CHAPTER 10

LOGICAL ATOMISM IN RUSSELL AND WITTGENSTEIN

IAN PROOPS

INTRODUCTION

RUSSELL and Wittgenstein develop different, though closely related, versions of a position that has come to be known as 'logical atomism'. Wittgenstein's version is presented in the *Tractatus*, and discussed in the various pre-*Tractatus* manuscripts. Russell's is presented most fully in a set of eight lectures given in Gordon Square, London in early 1918. These lectures, which are familiar to us today under the title 'The Philosophy of Logical Atomism' (Russell 1918/1956: 175–281, hereafter 'PLA'), were originally serialized in the *Monist* during the years 1918 and 1919. In them Russell attempts to synthesize his own ideas with those of Wittgenstein's 1913 *Notes on Logic*. Although PLA is often treated as the definitive presentation of Russell's logical atomism, we should not forget that Russell had already arrived at many elements of this doctrine before he encountered Wittgenstein. This earlier, pure Russellian, brand of logical atomism is first set out in Russell's 1911 article 'Analytical Realism'[1] —a text in which the phrase 'logical atomism' appears for the first time. (See Monk 1996, 200.) It is further developed in certain chapters of the *Problems of Philosophy* of 1912.[2]

Analytical realism, Russell explains, is a form of *atomism* because it maintains—in contrast to the British Hegelianism of Bradley, McTaggart, Joachim, and others,[3] first,

[1] This work was composed in the summer of 1911, and so before Russell's first encounter with Wittgenstein.

[2] *Collected Papers* (hereafter '*CP*'), vol. 6: 133–46.

[3] In *PLA* too Russell characterizes his position as atomistic in contrast to 'people who more or less follow Hegel' (*PLA*: 178). There he emphasizes against the Hegelians that analysis does not involve falsification (ibid.).

that the existence of the complex depends on the existence of the simple and not vice versa, and, second, that the simple entities in its ontology (universals and particulars) have their nature quite independently of the relations they bear to one another.[4] (Notice that this means that the 'atoms' countenanced by Analytic Realism need not be simple. And, indeed, as we shall see, Russell says things that imply that some of them are complex.) Analytical Realism is a *logical* atomism because its atoms need not exist in time or space. In Russell's terminology they are 'purely logical'. (*CP*, vol. 6: 135).

Russell advertised PLA as 'very largely concerned with explaining certain ideas which I learnt from my friend and former pupil Ludwig Wittgenstein' (*CP*, vol. 6: 177, cf. 205). And under his influence the term 'logical atomism' became associated with Wittgenstein's early philosophy. In PLA, possibly as a result of Wittgenstein's influence, Russell changes his account of what it is that makes logical atomism *logical*. He now maintains that what makes it appropriate to speak of *logical* atomism is that the atoms in question are to be arrived at by logical rather than physical analysis (PLA: 179). For Wittgenstein too, the genuine constituents of states of affairs are to be revealed by a process of logical analysis (see section 4 below); so, to that extent, the label may be aptly applied to his Tractarian position. Such a use is not, however, uncontroversial (see Floyd 1998).

The core tenets of Wittgenstein's logical atomism may be summarized as follows: (i) Every proposition has a unique final analysis that reveals it to be a truth-function of elementary propositions (TLP 3.25, 4.221, 4.51, 5); (ii) These elementary propositions assert the existence of atomic states of affairs (4.21); (iii) Elementary propositions are mutually independent—each one can be true or false independently of the truth or falsity of the others (4.211, 5.134); (iv) Elementary propositions are immediate combinations of semantically simple symbols or 'names' (4.221); (v) Names refer to items wholly devoid of complexity, so-called 'objects' (2.02 & 3.22); (vi) Atomic states of affairs are combinations of these simple objects (2.01).

1. NAMES AND OBJECTS

The 'names' spoken of in the *Tractatus* are not mere signs (i.e. typographically or phonologically identified inscriptions), but rather signs-together-with-their-meanings—or 'symbols' in Tractarian parlance. Being symbols, names are identified and individuated only in the context of significant sentences. A name is 'semantically simple' in the sense that its meaning does not depend on the meanings of its orthographic parts, even when those parts are, in other contexts, independently meaningful (cf. 4.24). So, for example, it would not count against the semantic simplicity of the symbol 'Battle' as it figures in the sentence 'Battle commenced' that it contains the orthographic part 'Bat', even though this part has a meaning of its own in other sentences. Something else does count against

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[4] *CP*, vol. 6: 133–4.

this symbol's semantic simplicity, namely: the fact that it is analysable away in favour of talk of the actions of people, etc. This point illustrates the difficulty of finding examples of Tractarian names in natural language. It turns out that even the apparently simple singular terms of everyday language—e.g. 'Plato', 'London', etc.—will not be counted as 'names' by the strict standards of the *Tractatus* since they will disappear on further analysis. (Details of how their 'disappearance' is effected are provided in section 2.1 below.)

For the sake of expository convenience, the capitalized term 'Name' will henceforth be reserved for (a) Tractarian names and (b) what Russell calls 'names in the strict logical sense' (PLA: 201). Because Russell lacks a technical term for the referent of a Name, the capitalized term 'Object' will be used for this purpose. In connection with Wittgenstein the term 'object' will be used for the same purpose, as will 'Tractarian object'. The words that pass for names in ordinary language, such as 'Plato' and 'Socrates', will be referred to as 'ordinary names'.

