth about perception.

Now one may take the incompatibility of the noneist version of direct realism with the causal theory of perception as bad news for the former. But, is it?

First of all, it is worth mentioning that the noneist version of direct realism shares some key ideas with the causal theory of perception. Firstly, the noneist version of direct realism is *compatible* with (19b). Indeed, according to it, even in the cases of

hallucination, (19b) holds. Moreover, as we have seen, it is reasonable to hold that (19b) is an essential part of the very concept of direct awareness, and the noneist version of direct realism can and should claim that (19b), rather than (19a), is a conceptual truth about perception. A motivation to endorse (19c) comes from the Lewisian equation of (19a) and (19b) (cf. Fish 2010, p. 117), together with the idea that (19b) is a conceptual truth about perception. If so, even though noneist direct realism is incompatible with the causal theory of perception, the former still accommodates some of the intuitive motivations of the latter.

Secondly, there is indeed a reason for denying (19c). Routley provides us with a series of examples of true perceptual reports that do not entail the existence of the object of perception (this volume, pp. 58-60). As such an example, Routley quotes the following passage from G.E. Moore's "Proof of an External World":

> ... I did find that I *saw* a grey patch for some little time – I not only *saw* a grey patch but I *saw* it *on* the white ground ... each of those grey four-pointed stars, one of which I *saw* in each experiment, was what is called an "after-image" or "after-sensation"; and can anyone deny that each of these after-images can be quite properly said to have been "presented in space"? (*ibid.*, p. 58, Routley's emphasis)

Routley's examples show that perceptual verbs do not have existential import with respect to their object positions, and therefore, are counterexamples to the causal theory of perception, in particular (19c). If it is an essential part of the concept of perception that the object of a perception is its cause, it is conceptually unacceptable to report a perceptual experience whose objects do not exist and thus cannot cause it. So, it is not a conceptual truth that the object of a perception causes it.

Finally, Routley emphasizes that the noneist version of direct realism is compatible with a certain kind of causal story about perception, in particular, a scientific, physiological theory of perception, since such a theory "*need not* (though it may) commence with an external entity which vibrates, emits or reflects light, or what ever: it can begin with what happens in an observer's head" (*ibid.*, p. 70). A physiological causal process inside one's body is independent from the external causal story that external objects cause perceptual states in question.

In sum: The noneist theory of direct realism denies the claim that the causation between one's perceptual state and its objects is an essential part of the very concept of perception. Routley's examples give us reason to deny this. However, the noneist version of direct realism holds the closely related view that the counterfactual dependence between one's perceptual state and its objects is an essential part of the very concept of perception, and there is still some causal story compatible with the noneist version of direct realism.

7. Johnston's argument against a Meinongian account of hallucination

Contemporary philosophy of perception has not extensively discussed a Meinongian theory of hallucination. First of all, a full-fledged Meinongian theory of hallucination has not been developed yet (I hope this paper will be an initial step to change this situation). Secondly, such a Meinongian view is often taken as easily dismissible, since many philosophers still maintain that Meinongianism itself is obviously wrong. Given the overall situation then, it is worthwhile discussing Johnston 2004 which, exceptionally, provides several detailed arguments against a Meinongian account of hallucination.

To begin with, let us confirm what exactly Johnston argues against. The Meinongian account of hallucination that he formulates and examines is the view according to which the object of a hallucination is identified "with a non-existent object with just the properties that the hallucinating subject is inclined to predicate on the strength of his hallucination" (Johnston 2004, p. 158). It is worth noting that this version of a Meinongian account of hallucination is different from the one developed in this paper, according to which the object of a hallucination is the nonexistent object that has all nuclear properties on which the phenomenal character of the hallucination depends and no other nuclear properties. In particular, the properties of an object on which the phenomenal character of a hallucination of the object depends can be different from "the properties that the hallucinating subject is inclined to predicate on the strength of his hallucination". For example, when a hallucinating subject does not realize that she is now hallucinating, then, she will be inclined to predicate existence to the object of hallucination exactly on the basis of her hallucination in question. So, according to Johnston's version of

Meinongian account of hallucination, in such a case, the object of hallucination exists, no matter what this means.[1] On the other hand, according to the noneist version of direct realism developed so far, existence is not the property on which the phenomenal character of hallucination depends in the relevant sense. So, even when a subject suffers a hallucination without realizing that she does so, the object of hallucination does not exist.

Having said that, keeping this difference in mind, let us examine Johnston's arguments against a Meinongian account of hallucination. According to him, "the appeal to non-existent objects is not only unnecessary but also insufficient to account for the facts of hallucination" (*ibid.*, p. 161). First of all, he claims that the appeal to nonexistent objects is not necessary to account for hallucination, since "the act/object account of hallucination is secured by treating hallucination as visual awareness of an uninstantiated sensible profile" (*ibid.*, p. 156), where a sensible profile is "a complex, partly qualitative and partly relational property, which exhausts the way the particular scene before your eyes is if your present experience is veridical" (*ibid.*, p. 134).

However, first of all, from the stand point of the noneist version of direct realism, the sensible profiles are not necessary, since, nonexistent objects and their properties explain the phenomenal character of hallucination. So, nothing Johnston claims shows that the account based on the uninstantiated sensible profile is prior to the noneist version of direct realism. Moreover, it is not clear how to bridge the gap between, on the one hand, the fact that a sensible profile of which a hallucinating subject is supposed to be aware is uninstantiated and, on the other hand, the fact that these properties appear to the subject as being instantiated by the object of the hallucination in question. The noneist version of direct realism easily accommodates the fact, since the nonexistent object of a hallucination indeed has the properties that partly determine its phenomenal character.

The second half of Johnston's argument tries to show that the appeal to nonexistent objects is not sufficient to account for hallucinations, since "however the Meinongian multiplies non-existent objects to correspond to arbitrary, hallucination-prompted patterns of predication he must, in the end, also invoke construal-dependent "objects" that

[1] If one takes this at face value, his version of a Meinongian account is not Meinongian at all concerning this case, since the object of the hallucination is existent. As another option, one may take existence predicated by the subject as the so-called watered-down version of the extranuclear property of existence and claim that the object in question does not have the extranuclear property of existence.

are not to be found among his non-existent objects" (*ibid.*, p. 161). To illustrate his point, Johnston gives us the following example. In the film *A Beautiful Mind*, the protagonist John Nash constantly hallucinated a man whom he called Charles Herman. Initially, Nash took Charles to be real. But after being persuaded by a psychiatrist that Charles was hallucinatory and there existed no such man, Nash came to take Charles to be unreal, even though he still hallucinated him. Johnston claims that, given Nash's inclination concerning property-predication, it follows from the Meinongian account of hallucination that the object of Nash's hallucinations is an object that is real first and unreal later. However, according to Johnston, this "clearly misidentifies the object of Nash's hallucinations of Charles" (*ibid.*, p. 163). Why? According to Johnston,

> For Nash could have had those very same hallucinations with the very same object even if he continued to be taken in by his hallucinations throughout his whole life, even if he never came to regard Charles as unreal. In that case, if we follow [the Meinongian account of hallucination formulated by Johnston], then we would include reality, but not unreality, as a definitive feature of Charles. (*ibid.*, pp. 163-164)

However, this objection does not defeat the noneist version of direct realism presented above. First of all, neither *being real* nor *being unreal* is a nuclear property of an object on which the phenomenal character of a hallucination depends. The properties of *being real* and *being unreal* are extranuclear in the first place. And, it is quite explicit in the film that there was no change in the phenomenal characters of Nash's hallucinations due to his recognition of the unreality of Charles – for example, it is not the case that, after Nash realized that he had hallucinated, Charles became slightly transparent. So, nothing in the noneist version of direct realism presented above forces us to conclude that the object of Nash's hallucination was real first and unreal later. Instead, the noneist version of direct realism can admit the following natural thought concerning the example in question: Whenever Nash had a hallucination of what he called Charles, its object was unreal; however, before he recognized that he had hallucinated, what he hallucinated had the extranuclear property of *being regarded as real by Nash*, and after that, what he hallucinated had the extranuclear property of *being regarded as unreal by Nash*.[1]

[1] A nuclear Meinongian can accept that a nonexistent object changes even its *nuclear* properties through time. As stated in an earlier footnote, Routley endorses and Parsons suggests this.

More importantly, the noneist version of direct realism needs not commit itself to the view that Nash's hallucinations are about one and the same nonexistent object. Indeed, the phenomenal character of Nash's hallucination about o, which he took as Charles at some time point t, can be and is not exactly the same as the phenomenal character of his hallucination about o', which he took as Charles at some different time t'. If so, according to the noneist version of direct realism, o and o' should be different objects. Of course, in the latter situation Nash took o and o' as the same object. But what follows from this is that o had the extranuclear property of *being regarded as identical with o' by Nash* and o' had the extranuclear property of *being regarded as identical with o' by Nash* at t', not that o is indeed identical with o'.[1]

In this way, Johnston's arguments against a Meinongian theory of hallucination do not defeat the noneist version of direct realism presented in this paper.

Conclusion

In this paper, based on Routley's exploratory and provocative proposal that when a subject hallucinates she directly perceives nonexistent objects, I have developed a noneist version of direct realism. According to it, hallucination is a direct awareness of nonexistent objects to the extent that the phenomenal character of a hallucination partly depends on the properties of the nonexistent objects of the hallucination. We have seen that the noneist version of direct realism shares with the causal theory of perception the idea that the phenomenal character of a perception depends on the properties of the objects of the perception. Moreover, the noneist version of direct realism is invulnerable to Johnston's arguments against a Meinongian theory of hallucination.

Finally, this paper exhaustively deals with the Existence-neutrality of perception and hallucination, and leaves aside Opacity of perception, another non-referential feature of perception, and illusion, another kind of non-veridical perception. Routley has already considered them from the view point of his noneist version of direct realism, but his consideration is at the initial stage and thus leaves room for further discussion. It will be a first step of further development of the noneist version of direct realism to consider how it can deal with them.

[1] In the same way one can reply to Johnston's argument that appeals to the non-transitivity of indistinguishability (*ibid.*, pp. 165-166).

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Towards a feminist logic: Val Plumwood's legacy and beyond

Maureen Eckert and Charlie Donahue

Val Plumwood's 1993 paper, "The politics of reason: towards a feminist logic" (henceforth POR) attempted to set the stage for what she hoped would begin serious feminist exploration into formal logic – not merely its historical abuses, but, more importantly, its potential uses. This work offers us: (1) a case for there *being* feminist logic; and (2) a sketch of what it should resemble. The former goal of Plumwood's paper encourages feminist theorists to reject anti-logic feminist views. The paper's latter aim is even more challenging. Plumwood's critique of classical negation (and classical logic) as a *logic of domination* asks us to recognize that particular logical systems are weapons of oppression. Against anti-logic feminist theorists, Plumwood argues that there are other logics besides classical logic, such as relevant logics, which are suited for feminist theorizing. Some logics may oppress while others may liberate. We provide details about the sources and context for her rejection of classical logic and motivation for promoting relevant logics as feminist.

We begin with a discussion of various senses of "feminist logic" in order to position Plumwood's understanding of it with precision. Next, we examine Plumwood's motivation for promoting non-classical logic and connecting it with political ideology, contextualizing her ideas within the work of the Canberra Logic Group working in Australia. Unpacking what Plumwood means when she claims that classical logic is *a logic of domination* and her critique of classical negation requires examination of an overlooked, earlier publication, "Negation and contradiction" (NAC), co-authored with Richard Routley. This paper provides a much fuller account of classical negation and the liberation offered by relevant logics. We attempt to clarify their views through a perspective of "relevant

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default" and also present a discussion of the "liberation of falsity" (falsity-preservation outside of classical logic). Returning to POR, we enhance Plumwood's desiderata for future feminist logic/s with discussion of the "debate model" of negation from her earlier work with Sylvan. Projects by contemporary logicians, such as Caterina Dutilh Novaes, and advocates of radical feminist methodology, such as Alice Craray, have developed independently from Plumwood's vision. It may be the case that decentralized and independent pursuits of feminist logics are perfectly in keeping with any version of it.

What We Talk About When We Talk About Feminist Logic

Understanding what could be categorized as feminist logic is an important step in framing Plumwood's understanding of it. Logic is commonly and historically conceived of as purely formal and empty of particular content. It is a tool – an *organon*, going back to Aristotle's account – through which basic operators are used to arrange syntactically abstract content represented symbolically. As an area of inquiry, logic examines validity, truth preservation or "what follows from what", depending on various definitions, none of which introduce particular content or modes of reasoning pertaining to worldly circumstances. The idea that logic itself or any type of logic could be feminist, socialist, politically conservative or fall within the domain of any social interest might seem puzzling if not counter-intuitive on account of its formality. Logic, in this sense, is conceived of as neutral with respect to any content and political interests. People produce arguments in natural languages, test them for formal validity and soundness or fail to do so, and deploy their arguments in non-neutral, worldly contexts for political purposes. In this respect, logic can be viewed as a tool that can provide critical ammunition for evaluating pernicious anti-feminist political claims and debunking oppressive viewpoints. When logic is understood as neutral, it appears that, to the extent that logic is normative to some degree, it can be among the tools to dismantle an oppressor's position.

Moving to the level of disciplinary practice, the field of philosophy and subfield of logic can be critiqued with respect to historical-political matters. As a field of professional inquiry, logic has been no different than other academic fields in term of having a history of restricting and denying access to women and other minority groups. Diversifying philosophy and logic as practices has been made a priority for international professional

philosophical associations.[1] In an uncontroversial sense with respect to maintaining the *neutrality of logic*, there are important *feminist approaches* to logic that have emerged.

Historical recovery projects that trace and reconstruct women logicians' accomplishments in the field would be an example of this approach. This type of scholarship critically examines gatekeeping in the field so that the absence of women logicians is not taken for granted. Historical approaches to the accomplishments of women logicians in the history of early analytic philosophy question the evaluation and appreciation they received during their careers, and provide insights into their accomplishments in retrospect, taking onto account he biases these logicians faced.[2] These types of recovery projects are in accord with Feminist History of Philosophy, a field investigating multiple historical eras and source material to correct the historical record and reconstruct excluded voices.