Whereas Wittgenstein expects not to find Names among the vocabulary of vernacular language,[5] Russell believes that some of the words in everyday use do have this status. In PLA he mentions 'this' and 'that' as examples of 'names in the proper strict logical sense of the word', and he takes them to stand for 'actual object[s] of sense' (i.e. sense-data) (PLA: 201). For Russell there is no more to a sign's being a Name for something than: (a) our being acquainted with the Object[6] it Names; and (b) our knowing that it Names it (PLA: 205). This suggests that at this stage he is committed to counting anything with which we are acquainted as in principle Nameable.[7] What, then, are the objects of acquaintance? In the *Problems of Philosophy* (POP) Russell explains that they include both particulars and universals:

> Among particulars we have acquaintance with sense-data and (probably) with ourselves. Among universals, there seems to be no principle by which we can decide which can be known by acquaintance, but it is clear that among those that can be so known are sensible qualities, relations of space and time, similarly and certain abstract logical universals. (POP: 62)

It seems reasonable to infer that at this stage Russell would have counted both the word 'I' and terms for certain qualities and relations as Names. Evidently, Russell's commitment to the self as an object of acquaintance is only tentatively held. And he expressly repudiates the associated view that 'I' functions as a logically proper name in his 1914 essay 'On the Nature of Acquaintance' (Marsh 1956: 164).

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[5] The *Notebooks* entry for 23 May 1915 would support this claim. 'It also seems certain that we do not infer the existence of simple objects from the existence of particular simple objects.' If we knew concerning certain words that they were Names, we would be able to do precisely that.

[6] Russell speaks of the particular with which a speaker is acquainted where I have spoken of the Object. But that is just because in this context he is implicitly confining his discussion to *proper* names, which are Names, specifically, of particulars.

[7] It is significant that in *PLA* when Russell says that the only words one does use as 'names in the strict logical sense' are 'this' and 'that' he does so in the context of a discussion of names 'in the narrow logical sense of a word *whose meaning is a particular*' (PLA: 201). Relaxing the restriction to words for particulars would involve admitting further expressions as names in the strict logical sense.

It is a more controversial matter whether Wittgenstein includes properties and relations among the bearers of Tractarian names. The view that he declines to do so has been defended by Irving Copi (Copi 1958) and Elizabeth Anscombe (Anscombe 1971 [1959]: 108 ff.), among others. Arguably, such a view is supported by *Tractatus* 2.0231, which runs: '[Material properties] are first presented by propositions—first formed by the configuration of objects.' (2.0231) If 'material properties' are first formed by the *configuration* of objects (which the *Tractatus* holds to be simple), then they can scarcely *be* objects. Of course, by itself, *Tractatus* 2.0231 does not preclude the possibility that *non-material* properties might count as objects; so it could provide compelling support for the Copi–Anscombe reading only if it were supplemented with a reason to think that non-material properties are not the kind of things that can be the bearers of Tractarian names. Such a reason might be provided by the observation that in the present context the modifier 'material' appears to be intended to establish a contrast with those properties that comprise an object's combinatory possibilities. (Such combinatory possibilities are said to constitute an object's 'form' at 2.0141, and Wittgenstein speaks of 'forms' where we might speak of 'types' at 4.1241. So when he speaks of 'formal properties' of objects at 4.122 it is plausible that he has in mind just their possibilities of combination with other objects.) Since combinatory possibilities are not candidates to be the bearers of *Tractarian* names, the sought-for supplementary ground is arguably available.

The Copi–Anscombe interpretation has been taken to receive further support from *Tractatus* 3.1432: 'We must not say, "The complex sign '*aRb*' says '*a* stands in relation *R* to *b*;'' but we must say, "*That* '*a*' stands in a certain relation to '*b*' says *that aRb*."' This has suggested to some commentators that relations are not, strictly speaking, Nameable (cf. Ricketts 1996: 72–3). But it might rather be taken to indicate just that Names themselves are not confined to particulars, but include relations between certain signs and even properties of those signs. On this picture, a proper Name would be a particular sign that means a particular, a relation between such particular signs would mean (i.e. be a Name of) a relation, and a property of such a sign would mean (i.e. be a Name of) a property. So this second consideration is less compelling than the first.

The opposing view, according to which Names include predicates and relational expressions in addition to symbols for particulars, has been defended by Erik Stenius and Merrill and Jaakko Hintikka, among others (Stenius 1960: 61–9; Hintikka and Hintikka 1986: 30–34). It is supported by a *Notebooks* entry from 1915 in which Tractarian objects are expressly said to include properties and relations (NB: 61), and further buttressed by Wittgenstein's explanation to Desmond Lee (WL) of *Tractatus* 2.01: ' "Objects" also include relations; a proposition is not two things connected by a relation. "Thing" and "relation" are on the same level.' (*WL*: 120) It derives further—if less direct—support from a remark from the *Tractatus*: 'In an atomic state of affairs objects hang one in another, like the links of a chain.' (2.03) Wittgenstein was later to explain this remark to C. K. Odgen as meaning that: 'There isn't anything third that connects the links but . . . the links themselves make the connection with one another.' (LO: 23) The idea is that the reference of every name is, as Frege would say, 'in need of saturation', so that each object plays an equal role in securing the unity of the atomic state of affairs in which it occurs. It is natural to think of this point as being paralleled at the level of language by the idea

that every Name is in a related sense 'unsaturated', and plays an equal role in securing the unity of the proposition in which it occurs.

This idea might be developed as follows: In the four-constituent elementary proposition '*ABCD*' we might think of each Name as multiply unsaturated—that is to say, as having a triadic '*n*-adicity'. This model of the elementary proposition is the mirror image of that of Copi and Anscombe; for now *none* of its constituents is taken to name a particular. This model has the merit of exemplifying the Tractarian idea that we cannot conceive of something as a Name outside the context of an elementary proposition (cf. 4.23); for it is only in the context of a given elementary proposition that a Name's *n*-adicity is determinate.

Like the Copi–Anscombe reading, the view just outlined treats the forms of elementary propositions as differing radically from anything we might be familiar with from ordinary—or even Fregean—grammar. Both interpretations thus chime with Wittgenstein's 1929 warning to Waismann that 'The logical structure of elementary propositions need not have the slightest similarly with the logical structure of [non-elementary] propositions' (WVC: 42).

2. Linguistic Atomism

By 'linguistic atomism' we shall understand the view that the analysis of every proposition terminates in a proposition all of whose genuine components are Names. Russell believes that the analysis of complexes terminates in simples, though he admits that, for all he can *show*, analysis might go on forever (PLA: 202). If the complexes he has in mind include linguistic complexes, such as sentences, then we may take him to believe in linguistic atomism. But Russell has no argument for this position and he allows that it might well be false (ibid.).