Intervention projects at the undergraduate level regarding improving students' access to and empowerment with in the academic study of logic are compatible with a neutral approach to logic. Programs such as *Philosophy in an Inclusive Key: Logic* and *MCMP Summer School on Mathematical Philosophy for Female Students* provide training and mentoring to women and underrepresented minorities in the field. These types of programs familiarize undergraduate students with scholarly positions in the field, providing them with the skills they need to understand the current state of the field. In so far as feminists (and philosophers in general) might agree about the benefits of opening up the historical canon and increasing the number and presence of professional women and minorities in the field of logic, at the same time, they also may all have differing views about the nature of logic. Supporting and participating in these types of historical research projects and diversity initiatives do not require anyone to have any further commitments about logic than logic neutrality. Feminist approaches to logic aimed at historical diversification, recovery and recognition as well as initiatives for increasing diversity and support and mentoring in the profession are not grounded in any particular view about the nature of logic.

[1] The American Philosophical Association maintains extensive diversity resources, initiatives, and grants found on its website. Likewise, the Australasian Philosophical Association has committees, The Status of Women in the Profession and Diversity in the Profession. The Society for Phenomenological and Existential Philosophy has established committees: The Status of Women, LGBTQI Advocacy and Racial and Ethnic Diversity.

[2] Frederique Jannsen-Laurent, for example, has been presenting research on early analytic female logicians, including Emily Elizabeth Constance Jones, with a goal of establishing their under-appreciated contributions.

A different understanding of feminist logic is at play in Plumwood's position. She devotes much of POR to critical examination of feminist positions on logic, evaluating the *non-neutral* positions on logic she finds among feminist theorists. As mentioned, a non-neutral position is one that views logic as a *political tool*. Its formal character, in virtue of abstracting from particular, socially grounded content, is an objectionable political act. Logic is not above the fray of politics simply on account of being formal. Formalization, in this perspective, is intellectually akin to the violence of strip-mining the earth, colonizing indigenous cultures and other acts of oppression. Feminist theorists that are wary of or outright reject formal reasoning have to make choices about how *theorizing* must proceed. Logic, so understood, must be mistrusted and ultimately rejected. Audre Lorde famously expresses political suspicion regarding activist reliance on mechanisms for social change within an already oppressive political system: "For the master's tools will never dismantle the master's house. They may allow us to temporarily beat him at his own game, but they will never enable us to bring about genuine change" (Lorde 2015). Nye alludes to Lorde's expression, appropriating a version of it for her position on feminist logic, stating, "the feminist logician speaks from a script in which the master always wins."[1] The formal (logical) features of arguments opposing oppressive systems might serve to take them down, but these tools must be resigned to the dustbin of history in due course. For Nye, there is and can be no such thing as feminist logic, properly speaking. Radical theoretical methodologies that arise afterwards must not use the formal tools of logic – understood as *non-neutral* by theorists such as Nye.

Plumwood argues that anti-logic feminists reproduce the very binaries they seek to overthrow in their understanding of logic. In rejecting logic, and eliding it with formal reasoning, they reinforce a dichotomy of reason verses emotion, form verses content, giving up reason much too readily. Plumwood's main target is Andrea Nye, whose work accounts for the strongest scholarship and argument for rejecting logic as a tool of the patriarchy. Nye 2019 provides a full account regarding how feminists should approach logic. In some ways, Nye is just as radical as Plumwood in arguing for and developing *an alternative methodology* to formal logic. Their disagreement has to do with an understanding of what logic is. Plumwood sees the history of logic and its development as *having been restricted from full expressive power*. Rules accepted as "laws" that predate

[1] Plumwood points out this statement by Nye in POR, p. 438, but without mentioning that the source is from Audre Lorde.

the development of classical logic, such as the Law of Non-Contradiction, Law of the Excluded Middle, Principle of Bivalence, and *Ex Falso Quidlibet*, restricted what logics were deemed acceptable and the character of logical space. Plumwood's understanding of the history of logic is nuanced, given her own contributions to that history as it unfolded over the course of her career. Importantly, her understanding of the history of logic is shaped by efforts to overcome the pervasive (and dominating) acceptance of classical logic as "the one true logic", established by Frege and Russell. For Plumwood, the history of logic involves confrontation with a classical status quo, overcoming resistance and advocating for revolution in logic. In contrast, Nye, an outsider to the history she critiques, sees a general problem behind formalization and its attractions in the first place. For Nye, alternative uses of language are necessary for theorists so that they avoid the oppressive paths that are set out through *formal* reasoning. Formal reasoning, is, itself, oppressive. As Plumwood's feminist position requires the rejection of what she terms "dualisms", such as that between reason and emotion, it might misleadingly appear that, *qua* feminists, Nye and Plumwood share an anti-logic philosophical commitment, however this is not the case.[1]

As a logician, Plumwood's involvement in the development of relevant logics informs her non-neutral view of logic. She understands that there are important challengers to classical logic and that is would be a mistake to elide the total practice of logic and classical logic as if they refer to the same thing. For Plumwood, some logics, such as classical logic, are tools of the patriarchy and oppressors, but this does not mean that logic itself has nothing to offer feminist theorists. Her non-neutral view of logic is selective among logics.

For feminists unfamiliar with logic at Plumwood's level and the insider view of the battles fought between logicians, this selectivity among logics may not make a great deal of sense, if any. For outsiders, the formal characteristic of logic itself renders it a tool of the patriarchy. How can any kind of logic be an exception? The burden is on Plumwood to show that there are specific formal features *not shared by every logic* that

[1] Schnee n.d. correctly sees that Plumwood and Nye share a commitment to the notion that logic is not neutral. However, Schnee elides the two thinkers on account of Plumwood's view of dualisms and the appearance that she must reject the logic (as masculine, reasoning and dominant) as does Nye. This is incorrect, as Plumwood does not equate logic with classical logic, giving up logic and reasoning as a whole. Plumwood's work on non-classical negation and relevance logics informs her disagreement with Nye on a technical level and requires separating the two thinkers.

do the real damage that feminists oppose. Ideally, there should also be formal features only some logics possess that enhance the methodologies of feminist theorizing. In POR Plumwood provides a sketch of a feature of classical logic, classical negation, that she claims reproduces the kind of damage feminist theorists oppose. She does not provide much information about what some non-classical logics can offer methodologically to feminist theorizing. We will show such a feature at the end of this paper.