The *Tractatus* is more plainly committed to linguistic atomism (see 3.25 and 4.221), but it offers no explicit argument in its support. This fact has led some commentators—and among them Peter Simons (Simons 1992)—to suppose that Wittgenstein's position here is motivated less by argument than by brute intuition. And indeed, Wittgenstein does present some conclusions in this vicinity as if they needed no argument. At 4.221, for example, he says: '*It is obvious that* in the analysis of propositions we must come to elementary propositions, which consist of names in immediate combination.' (emphasis added) Nonetheless, reflection on the *Tractatus*'s conception of analysis makes it easier to understand why Wittgenstein should have thought it obvious that analysis would terminate.

2.1 The *Tractatus*'s conception of analysis

A remark from the *Philosophical Grammar*, written in 1936, illuminates Wittgenstein's earlier conception of analysis:

> Formerly, I myself spoke of a 'complete analysis,' and I used to believe that philosophy had to give a definitive dissection of propositions so as to set out clearly all their connections and remove all possibilities of misunderstanding. I spoke as if there was a calculus in which such a dissection would be possible. I vaguely had in mind something like the definition that Russell had given for the definite article...(PG: 211)

One of the distinctive features of Russell's definition is that it treats the symbol of *Principia* that we might express in English as 'the *x* such that *Fx*' as an 'incomplete symbol'.[8] Such symbols have no meaning in isolation but are given meaning by the contextual definitions that treat of the sentential contexts in which they occur (cf. PM: 66). Incomplete symbols do, of course, *have* meaning because they make a systematic contribution to the meanings of the sentences in which they occur. This can be seen from the fact that when I utter 'The Queen of England had a difficult year', it's not as though I've used a meaningless phrase, as I might in: 'Abracadabra had a difficult year.' What is special about them is that they make this contribution without expressing a propositional constituent.

Russell explains the meaning of definite descriptions by means of the following clauses (for the sake of expository transparency his scope-indicating devices are omitted):

(1) G (the x: Fx) = $(\exists x)((\forall y)\, (Fy \leftrightarrow y{=}x)\, \&\, Gx)$ Df. (cf. Russell 1905b; PM: 173)
(2) (the x: Fx) exists = $(\exists x)((\forall y)\, (Fy \leftrightarrow y{=}x))$ Df. (cf. PM: 174)

Clause (2) brings out the fact that Russell treats the predicate 'exists'—or, in the formal theory, 'E!'—as being itself an incomplete symbol. Note that in the present context when Russell speaks of 'existence' he intends the broad notion he elsewhere terms 'subsistence', rather than the narrow notion of existence as specifically temporal being, which figures in the *Principles of Mathematics*. So Russell is treating predications of being as contextually eliminable in favour of existential quantification.

One can understand why Wittgenstein discerned an affinity between the theory of descriptions and his own envisioned 'calculus', for one can extract from his remarks in the *Tractatus* and elsewhere two somewhat parallel proposals for eliminating what he calls terms for 'complexes':

(3) $F[aRb]$ iff $Fa\, \&\, Fb\, \&\, aRb$
(4) $[aRb]$ exists iff aRb

Proposals (1)–(4) share the feature that any sentence involving a merely apparent reference to something will be regarded as false rather than as neither true nor false in the event that that thing should turn out not to exist.

Wittgenstein's first eliminative proposal—our (3)—occurs in a *Notebooks* entry from 1914 (NB: 4), but it is also alluded to in the *Tractatus*:

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[8] Strictly speaking, it is this symbol together with a scope-indicating device that is defined, but for present purposes such details may be suppressed.

> Every statement about complexes can be analysed into a statement about their con-
> stituent parts, and into those propositions which completely describe the complexes
> (2.0201).

In (3) the statement 'about [the complex's] constituent parts' is '*Fa* & *Fb*', while the propo-
sition which 'completely describes' the complex is '*aRb*'. If the propositions obtained by
applying (3) and (4) are to be further analysed, a two-stage procedure will be necessary:
first, the apparent names generated by the analysis—in the present case '*a*' and '*b*'—will
need to be replaced[9] by symbols that are overtly terms for complexes, e.g. '[*cSd*]' and
'[*eFg*]'; secondly, clauses (3) and (4) will need to be applied once more to eliminate these
terms. If there is going to be a unique final analysis, each name will have to be *uniquely*
paired with a term for a complex. So Wittgenstein's programme of analysis, in addition
to committing him to something analogous to Russell's theory of descriptions, also com-
mits him to the analogue of Russell's 'description theory of ordinary names' (cf. Russell
1905a). This is the idea that every apparent name not occurring at the end of analysis is
an abbreviation for some definite description.

Wittgenstein's first definition, like Russell's, strictly speaking, stands in need of a
device for indicating scope, for otherwise it would be unclear how to apply the analysis
when we choose say '~*G*' as our instance of '*F*'. In such a case the question would arise
whether the resulting instance of (3) is '~*G*[*aRb*] = ~*Ga* & ~*Gb* & *aRb*', which corre-
sponds to giving the term for a complex wide scope with respect to the negation opera-
tor, or whether it is '~*G*[*aRb*] = ~ [*Ga* & *Gb* & *aRb*]', which corresponds to giving the
term for a complex narrow scope. One suspects that Wittgenstein's intention would
most likely have been to follow Russell's convention of reading the logical operator as
having narrow scope unless otherwise expressly indicated (cf. PM: 172).

Definition (3) has obvious flaws. While it might work for such predicates as 'ξ is wholly
located in Britain', it obviously fails for certain others, e.g. 'ξ is greater than three feet
long' and 'ξ weighs exactly four pounds'. This problem can hardly have escaped
Wittgenstein, so it seems likely that he would have regarded his proposals as nothing
more than tentative illustrations, open to supplementation and amendment.

Although Wittgenstein's second contextual definition—our (4)—does not occur
in the *Tractatus*, it is implied by a remark from the *Notes on Logic* that anticipates
2.0201:

> Every proposition which seems to be about a complex can be analysed into a propo-
> sition about its constituents and…the proposition which describes the complex

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[9] There are difficulties in stating the appropriate constraints on these replacements. We cannot say
that a given apparent name should be replaced by a *synonymous* term for a complex since
Wittgenstein denies that sub-sentential expressions have sense (3.3). But nor would it be correct to say
that an apparent name should be replaced by a co-referring expression, for strictly speaking, terms for
complexes do not refer. It seems we can only say that the replacing term should have the same
apparent reference as the term it replaces. In this way we might secure the preservation of modal truth
conditions, but whether that is all that Tractarian analysis is supposed to preserve is a further
question.

perfectly; *i.e., that proposition which is equivalent to saying the complex exists*. (NB: 93; emphasis added)[10]

Since the proposition that 'describes the complex', [*aRb*], 'perfectly' is just the proposition that *aRb*, Wittgenstein's clarifying addendum amounts to the claim that the proposition '*aRb*' is equivalent to the proposition '[*aRb*] exists.' And this equivalence is just our (4).

For Wittgenstein, then, 'exists' is defined solely in contexts in which it occurs predicated of complexes. Wittgenstein's proposal thus parallels Russell's insofar as it implies the nonsensicality of statements purporting to ascribe existence to Tractarian objects (cf. PM: 174–5). This is why Wittgenstein was later to refer to such objects as 'that for which there is neither existence nor non-existence' (PR: 72).

One might wonder whether Russell ought to have denied the intelligibility of statements purporting to assert existence (i.e. 'subsistence') of Objects. For one might suppose that he could use the predicate '$\exists x\ (x = \xi)$' for this purpose. Naturally, this predicate, being applicable solely to individuals, cannot be taken to express any imagined conception of trans-categorial subsistence. But there is nothing wrong with it as a predicate of *individuals*—or so the present suggestion would run. However, this proposal must still be regarded as unsatisfactory (from Russell's point of view, at least). For if this predicate were adopted as expressing subsistence, there would be nothing to prevent us from substituting it for '*G*' in (1) above. But then a claim such as 'The round square does not subsist', which strikes us as unequivocally true, would come out as structurally ambiguous between a true claim whose translation into the language of *Principia* would be: '$\sim(\exists x)((\forall y)\ (round\ \&\ square\ y \leftrightarrow y=x)\ \&\ \exists y\ (y = x))$', and a false claim whose translation would be: '$(\exists x)((\forall y)\ (round\ y\ \&\ square\ y \leftrightarrow y=x)\ \&\ \sim\exists y\ (y = x))$'.

Such considerations might explain Russell's assertion in *Principia* that 'there is no reason, in philosophy, to suppose that a meaning of existence could be found which would be applicable to immediately given subjects' (PM: 175). By 'immediately given subjects' here Russell means objects picked out by demonstration (and known by acquaintance) rather than by description.

Wittgenstein, because he sees sentences involving ineliminable occurrences of the identity sign as 'nonsensical pseudo-propositions' (4.1272), would regard the proposal just discussed as, in any case, a non-starter. He supposes that when '*a*' is a Tractarian name, what we try to say by uttering the nonsense string '*a* exists' will, strictly speaking, be *shown* by the fact that the final analysis of some proposition contains '*a*'.[11] But of course, the *Tractatus* does not always speak strictly. Indeed, what is generally taken to be

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[10] In the original the word 'about' occurs ungrammatically in the ellipsis. This seems to be a slip.

[11] This idea is suggested by Wittgenstein's remark that 'What the axiom of infinity is meant to say would be expressed in language by the fact that there is an infinite number of names with different meanings' (5.535). It is even more obviously present in his remark in a letter to Russell of 19 August 1919 that '[w]hat you want to say by the apparent prop[osition] "there are 2 things" is *shown* by there being two names which have different meanings' (CL: 126).

the ultimate conclusion of the *Tractatus*'s so-called 'Argument for Substance' (2.021–2.0211) itself tries to say something that can only be shown, since it asserts the *existence* of objects. The sharpness of the tension here is only partly concealed by the oblique way in which that conclusion is formulated. Instead of arguing for the existence of objects, the *Tractatus* argues for the conclusion that 'the world has substance'. However, because 'objects constitute the substance of the world' (2.021), and because substance is that which *exists* independently of what is the case (2.024), that is tantamount to saying that objects exist. So, in the end, Wittgenstein's argument for substance must be regarded as part of the ladder we are supposed to throw away (6.54). But having acknowledged this important point, we shall set it aside as peripheral to this essay's main concerns.

Returning to our four analytical proposals, we may observe that the most obvious similarity between the two pairs is that each seeks to provide for the elimination of what purport to be semantically complex referring expressions. The most obvious difference consists in the fact that Wittgenstein's definitions are designed to eliminate not definite descriptions, but expressions such as '[*aRb*]', which, judging by remarks in the *Notebooks*, is intended to be read: '*a in the relation R to b*' (NB: 48). (This gloss seems to derive from Russell's examples of complexes in *Principia Mathematica*, which include, in addition to '*a* in the relation *R* to *b*', '*a* having the quality *q*' and '*a* and *b* and *c* standing in the relation *S*' (PM: 44).) One might wonder why there should be this difference at all. Why not treat the peculiar locution '*a* in the relation *R* to *b*' as a definite description—as, say, 'the complex consisting of *a* and *b*, combined so that *aRb*'? This description could then be eliminated by applying the *Tractatus*'s own version of the theory of descriptions:

The *F* is *G* $\leftrightarrow$ $\exists x$ (*Fx* & *Gx*) & ~ ($\exists x, y$) (*Fx* & *Fy*) (cf. 5.5321)

(Here the distinctness of the variables—the fact that they are distinct—replaces the sign of distinctness '≠' (cf. 5.53).)

Since Wittgenstein did not adopt this course it seems likely that he would have regarded the predicate '…is a complex consisting of *a* and *b*, combined so that *aRb*' as illegitimate in virtue of containing ineliminable uses of certain pseudo-concepts such as 'complex' (4.1272)—as well (perhaps) as 'combination' and 'constitution'.