The Politics of Reason in Context

Plumwood has not been widely recognized as a logician outside of the community of logicians. Her work as a pioneering ecofeminist overshadows this dimension of her research. A majority of her publications in logic (besides POR and the later companion "Feminism and the logic of alterity" – Plumwood 2002) were co-authored with her partner Richard Sylvan (called "Routley" at the time). The "Richard and Val" duo published at least 10 logic pieces in a variety of journals and books ranging from *Noûs* (twice) to less visible journals including *Revista Columbiana de Mathematicas*. She was among the co-authors for volumes 1 and 2 of *Relevant Logics and Their Rivals*. She also co-authored three chapters in Sylvan's *Exploring Meinong's Jungle and Beyond* (1980), which had not been credited to her until its recent republication.[1] Plumwood's legacy in logic, while visible to specialists in logic, was not very significant for the feminist and environmentalist audiences for whom she published accessible works.[2] The reception of non-classical logics in the dominant Anglo-American philosophical scene was fraught in ways that have been well rehearsed at this point. Susan Haack's 1974 *Deviant Logic* began chipping away at large scale resistance, yet POR arrived too soon to inspire an immediate uptake of Plumwood's vision of a feminist logic project.

A major portion of POR is devoted to clearing the air with respect to why there can be such a thing as feminist logic. Feminist thinkers, such as Andrea Nye, have bundled logic and reason together, such that their critique of patriarchal reasoning entails that logic needs also to be rejected. This view incorrectly identifies logic overall with classical logic, overlooking decades of research beyond classical confines. As a participant in such research herself, Plumwood draws attention to this error. There is no reason for feminists

[1] See Routley and Routley 2019 and this volume.
[2] See the Appendix to this paper for a list of Plumwood's publications in logic.

to reject logic once we understand that logic is more than classical logic. In Plumwood's view, it is classical logic that is the culprit. Classical logic is tied to a larger hegemonic way of reasoning, which Plumwood terms "Rationalism" (not to be confused with the descriptive designation of Rationalism we typically attribute to Descartes, Leibniz and Plato). Plumwood sees Rationalism throughout the history of Western Philosophy. In this rationalist tradition, which assumes and operationalizes "dualisms", sexism, colonialism and racism are expressed and perpetuated through it. Plumwood's understanding of "dualism" is very specific. When she speaks of the dualisms of "public/private, male/female, master/slave, self/other, reason/emotion, active/passive, true/false", for example, these are not merely dichotomies which she conceives as neutral separations or divisions (POR, p. 443). Dualisms do the conceptual heavy lifting in ways of reasoning that privilege man over woman, human over nature, active over passive, and so on. She states:

> Dualism then imposes a conceptual framework which polarizes into two orders of being what can [otherwise] be conceptualized and treated in more unified ways. These features of dualism provide a basis for various kinds of centeredness, the rendering of the world in terms of the interests of the upperside, the center. (POR, p. 453)

Dualisms could be said to be ideological (in the Marxian sense) as they render the actual dependencies between the polarized halves opaque, while presenting and articulating the subordination of one half to the other (POR, p. 442). For example, with the human/nature dualism we find the expression of the centrality of human concerns over the natural world. While human life is actually thoroughly dependent upon the natural world, the dependency of humans on the natural world is erased whenever reasoning is constructed utilizing this dualism. Plumwood's celebrated and re-printed article "Human vulnerability and the experience of being prey" (Plumwood 1995) describes her experience of becoming prey for a crocodile on a canoe trip into the bush. The shock of becoming prey shreds any sense of being discontinuous with nature or anything resembling "mastery" over it. The crocodile attack is a shock that reveals and unseats anthropocentrism. Deep-seated biases may require shocks that reveal their systematic and individual entrenchment. There are alternatives to dualistic forms of reasoning. For Plumwood, *dichotomies* are non-hierarchical and non-othering separations, and she provides five non-hierarchical concepts of difference (to be discussed later in this paper)

to replace dualistic reasoning. The task of feminist logic is to root out dualisms and develop logical systems that do not rely on them.

While Plumwood makes the case for feminist logic, at the same time, and in agreement with anti-logic feminists such as Nye, she raises an unsettling question regarding the supposed purity of logic. Early in the Western tradition, Aristotle's classification of logic in his system as an *Organon* (tool) presented logic as apart from areas of inquiry. It is the tool kit we use to construct arguments and treatises in language; the rulebook that optimally allows us to referee claims. The notion that logic does not have a completely neutral status; that the rules/tools themselves effect how claims are assessed is a challenging one. How do we work with classical logic if classical negation perpetuates dualistic reasoning, as Plumwood argues? Even worse, we would need to be taking positions about logic actively once we accept that it is no longer a neutral philosophical tool. The formal logics we accept and use matter politically and are a choice not only for feminists, but also for anyone committed to philosophies of liberation.

Plumwood's critique of feminist views of formal logic in POR corrects the identification of formal logic with classical logic. This move is of a piece with a much larger revolution in logic – a revolt against classical logic. She is not the sole Australian logician taking aim at classical logic. Her work with Routley/Sylvan on relevant logics places her in the center of this revolution. The philosophers and logicians of the Canberra Logic Group, at their height during the 1970s, are described as "for the most part unbending in their dismissal in all things classical" (Goddard 1992, p. 182). Their dismissal of classical logic is often couched in assessments that are politically charged. From the conclusion of *On Paraconsistency*:

> There are, we have argued, no insuperable philosophical problems in supposing that there are true contradictions and, moreover, there are substantial benefits attached to doing so. What mainly prevents the acceptance of this view is the ideology of consistency: the deep-seated and irrational view that the world is consistent. (Priest and Routley 1984, p. 221)

Plumwood's view of feminist logic brewed in the same distillery (pun intended) as Australian paraconsistency. She advocates non-classical logics in the manner of other members of the Canberra Logic Group, integrating her scholarship with her political com-

mitments. Graham Priest, for example, an advocate of dialetheism, similarly found dialetheism a fruitful position for aligning Western Philosophy with Asian philosophical traditions and reevaluating Marxist thought. Val Plumwood and Richard Sylvan were philosophers interested in "walking the walk" (cf. Hyde 2014). Each had extensive publications besides their collaborative work in logic and collaborations in ecological philosophy. The edginess of her call for a feminist logic coupled with her rejection of classical logic can be recognized as of a piece with the overall political intensity of the Canberra Logic Group. In a sense, with the publication of POR, Plumwood adds a feminist dimension to the legacy of Australian logic, which has been dominated by men. It would be an extremely interesting development in the reception of non-classical logics if we were to have an additional *political motivation* to embrace it, as Plumwood believes that we have.

What's So Bad about Classical Negation?

Plumwood designates classical logic as the "logic of domination" in POR based on her interpretation of classical negation, so it would seem her notion of feminist logic succeeds or fails with her critique. This type of negation expresses the basic structure of dualisms that inform philosophy (the Rationalist Tradition, in her specialized way of understanding this history). Likewise, her view that our choices of logics are political choices (not choices among neutral tools) may be less convincing if she cannot specify instances in which a feature of a given logic expresses or structures domination and subordination.[1] Feminist logic can, of course, proceed with an understanding that logics can be employed in reasoning that subjugates people and nature, yet in Plumwood's vision of feminist logic the stakes are greater. Logical systems themselves encode domination, so it is not just careful applications that are required, but the rejection of systems themselves as they are unsalvageable. Plumwood states:

> Classical logic provides an account of otherness which has key features of dualistic otherness. The negation of classical logic is a specific

[1] The assumption that features of logic could express or structure domination and subordination presupposes that logic is normative (guides reasoning, distinguishes good from bad reasoning, provides rules for proper argumentation, etc.). Although logic is commonly held to be normative in some sense, this assumption has challengers and understanding how logic is normative is a complicated subject – see MacFarlane 2004. Catarina Dutilh Novaes' project on a dialogical account of the normativity of logic would be a direction for feminist logic (discussed later in this paper).