Wittgenstein's analytical proposals differ from Russell's in a further respect. Russell's second definition—our (2)—serves to shift the burden of indicating ontological commitment from the word 'exists' to the existential quantifier. In Wittgenstein's definition, by contrast, no one item of vocabulary has the role of indicating ontological commitment. That commitment is indicated only by the meaningfulness of the Names in the fully analysed proposition—or, more precisely, by the fact that certain symbols are Names (cf. 5.535).[12] The somewhat paradoxical consequence is that one can assert a statement of the form '[*aRb*] exists' without thereby displaying any ontological commitment

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[12] As Marie McGinn has pointed out to me in correspondence, the present point is subject to the qualification that on Wittgenstein's conception *sentences* might also be thought to carry ontological commitments since, when assertively uttered, they commit the speaker to the existence of the corresponding state of affairs.

to the complex [*aRb*] (cf. EPB: 121). What this shows is that the two theories serve to relieve the assertor of ontological commitments of quite different kinds. In Russell's case, the analysis—our (2)—removes the appearance of a commitment to an apparent propositional constituent—a 'denoting concept'[13]—expressed by the phrase 'the *F*', but it does not remove the commitment to the *F* itself. For Wittgenstein, by contrast, the analysis shows that the assertor never was ontologically committed to such a thing as the complex *aRb* by an utterance of '[*aRb*] exists'. It is tempting to say, echoing Berkeley, that when we 'speak with the vulgar' complexes have being—we get along perfectly well treating them as ultimate parts of reality—but when we 'think with the learned'—by grasping sentences in their fully analysed form—they do not have being, for only objects do. But the temptation is better resisted, for the notion of 'being' appealed to here, since it attempts to straddle types, is ultimately unintelligible.

Enough has now been said to make possible a consideration of Wittgenstein's reasons for deeming linguistic atomism 'obvious'. Since the model for Tractarian analysis is the replacement of apparent names with (apparently) co-referring 'terms for complexes', together with eliminative paraphrase of the latter, it follows trivially that the endpoint of analysis, if such there be, will contain no 'terms for complexes'. Nor will it contain any expressions that can be replaced by terms for complexes.

Wittgenstein, moreover, thinks it obvious that the analysis of every proposition *does* terminate. The reason he supposes analysis cannot go on forever is that he conceives an unanalysed proposition as *deriving* its sense from its analysis. As *Tractatus* 3.261 puts it: 'Every defined sign signifies via those signs by which it is defined' (cf. NB: 46; PTLP: 3.20102). It follows that no proposition can have an infinite analysis, on pain of never acquiring a sense. So analysis must terminate in propositions devoid of incomplete symbols.

That much, at least, *is* plausibly obvious. But even allowing (as trivially true) that fully analysed propositions will contain no incomplete symbols (hence no 'terms for complexes' in Wittgenstein's technical sense), it remains possible—for all we have said so far—that they might contain semantically complex symbols. Think, for example, of Russell's denoting phrases on their *Principles of Mathematics* construal, or of Frege's definite descriptions. These are semantically complex symbols that have meaning in their own right. Wittgenstein supposes that fully analysed propositions will contain no such symbols, but it is not altogether clear what justifies that assumption. The merest hint of an answer is suggested by *Tractatus* 3.3, the proposition in which Wittgenstein enunciates his own version of Frege's context principle: 'Only the proposition has sense; only in the context of a proposition has a name meaning' (3.3). The juxtaposition of these two claims may possibly suggest that the context principle is invoked (at this point, ironically,

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[13] In the analysis of sentences containing 'the *F*' espoused by Russell immediately prior to his adoption of the theory of descriptions, the phrase 'the *F*' is taken to have meaning in isolation. The meaning of 'the *F*' is a propositional constituent distinct from the *F*, which bears the special relation of 'denoting' to the *F*. The phrase 'the *F*' is considered to both express and designate this 'denoting concept'. The theory of descriptions, because it treats 'the *F*' as having no meaning in isolation, enables one to recognize sentences in which 'the *F*' occurs as expressing propositions without being committed to such entities.

against Frege) as the ground for rejecting senses for sub-sentential expressions. But how precisely it would provide such a ground is far from clear. Another, more promising, explanation is that Wittgenstein simply acquiesced in Russell's arguments against sub-sentential senses in 'On Denoting' (and that he also followed Russell in supposing that only 'denoting phrases' were candidates for expressions with sense). But that can only be a conjecture.

3. Metaphysical Atomism

By 'Metaphysical atomism' we shall understand the view that referents of Names are simple. Whereas the *Tractatus* is committed to such a thesis by the claim that 'Objects are simple' (2.02), Russell maintains that some Objects are complex. To see this we need look no further than his characterization of sense-data in his article 'The Relation of Sense-data to Physics'. A sense-datum, he says, is '[not] the whole of what is given in sense at one time ... [but] such a part of the whole as might be singled out by attention' (ML: 109). So, since I can single out for attention the colour patch presented in my visual field by the leftmost red leaf on my Poinsettia, it counts as a sense-datum. But I can also single out the left most part of that colour patch; so it too counts as a sense-datum. It follows that some sense-data have parts, even parts that are themselves sense-data. But because 'this' and 'that' are Names for sense-data it follows, further, that some Objects are complex.

For Wittgenstein the simplicity of Tractarian objects is a consequence of their necessary existence, for he takes anything complex to be capable of destruction. Their necessary existence, for its part, is supposed to be established by the so-called 'Argument for Substance':

> 2.0211 If the world had no substance, then whether a proposition had sense would depend on whether another proposition was true.
>   2.0212 It would then be impossible to draw up a picture of the world (true or false).

It may not be immediately obvious that this is an argument for the necessary existence of objects. In order to appreciate that that is indeed so one needs to pick up on the Kantian resonances of Wittgenstein's invocation of the notion of 'substance'.

3.1 Objects as the substance of the world

The *Tractatus*'s notion of substance is the modal analogue of Kant's temporal notion. Whereas for Kant, substance is that which 'persists' (i.e. exists at all times), for Wittgenstein it is that which (figuratively speaking) 'persists' through a 'space' of

possible worlds. Less metaphorically, Tractarian substance is that which exists with respect to every possible world. Kant maintains (in the 'First Analogy') that there is some stuff—namely substance—such that every existence change (i.e. origination or annihilation)[14] is an alteration or reconfiguration of it. Wittgenstein, analogously, maintains that there are some things—namely, objects—such that every 'existence change' (not in time, but in the metaphorical passage from world to world) is a reconfiguration of them. What undergo these metaphorical 'existence changes' are atomic states of affairs (configurations of objects): a state of affairs exists with respect to one world but fails to exist with respect to another. What remain in existence through these existence changes—and are reconfigured in the process—are Tractarian objects. It follows that the objects that 'constitute the substance of the world' (2.021) are conceived of as necessary existents.

The *Tractatus* compresses this whole metaphorical analogy into one remark: 'The object is the fixed, the existing [*das Bestehende*]; the configuration is the changing [*das Wechselnde*].' (2.0271) ('*Wechsel*,' it should be noted, is the word that Kant expressly reserves for the notion of existence change as opposed to alteration.[15]) Nonetheless, although the analogy is compelling, it is just an analogy: it would be wrong to infer any commitment to Kantian substance from the *Tractatus*'s commitment to 'the substance of the world'. After all, something that exists at some time in every possible world might fail to 'persist' (i.e. exist at every time) in the actual world.

Tractarian objects are what any imagined world has in common with the real world (2.022). Accordingly, they constitute the world's 'fixed form' (2.022–3). The character of any possible world is constrained by the objects because all possible atomic states of affairs are configurations of them. (On Wittgenstein's conception of possibility, the notion of an 'alien' Tractarian object—one which is merely possible—is not even intelligible: whatever is possible is possibly *so*.) Whereas the objects constitute the world's form, the various existing atomic states of affairs constitute its 'content'. So the form–content distinction applies to the world. But it also applies in a different sense to atomic states of affairs. Their content consists of the objects of which they are configurations, while their form is the way in which their constituent objects are configured. It follows that substance—the totality of objects—is both the form of the

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[14] For example a fist is being annihilated when a hand is opened and coming into being when it is clenched.

[15] See *Critique*, A 187/B230. Wittgenstein may not have read the *Critique* in time for it to have influenced his presentation of this argument, but there is good reason to think that he would have read the *Prolegomena to any Future Metaphysics*—a work in which '*Wechsel*' is similarly expressly reserved for the notion of existence change (see e.g. 'in all that exists the substance persists and only the accidents change [*wechseln*]', Ak 4.368). The main reason to suppose Wittgenstein read the *Prolegomena* is that in his only explicit reference to Kant in the *Tractatus* Wittgenstein mentions a problem discussed in the *Prolegomena* but absent from the first *Critique*, namely the problem of incongruent counterparts. He presents this problem in terms that closely follow Kant's discussion in *Prolegomena* §13 and which differ in major ways from his discussions of incongruent counterparts in other works. (For details see Proops 2004: fn.13.)

world and the content of atomic states of affairs. The fact that the form–content distinction applies in one way to the world and in another to atomic states of affairs fully explains Wittgenstein's otherwise baffling remark that 'Substance is both form and content' (2.024–5). (Further details of this interpretation of substance are provided in Proops 2004.)

3.2 The argument for substance

As we have seen, the immediate goal of the *Tractatus*'s argument for substance is to establish that there are things that exist necessarily. In the context of the Tractarian assumption that anything complex could fail to exist through decomposition, it entails that there are simples (2.021). Although the argument is presented as a two-stage *modus tollens*, it is conveniently reconstructed as a *reductio ad absurdum* (the following discussion of the argument is a compressed version of that provided in Proops 2004):

Suppose, for *reductio*, that:

(1) There is no substance (that is, nothing exists in every possible world).

Then:

(2) Everything exists contingently.

But then:

(3) Whether a proposition has sense depends on whether another proposition is true.

So:

(4) We cannot draw up pictures of the world (true or false)

But:

(5) We *can* draw up such pictures.

Contradiction
So:

(6) There is substance (that is, some things exist in every possible world).

Our (5) is the main suppressed premise. It means, simply, that we can frame senseful propositions. The inference from (2) to (3) may be defended on the following grounds. Given that Wittgenstein equates having truth-poles with having sense in the *Notes on Logic* (NB: 99), it is reasonable to suppose that for a proposition to 'have sense' with respect to a particular world is for a sentence to have a truth value with respect to that world. Now suppose that everything exists contingently. Then, in particular, the referents of the semantically simple symbols in a fully analysed sentence will exist

contingently. Suppose, as a background assumption, that there are no contingent simples. (It will be argued below that this assumption plausibly follows from certain Tractarian commitments.) Then the aforementioned referents will be complex. But then any such sentence will contain a semantically simple symbol that fails to refer with respect to some possible world—the world, namely, at which the relevant complex fails to exist. If we assume that a sentence containing a non-referring semantically simple term is neither true nor false—and we do—then any such sentence will depend for its truth valuedness on the truth of some other sentence, viz., the sentence stating that the constituents of the relevant complex are configured in a manner necessary and sufficient for its existence. It follows that if everything exists contingently, then every sentence will depend for its 'sense' (i.e. its truth valuedness) on the truth of some other sentence.

The step from (3) to (4) runs as follows. Suppose that whether any sentence 'has sense' (i.e., on our reading, has a truth value) depends (in the way just explained) on whether another is true. Then every sentence will have an 'indeterminate sense' in the sense that it will lack a truth value with respect to at least one possible world. But an indeterminate sense is no sense at all, for a proposition, by its very nature, 'reaches through the whole logical space' (3.42) (i.e. it is truth valued with respect to every possible world).[16] So if every sentence depended for its 'sense' (i.e., truth valuedness) on the truth of another, no sentence would have a determinate sense, and so no sentence would have a sense. In which case we would be unable to frame senseful propositions (i.e. to 'draw up pictures of the world true or false').