> concept of negation which forces us to consider otherness in terms of a single universe consisting of everything. In classical logic, negation ($\neg p$), is interpreted as the universe without p, everything in the universe other than what p covers . . . (POR, p. 454)

Plumwood mentions that this account of negation leads us into the relevance paradoxes, indicating where we might seek better logics. 'p' in the classically negated '$\neg p$' plays the centering role, the role that obscures any inter-relationship between itself and what is negated. Thus, for example, we get the dualisms of male and female, not-male. While in Plumwood's view a male/female *dichotomy* can be cast in a non-hierarchical, non-centered way, Plumwood would point out that this has not been how things have operated in philosophy and the world at large.[1]

Plumwood's view of classical negation sketched in POR can be found much earlier in the co-authored paper with Richard Routley, "Negation and contradiction" (NAC), an extensive work on the topic of negation in the history of logic. The paper presents three basic models of negation in terms of different relations of A to $\neg A$: the cancellation model, the classical (explosive) model and the debate model (a final extension of relevant negation). Here we find a fuller discussion of classical negation and an even more ambitious critique of it. Presumptions regarding classical negation are questioned, especially with respect to the notion that it reflects natural negation. They write:

> Quine and many others (e.g. D. Lewis, Copeland) think that classical negation is "our ordinary" negation and that there is no alternative to it, for any alternative would "change the subject" from negation. Of course they never *argue* that it is our ordinary negation; they simply *assume* that it is. (NAC, p. 207)

We can also find Plumwood's understanding of the centering and *othering* features of classical negation diagrammed and described.

[1] Considering current intersectional critiques of gender and sex binaries, it seems we are moving increasingly (though not quickly enough) towards rejecting Plumwood's dualisms, as she theorized them, altogether.

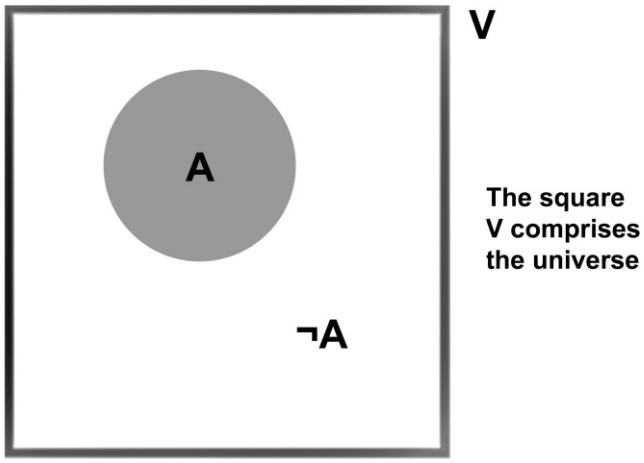

Figure 1: Original Diagram of Classical Negation

Their explanation of the classical model includes reference to Simone de Beauvoir:

> The universe can be interpreted as the sum of propositions. Thus where atomic wff p is interpreted, naturally enough, as the proposition it expresses, $\neg p$ amounts to every proposition in the universe other than the proposition that p.
>
> Relevance problems come straight out of this; for irrelevance is written in at the bottom. All contradictions have the same interpretation, namely V: hence each entails all others and indeed everything. Paradoxes are inevitable.
>
> It is corollary that $\neg p$ cannot be independently identified, it is entirely dependent on p. This relates, more than coincidentally, to alienation (compare what Simone de Beauvoir has to say to alienation of women where "woman" is identified as "other than man"; and is not positively identified, only introduced as alien to the primary notion, "man"). The negation $\neg A$ of A is (so to say) alien to A. (NAC, p. 217)

Passages such as these provide us with more details about how early Plumwood (with Sylvan) had drawn a connection between feminism and a critical concern with classical negation. In 1993, POR draws upon this source. Thus, with classical negation playing

such a pivotal role tying together Plumwood's feminist theory and her understanding of feminist logic, we need to understand if classical negation behaves as claimed.

Responses to Critics

Our discussion of critical responses to POR is complicated by Plumwood's absence. It is hard to know exactly how she might have shaped her ideas in dialogue with her critics. Where she, herself, might have dug in her heels, where she might have adjusted her account is unknowable. The length of time it took for any scholarly uptake at all makes us somewhat uncomfortable. Her view has a freshness about it that is compatible with the urgency with which contemporary philosophy now addresses issues of social justice. To the extent that there has been critical engagement with her view, it is her account of classical negation that is the focus – rightly so, as so much appears to hinge upon it. MacPherson 1999, pp. 190–3, does not find that relevant logics avoid the problems Plumwood associates with classical negation, among other issues he takes up with her account of classical negation. Garavaso 2015 finds that Frege's account of negation does not operate as Plumwood claims. Our responses to these critics draw heavily upon her work with Sylvan in NAC. Since it is the most detailed source for Plumwood's view in POR, we attempt generate our responses from it.

MacPherson 1999 finds that Plumwood misrepresents classical negation: "with respect to any proposition p, classical negation divides the universe of propositions into p, $\neg p$, and anything not equivalent to either. There are multitudes of propositions that are not logically equivalent to it and also are not false iff p is true" (p. 191). MacPherson, in this instance, is *pointing out the problem that relevance logics are intended to address*, namely that of irrelevance. To the extent that $\neg p$ fails to be sorted in any way suggests what inspired Plumwood and Routley/Sylvan (and others) to begin with. Plumwood might point out that $\neg p$ is what she notes as the "backgrounding" and "homogenization" against which the centering of p occurs. "Homogenization involves binarism, interpreting the other as "the rest," she states. "These homogenizing properties of classical negation are associated with the failure of classical logic to make any finer discriminations in propositional identity other than truth-functionality" (POR, p. 31). MacPherson redescribes the classical situation of backgrounding and homogenization *instead* of finding a critical issue. Likewise, his objection based on the reversibility of classical negation

doesn't avoid the issue of irrelevance. The structure of classical negation is what's at issue. MacPherson has not challenged the *structural* problem upon which Plumwood rests her case.