One apparent difficulty for this reconstruction arises from its appearing to contradict *Tractatus* 3.24, which suggests that if the complex entity *A* were not to exist, the proposition '*F*[*A*]' would be false, rather than, as the argument requires, without truth value. The difficulty seems to arise because under the *reductio* assumption we are assuming that it is metaphysically possible for a semantically simple name to fail to refer. That suggests that such a failure is something we might discover to obtain. But Wittgenstein seems to be suggesting at 3.24 that it is not discoverable that a simple name should fail to refer: were we to discover that 'A' did not refer, we would thereby discover that 'A' was not after all semantically simple.

But the difficulty is only apparent. It only goes to show that 3.24 belongs to a theory that assumes the world *does* have substance. On that assumption Wittgenstein can say that whenever an apparent name occurs that appears to mention a complex this is only because it is not, after all, a genuine name—and this is what he does say. But on the assumption that the world has no substance, so that *everything* is complex, Wittgenstein can no longer say this. For now he must allow that even the semantically simple symbols occurring in a proposition's final analysis refer to

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[16] The claim that having an 'indeterminate sense' is to be understood as failing to be truth valued with respect to some possible world and the claim that Wittgenstein holds it to be essential to a proposition to have a determinate sense are defended in some detail in Proops (2004, § 5).

complexes. So in the context of the assumption that every proposition has a final analysis, the *reductio* assumption of the argument for substance entails the falsity of 3.24. But since 3.24 is assumed to be false only in the context of a *reductio*, it is something that Wittgenstein can consistently endorse. (This solution to the apparent difficulty for the present reconstruction is owed in its essentials to David Pears (Pears 1989 [1987]: 78).)

To complete the argument it only remains to show that Tractarian commitments extrinsic to the argument for substance rule out contingent simples. Suppose *a* is a contingent simple. Then '*a* exists' must be a contingent proposition. But it cannot be an elementary proposition because it will be entailed by any elementary proposition containing '*a*', and elementary propositions are logically independent (4.211). So '*a* exists' must be non-elementary, and so further analysable. And yet there would seem to be no satisfactory analysis of this proposition on the assumption that '*a*' names a contingent simple—no analysis, that is to say, that is both intrinsically plausible and compatible with Tractarian principles. Wittgenstein cannot analyse '*a* exists' as the proposition '$(\exists x)\ x = a$' for two reasons. First, he would reject this analysis on the grounds that it makes an ineliminable use of the identity sign (5.534). Secondly, given his analysis of existential quantifications as disjunctions, the proposition '$(\exists x)$ $x = a$' would be further analysed as the *non-contingent* proposition '$a = a \lor a = b \lor a = c \ldots$'. Nor can he analyse '*a* exists' as '$\sim [\ \sim Fa\ \&\ \sim Ga\ \&\ \sim Ha \ldots\ ]$'—that is, as the negation of the conjunction of the negations of every elementary proposition involving '*a*.' To suppose that he could is to suppose that the proposition '$\sim Fa\ \&\ \sim Ga\ \&\ \sim Ha\ldots$' means '*a* does not exist', and yet by the lights of the *Tractatus* this proposition would *show* *a*'s existence—or, more correctly, it would show something that one tries to put into words by saying '*a* exists' (cf. 5.535; CL: 126)). So, pending an unforeseen satisfactory analysis of '*a* exists', this proposition will have to be analysed as a complex of propositions not involving *a*. In other words, '*a*' will have to be treated as an incomplete symbol and the fact of *a*'s existence will have to be taken to consist in the fact that objects other than *a* stand configured thus and so. But this would seem to entail that *a* is not simple.

The argument for substance may be criticized on several grounds. First, the step leading from (2) to (3) relies on the assumption that a name fails to refer with respect to a possible world at which its actual-world referent does not exist. This amounts to the controversial assumption that names do not function as what Nathan Salmon has called 'obstinately rigid designators' (Salmon 1981: 34). Secondly, the step leading from (3) to (4) relies on the assumption that a sentence that is neither true nor false with respect to some possible world fails to express a sense. As Wittgenstein was later to realize, the case of intuitively senseful, yet vague sentences constitutes a counterexample (cf. *PI*: § 99). Lastly, one may question the assumption that it makes sense to speak of a 'final analysis', given that the procedure for analysing a sentence of ordinary language has not been made clear (see PI: §§ 60, 63–4, and 91). (For further discussion of this last point, see the remarks at the close of section 5 below.)

4. THE EPISTEMOLOGY OF LOGICAL ATOMISM

We know that a proposition has been completely analysed when its only genuine con-stituents are Names, but how do we recognize a Name when we see one? It may seem obvious how Russell should answer this question: we will know a word is a Name if we recognize that understanding it requires acquaintance with the Object for which it stands rather than knowledge of a descriptive condition uniquely satisfied by that Object. That answer is correct, as far as it goes, but such recognition may not be easy to come by. Take the case of the first person singular personal pronoun. As we noted ear-lier, in *The Problems of Philosophy* of 1912 Russell had been inclined to regard it as a Name, but he came to revise his opinion two years later. He defended this change of position with a simple argument:

> Even if by great exertion some rare person could catch a glimpse of himself, this would not suffice; for 'I' is a term which we all know how to use, and which must therefore have some easily accessible meaning. It follows that the word 'I', as commonly employed, must stand for a description; it cannot be a true proper name in the logical sense, since true proper names can only be conferred on objects with which we are acquainted. ('On the Nature of Acquaintance', Marsh 1956: 164)

Russell goes on to suggest that 'I' has the meaning of the description 'the subject of the present experience' (Marsh 1956: 165). It seems, then, that it may not be obvious whether or not a given word is a Name—and, indeed, Russell's position in *The Problems of Philosophy* had only been that 'I' *probably* had this status.