Granting Plumwood her view on classical negation, MacPherson claims that relevance logics are "guilty" of the same dualism involved in classical negation. "Nonetheless", he states, "it remains the case that propositions can only take on one of two values relative to a set-up, viz. true or false" (MacPherson 1999, p. 193). Hence, relevance logics must also "encourage oppression". He notes the way in which relevance logics may tolerate inconsistencies with respect to any given set-up w, but not tolerate them with respect to the entire logical space of set-ups. If p is true somewhere, $\neg p$ must be false somewhere else (*ibid.*). MacPherson overlooks the way in which logical space itself has been reorganized in relevance logics such that $\neg p$ can be true somewhere within the universe without being homogenized and becoming the background to p. Our Figure 2 illustrates the four quadrants available, no one quadrant is centered and dominant relative to other quadrants. Bear in mind that Plumwood does not altogether reject dichotomies or differences; she takes issue with a particular way *differences are managed*. Thus we find a full account of the contrast between classical and relevant negation in NAC. There we find one of the clearest and most creative discussions of relevant and classical negation via the "record cabinet model". We provide their description at length because of the unique creativity of the passages:

> The debate model leads directly to the *record cabinet model.* The cabinet, which can represent the files of the universe, is full of records, each record is an *issue*, or question, with p on one side and $\neg p$ on the other side, for every atomic p (at least). From this point of view classical negation takes p as one side of one record, and $\neg p$ as everything else in the cabinet (classical theory fails to duly separate issues). Relevant negation takes p as one side of the record and $\neg p$ as the other side of the *same* record, there being many, many records in the cabinet. Note well that intensional functions select a program from the cabinet. Such a program may include *both* sides of a record, and may include neither side of various records – in contrast to the published classical picture (the classical picture can be suped-up to avoid the latter defect but not the former).

> The cabinet model may be differently oriented. Each record, or tape, represents, e.g. it may just *describe,* a world, a two-sided world. Then where a is one side of a world record, or a world, the opposite side is again a^*, where * is the *reversal*, or *flip*, function which gives, whichever side one is in on, the other side. Obviously $a^{**} = a$, since turning the record over twice takes one back to the initial position. The semantical rule for evaluating negated statements is, as for the debate model, the star rule, $\neg p$ holds at a iff p does not hold at a^*. By contrast, the classical rule quite erroneously identifies a side with its opposite. (NAC, p. 219)

For Plumwood, relevance logics avoid the error MacPherson attributes to them with respect to negation. They are very different models of the extent and function of negation. Plumwood promotes relevant negation because it provides for the *relational identities* for whatever is and is not negated while it avoids *backgrounding*, *excluding*, *homogenizing* and *instrumentalising* what is negated. These five desiderata from the next to last section of POR, "Non-Hierarchical Concepts of Difference" (pp. 455–58), draw extensively from the record cabinet model used to contrast classical and relevant negation.

Garavaso's criticism of Plumwood's view of classical negation is fairly recent and she suspects a deeper investigation into negation is needed. She writes:

> Plumwood seems to be suggesting that when we call one area non-p as opposed to p, then we make the former dependent on the latter in the sense that the former is specified only in relation to the latter. But this view of dependency, even if granted, would concern only the expression, i.e., the signifier, and would not automatically apply to what is symbolized by "p", or the signified. To understand non-p requires a prior understanding of p, but that relation of dependence does not translate into the areas signified by p and non-p . . . (Garavaso 2015, p. 191)

Garavaso illustrates the way conversion, obversion and contraposition, remove the sense of co-dependency between p and $\neg p$. She has students in a class raise their hands to answer for a p and for a $\neg p$ statement. They discover that "the class of students who are parents" is not any more or less important or dominant than "the class of students who are

not parents" (*ibid.*). It doesn't seem to us that Garavaso has fully considered the way in which classical negation draws the distinction between these two classes of student in her example. In the classroom, students raise their hands representing one side or the other and neither group feels more or less important or dominant. However, this isn't classical negation that is being described in this situation. Instead, Garavaso's students have demonstrated that our ordinary, contextual sense of negation is non-classical. Plumwood would respond that the assumption that classical logic is natural negation might be what's confusing the issue. In NAC, natural negation is discussed (and relevant logics promoted[1]):

> It is also important to inquire what natural negation, negation of natural language, is like, because part at least of the logical enterprise concerning negation is to reflect key features of that negation. Again it has been assumed, with precious little evidence, that classical negation fulfills this role. Many considerations tell against this assumption (see [*Relevant Logics and Their Rivals, Vol. II*]). It is important to see through classical negation's pretensions to be the ordinary normal intuitive notion of natural language and logical thought -compared with which alternative negations such as relevant negation must be seen as "deviant", "peculiar", "queer", abnormal, contrived, or purely formalistic. For seeing through its pretensions is an essential part of seeing through classical (implication) theory and seeing why relevant (implication) theory should replace it. (*op. cit.*, p. 213)

Plumwood also might respond that Garavaso has neglected the way in which dualisms are dependence relations in which the *dependence is suppressed*. That latter suppression or obscuring of the dependence relationship is what makes dualism pernicious. An open or obvious dependence between the complements of a *dichotomy* is not dualistic on Plumwood's account.

Ultimately, these two critical objections to Plumwood's view of classical negation do not bring her project to an end, nor do our two responses necessarily vindicate it.

[1] Although promoting relevant logics, Plumwood makes no claim that relevant logics are the "one true logics", and the variety of relevance logics she refers to and has explored in her other works in logic (work in deontic logic, for example) shows no commitment to logical monism. There very well may be more than one road to achieve the same thing – and Plumwood would likely be glad for that.

Garavaso states, "Of course, this may be just one unconvincing critique and there may be a lot more punch in a feminist analysis of the limits of negation in classical logic" (*op. cit.*, p. 191). In a similar manner, MacPherson suggests that Plumwood's project might be better served through a multi-valued system like LP (*op. cit.*, p. 193). Even critics unconvinced by Plumwood's account of classical negation and without interest in rejecting classical logical, appear to find there's something to her vision.

Classical Negation and the Liberation of Falsity

In this section of our paper, we present a different way to understand problematic features of classical negation. Plumwood eloquently anticipated the need to go beyond classical negation and she saw the classical program as repressive in ways that went underappreciated by audiences that stood to benefit from a more precise and current understanding of advances in logic. We think her insights can be further developed. Although Plumwood was not part of the development of the American Plan, thus supporting what we here call "the liberation of falsity", we see these as allied viewpoints in the struggle. While it is not hard to understand how classical negation is exclusive and exhaustive (if $\neg A$ is true, A is not true and there are no other truth-values available in classical logic, so what is not true must be false) there is nothing about these two exclusive and exhaustive designations that inform us in some obvious way about how A takes the centering role Plumwood claims it has.

The above diagram (Figure 1) of classical logical space may not be helpful enough in clarifying Plumwood and Sylvan's view of centering, and we find that there may be better ways to approach and explicate this controversial aspect of classical negation. Being conceptually comfortable with the original diagram requires something like a "relevant default" instead of classical default. We switch here from the Australian Plan, that interprets contradictions as saying that a proposition and its negation might both be true only, to the American plan, which, instead, claims that Bivalence fails, and there are four possible semantic values. We should start assuming the richest logical and maximal expressive power. We start out with a relevant logic, such as First Degree Entailment, as the starting point or default (Figure 2 below), overlaying classical logic ends up restricting logical space and expressive power (Figure 2). Falsity becomes subordinated (and homogenized) from a broader relevant perspective (Figure 3 below). While truth

and falsity are classically exhaustive, two of the default quadrants, {} and {1,0} are now absorbed into it.

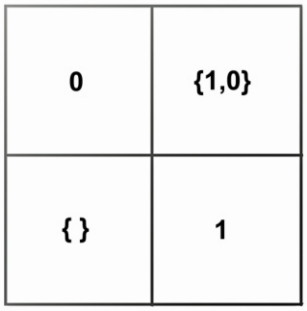

Figure 2

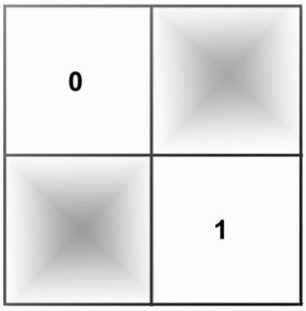

Figure 3

The backgrounding of $\neg A$ to A that was presented in the original NAC diagram (Figure 1) is here represented in the two grayed out quadrants, where values {} and {1,0} had been.

This situation with respect to the dominance of truth can also be explained via classical truth preservation.

1. Classical truth preservation moves forwards.

An argument is valid just in case: If the premises are true, then the conclusion must be true. This criterion is sometimes referred to as "truth preservation". To be more exact, truth preservation has a direction – it is forward looking. The preserving goes from premises to conclusion.

2. Classical falsity preservation moves backwards.

Consider a point that has been overlooked in the account above, (1). In the classical account there is *another preservation* – backward falsity preservation. With a valid argument: if the conclusion is false then at least one of the premises must be false. This second point is uncontroversial (no classical logician will deny it). But then, why is it never mentioned in logic textbooks? The answer is that within (but only within) a classical framework, backwards falsity preservation gives us no new information – the distinction collapses. And, thus, precious logical space, that is disclosed when falsity is given parity, is denied to us.

The distinction between truth and falsity preservation need not collapse. If it does not, we get a wider logical space with greater expressive power. The classical assumption that falsity can mean nothing more than 'not true' conceals conceptual possibilities.

3. A more expressive falsity exists.

There are two ways of looking at giving falsity parity with truth:

a) Non-truth need not be exhausted by falsity. There could be other ways of being non-true, such as 'neither true nor false'

b) Truth and falsity need not be both exhaustive and exclusive.

4. A system with *liberated falsity* (illustration)

The most obvious incorporation of a more autonomous falsity is with the 'gap' system called K3. Here is the table for this very simple three-valued logic (K3 or *strong* Kleene) where i stands for '*indeterminate*' (or, perhaps, '*intermediate*').[1]

	$\neg$
t	f
i	i
f	t

$\rightarrow$	t	i	f
t	t	i	f
i	t	i	i
f	t	t	t

$\wedge$	t	i	f
t	t	i	f
i	i	i	f
f	f	f	f

$\vee$	t	i	f
t	t	t	t
i	t	i	i
f	t	i	f

We can think of 'i' as 'indeterminate' or one reading is 'neither true nor false'. Note that wherever we have just classical input we get the classical output.[2,3]

This system allows for two ways an argument can be invalid:

- By going from true to false.

[1] We keep truth-functionality. Also classical input yields classical output. But we add a new truth-value and expand on our tables – and get a more subtle notion of logical consequence.

[2] This continues for other many-valued systems. If you take some many-valued logic as basic, classical can be seen as *its specification*.

[3] There are different variants of K3. For example, Łukasiewicz's original system was changed by Kleene in that, in the former, $p \rightarrow q$ gets the value t when both p and q get the value i. For Kleene the conditional gets the value i. Thus for Kleene the system has stability – not so for Łukasiewicz. Stability: If a complex statement has a determinate truth-value, then the change of one of its component statements from i to a determinate value cannot change the truth-value of the complex statement.

- By going from true to i, which is non-true (but not false).

This clearly generates an increase in expressive power and leads to mature, many valued logics. In a sense, classical logic builds in a bias towards truth by not allowing the two preservations – truth and falsity preservations – to be distinguished. Belnap 2019 argues that we need at least four semantic values True, False, Neither, and Both (true and false).[1] Shramko, Dunn and Takenka 2001 generalize Belnap's results further by taking the power set of his four values – yielding a 16-valued system. Belnap's system works for a single computer – but it does not cover values that naturally emerge when various computers are interacting – that is, for a computer network. The truth order in a Belnap system is a truth-and-falsity order. In contrast, the truth and falsity orderings in the 16-valued system are independent of one another.[2]

While we've presented what we think are enhanced ways to understand Plumwood's position on classical negation, we admit that these formal observations nevertheless seem to remain distant from real world contexts. For Plumwood, classical logic structurally expresses and, arguably, entrenches dualisms that we ought to resist. In LGBTQI theory and activism, we might discern the kind of problem that illustrates her position. Her particular understanding of "dualisms" of male/female, man/woman are, instead, termed *gender binaries*. The extent to which LGBTQI activism has been necessary *at all* to achieve the degrees of political liberation and social acceptance found today (often precariously) speaks to an entrenched understanding of the space of possibilities that have been suppressed under the assumption that there are two exclusive and

[1] We are not suggesting that Belnap supports anything like Plumwood's position on the non-neutrality of logic. He begins this paper specifying that his conception of logic in this paper is as an *organon*/tool.

[2] We find it useful to point out that multivalued, relevant logics developed and defended outside the Australian Plan, take a strong view with respect truth's dominance in classical logic. In their discussion of geometrical dimensions of lattice theory, they write:

> Under the multivaluational approach, classical logic can be viewed as based exactly on one initial truth value, namely on truth. That is, classical logic presupposes the monism of truth. Indeed, all the (classical) logical concepts can be formulated by using only the notion of truth (together with metalanguage connectives) with no mention of falsity. However, to have a logic, we need something opposite to truth, i.e. non-truth, and the multivaluational function produces such an element, this is again $\emptyset$. We can call this new element 'falsity', although this classical falsity is not an autonomous notion by itself, but completely depends on the notion of truth, having also one (negative) feature – not to be true. (Shramko, Dunn and Takenka 2001, p. 785)

exhaustive genders. Sexism, the centering of men, goes hand in glove with essentializing and "naturalizing" gender binaries. For Plumwood, these binaries (dualisms) obscure the actual parity between the dichotomy of men/women and the space of alternative possibilities as illustrated in Figure 3. In this respect, classical logic may not be an ideal logic for LGBTQI theorizing, since we want to take seriously people's claims about their gender identity, which combine, adjust or altogether deny the gender binary. If debate and discussion of gender identity takes classical logic as default, the structure of argumentative space ends up (already) binary in character. Activists should be especially wary to give up their home ground of relevant default, as we think Plumwood would claim. We are reminded of one of our logic students, whom, when encountering the failure of disjunctive syllogism in non-classical logics, noted, "Well, it's only useful if you just have two options".[1]

Towards a Feminist Logic

For Plumwood, developing a feminist logic involves the rejection of classical logic and the embrace of non-classical logics. The dualisms supported by classical negation are not a necessary feature of logic, she advises. "Fully worked out logical systems which do not have these features are available and in use," she states, "and these can point in directions which might be promising for alternative conceptions of otherness and rationality" (POR, p. 458). In relevant logics contradictions do not crash the system. Negation does not result in $\neg A$ being homogenized with "the rest". The "debate model" described in NAC shows the way in which *dialectic* and relevant negation are connected:

> In sum, reversal and opposition have the right properties in leading respects for (the semantics of) relevant negation. Thus the opposite side of something is not the removal of the first side or, for example, everything other than the first side; it is *another* and *further* side,

[1] We believe this was Jessica Latta, UMASS Dartmouth class of 2015. We are grateful for the cohorts of students we have taught and the members of the Deviant Logic Posse, an ongoing study group dedicated to discussion of contemporary logic research. DLP members have proven to us that undergraduate students benefit from learning non-classical logics. Teaching logic as a lively area of debate inspires students to work through much harder material than might be expected. We are also grateful for years of support from international logicians whom have visited our campus in person and electronically, inspiring all of us.

> which is relatively independent of its reverse but which is related to it in a certain way. Both sides can co-occur (occur simultaneously) in a framework (e.g. controversy) and one can perfectly well consider both of them. The important point, to say it yet again, is that one side does not somehow *obliterate* or wipe out or entirely exclude or exhaust its opposite. Nor is the reverse, or opposite, just defined negatively. (*op. cit.*, p. 220)

This focus on dialogue and dialectic is present in Catarina Dutilh Novaes' project on Dialogical Reasoning[1] – an example of a project along the lines of what Plumwood envisioned. Dutilh Novaes works with the idea that deductive logic is a multi-agent, *dialectical procedure* not the static, solitary procedure it has come to be thought to be. This changes how we understand the relationship between logic and how it can improve reasoning. Interrogating and improving philosophical discourse and methodology are the crucial tasks for feminist theorists. Alice Craray's critique of analytic feminism, Craray 2018 bears this admonition. According to Craray's analysis, contemporary analytic feminist projects that theorize "with a conception of the neutrality of reasoning" is at odds with radical feminist methodologies required for "liberating and sound social thought". She states:

> [S]uch thought will involve refining and mobilizing cultural perspectives that are essential for bringing aspects of gendered social life into focus; something we can see if we follow up on the work of those great feminist critics mentioned earlier. This is what it comes to, to say that feminism's political radicalism requires a radicalism of method. Or, alternately, what it comes to say that the methodological is political. (final para.)

Plumwood's construal of dualisms and the need to remove them and restructure our theorizing and practices without them is not restricted to women's liberation, but to an intersectional understanding of identity and liberation.[2]

[1] See Dutilh Novaes 2015 and Dutilh Novaes 2013.

[2] Intersectional Feminism is a conception of feminism developed by Kimberlé Crenshaw, a law professor, leader in the development of Critical Race Theory and founder of the African American Policy Forum. Intersectional Feminism addresses the interconnected nature of social categorizations such as race, class, and gender as they apply to a given individual or group, which are regarded as creating overlapping and interdependent systems of discrimination or disadvantage. Her work on Intersectional Feminism dates from the mid 1980s. It is unlikely that Australasian feminists were familiar with Crenshaw's work – it took decades in the United States for Intersectionality to become well known.

> When four tectonic plates of liberation theory – those concerned with the oppressions of gender, race, class and nature – finally come together, the resulting tremors could shake the conceptual structures of oppression to their foundations. (Plumwood 1993, p. 1)

It remains to be explored whether or not this is the case, although the debate/dialogical models might prove useful in developing radical intersectional methodologies.

Plumwood may still have ideas to offer for feminist logicians unconvinced by her account of classical negation and not moved to embrace non-classical logics. In POR (p. 456), her desiderata for feminist logics include the rejection of five features that she attributes to dualism: backgrounding, radical exclusion, non-relational identity, instrumentalism, and homogenization.

1. Backgrounding: A non-hierarchical concept of difference requires a move to systems of thought, accounting, perception, decision-making which recognise the contribution of what has been backgrounded, and which acknowledge the denied relationships of dependency.

2. Radical Exclusion: A non-hierarchical concept of difference will affirm continuity (for example common humanity), reconceive *relata* in more integrated ways, and reclaim the denied area of overlap.

3. Relational Identity: A non-hierarchical concept of difference must review the identities of both underside and upperside. It can aim to critically affirm the difference of the oppressed, to rediscover their language and story, and to reclaim positive independent sources of identity.

4. Instrumentalism: A non-hierarchical concept of difference implies recognising the other as a centre of needs, value and striving on its own account, a being whose ends and needs are independent of the centre and to be respected in their own right.

5. Homogenisation: A non-hierarchical concept of difference involves recognising the different concerns and diversity of the "other nations" which have been homogenised and marginalised in their constitution as excluded other, as "the rest".

These desiderata make good sense even if we were to view logic as neutral but are able to be *weaponized* (a less radical view than Plumwood's). "Backgrounding" must

be rejected, for example. She states, "... Systems of thought, accounting, perception, decision making must recognize the contribution of what has been backgrounded, and acknowledge the denied relationships of dependency" (*ibid.*). The examination of white privilege, for example, brings to the foreground the background of racism against which white privilege operates for white people in a racialized social system. When it comes to identity she states: "A non-hierarchical concept of difference must review the identities of both the underside and the upperside. It can aim to critically affirm the difference of the oppressed, to rediscover their language and story, and to reclaim positive independent sources of identity" (*ibid.*). Projects in which indigenous peoples reclaim their identities lost in the colonization of their lands might be examples of relational identity that Plumwood found increasingly important as her career progressed (cf. Hyde 2014). Each of her desiderata can be useful for ongoing intersectional feminist scholarship and political engagement.

It would be a mistake to think that Plumwood held that a change in logic would be anywhere near sufficient for changing the world. She states:

> I am not of course arguing that classical logic itself is the cause of women's oppression, and that if we just change the logical theory, all will be well. Challenging dualistic otherness at the level of formal logical theory is only part of what needs to be done to problematise the naturalness of domination, and this conceptual and cultural challenge in turn is only part of a wider strategy for change. (POR, pp. 455–56)

Plumwood understood that political action is required and that our ways of living need reform. She was not someone that cleaved theory from practice. Her political commitments informed her life and her writings. Ultimately, she challenges us to question the supposed neutrality of logic and resistance to this idea cannot take the form of question begging. "Logic cannot be political, because it is ... *logic*", cannot be the response to her challenge.

Appendix: Val Plumwood's Logic Publications

(chronological order)

Routley, R. and Routley, V., "The semantics of first degree entailment", *Noûs* **6** (1972) 335–359.

Routley, R. and Routley, V., "Rehabilitating Meinong's theory of objects", *Revue Internationale de Philosophie* **27** (1973) 224–254.

Routley, R., *Exploring Meinong's Jungle and Beyond*, Research Series in Logic and Metaphysics, RSSS, Australian National University, 1980. Chapters 4, 8, 9 co-authored with Plumwood. (Co-authored material reprinted in: Routley, R. and Routley, V., *Noneist Explorations I: The Sylvan Jungle, Vol. 2*, edited by D. Hyde, Springer, 2019; and this volume.)

Routley, R., Plumwood, V., Meyer, R. K. and Brady, R., *Relevant Logics and Their Rivals*, Volume 1, Ridgeview (1982); and Volume 2 Ashgate (2003).

Routley, R. and Routley, V., "Semantical foundations for value theory", *Noûs* **17** (1983) 441–456.

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