One possible response to these observations might be to say that all the present exam-ple shows is that in 1912 Russell had just misapplied his criterion for Namehood. He should have known better than to suppose he was acquainted with himself, and so he should have known that 'I' was not a name, but only a description. Because such a response carries some weight, it is worth mentioning that the present point remains valid even if one sets aside the particular example of 'I'. For even if I know that a word, *N*, in some suitably broad sense 'stands for' *X*, I may still be in doubt as to whether *X* is an object of immediate acquaintance (and so I may not know whether *N* strictly speaking *Names X*). After all, it took Russell some (dubious) philosophical argumentation to establish to his own satisfaction that tables are not immediate objects of acquaintance (POP: 2–3); so it cannot have been obvious to him from the start that tables cannot be Named.

Whereas it is difficult to know that a certain expression is a Name, it is easier to know that one is *not* a Name. Since I can know that I am not acquainted with the centre of mass of the solar system (since it is a point too small and too remote to see), I can know that no item in my idiolect is a Name for that point. Relatedly, while I may have good reason to think that something is complex, it is far harder to know that it is simple. This last point is one Russell was himself later to concede:

> I believed, originally with Leibniz, that everything complex is composed of simples, and that it is important in considering analysis to regard simples as our goal. I have come to think, however, that, although many things can be known to be complex, nothing can be *known* to be simple, and, moreover, that statements in which complexes are named can be completely accurate, in spite of the fact that the complexes are not recognized as complex…It follows that the whole question whether there are simples to be reached by analysis is unnecessary. (Russell 1959: 123)

This point, Russell supposes, has a bearing on the question of proper names:

> I thought, originally, that, if we were omniscient, we should have a proper name for each simple, but no proper names for complexes, since these could be defined by mentioning their simple constituents and their structure. This view I now reject. (ibid.: 124).

Turning to Wittgenstein, we find that he has little to say in the *Tractatus* on the topic of how we know that an expression is a Name, and yet it is clear from his retrospective remarks that while composing the *Tractatus* he did think it possible *in principle* to discover the Tractarian objects (see AWL: 11; EPB: 121). So it seems worth asking by what means he thought such a discovery could be made.

At times it can seem as though Wittgenstein just expected to find the simples by reflecting from the armchair on those items that struck him as most plausibly lacking in proper parts. This impression is most strongly suggested by what he says in the *Notebooks*, and, in particular, by a passage from June 1915 in which Wittgenstein expresses confidence that certain objects already within his ken count as Tractarian objects, and that others might well turn out to do so. He says: 'It seems to me perfectly possible that patches in our visual field are simple objects, in that we do not perceive any single point of a patch separately; the visual appearances of stars even seem certainly to be so.' (NB: 64) By 'patches in our visual field' in this context Wittgenstein means parts of the visual field with no noticeable parts. In other words, *points* in visual space (cf. WL: 120). Clearly, then, Wittgenstein at one stage believed he could specify some Tractarian objects. However, the balance of the evidence suggests that this idea was short-lived. For one thing, as Anthony Kenny observes, points in the visual field are scarcely the *necessary* objects of the *Tractatus*.[17] For another, Wittgenstein was later to say that he and Russell had pushed the question of examples of simples to one side, as a matter to be settled on a future occasion (AWL: 11). And when Norman Malcolm pressed Wittgenstein to say whether when he wrote the *Tractatus* he had decided on anything as an example of a 'simple object', he had replied—according to Malcolm's report—that 'at the time his thought had been that he was a logician; and that it was not his business as a logician, to try to decide whether this thing or that was a simple thing or a complex thing, that being a purely empirical matter' (Malcolm 1989: 70).

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[17] Kenny 1973: 74.

Supposing Malcolm's report to be accurate, how are we to understand the claim that the question of simplicity is an 'empirical' question? Not, presumably, as the claim that the correct way to establish that something is a Tractarian object is to gather empirical evidence for the *impossibility* of its decomposition. That reading would only have a chance of being correct if Wittgenstein had taken metaphysical possibility to coincide with physical possibility, and that, evidently, is not the case.[18] His meaning seems more likely to be just that the objects must be discovered rather than postulated or otherwise specified in advance of investigation (cf. AWL: 11). But since Wittgenstein was later to accuse his Tractarian self of having entertained the concept of a distinctive kind of *philosophical* discovery (see WVC: 182, quoted below), we must not leap, as Malcolm may have done, to the conclusion that he conceived the discovery in question as 'empirical' in anything like the contemporary sense of the word.

We know that Wittgenstein had denied categorically that we could *specify* the possible forms of elementary propositions and the simples a priori (4.221, 5.553–5.5541, 5.5571), but he did not deny that these forms would be *revealed* as the result of logical analysis. This idea is not explicit in the *Tractatus*, but it is spelled out in a later self-critical remark, recorded by G. E. Moore in a still unpublished part of Wittgenstein's 1933 lectures at Cambridge:

> I say in [the] *Tractatus* that you can't say anything about [the] structure of atomic prop[osition]s: my idea being the wrong one, that logical analysis would reveal what it would reveal. (MA, 88, entry for 6 February 1933)

Speaking of Tractarian objects in another retrospective remark, this time from a German version of the *Brown Book*, Wittgenstein says: 'What these [fundamental constituents] of reality are it seemed difficult to say. I thought it was the job of further logical analysis to discover them' (EPB: 121). These remarks should be taken at face value: it is logical analysis—the analysis of propositions—that is supposed to facilitate the discovery of the forms of elementary propositions and of the objects. It is supposed to do so by revealing the Tractarian names. The hope is that when propositions have been put into their final, fully analysed forms by applying the 'calculus' spoken of in the *Philosophical Grammar* we will eventually come to know the objects. Presumably, we will know them by acquaintance in the act of grasping propositions in their final analysed forms. Perhaps we are not *yet* acquainted with any object, but neither, according to Wittgenstein, are we in possession of any proposition's final analysis.

Admittedly, Wittgenstein's denial that we can know the objects a priori looks strange given the fact that the analytical procedure described in § 2 above seems to presuppose

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[18] At 3.0321, for example, he says: 'We could present spatially an atomic fact which contradicted the laws of physics…' Although the immediate point of this remark is to draw a contrast with geometrical spatial presentations or pictures which cannot contradict the laws of geometry, it provides clear evidence that Wittgenstein held metaphysical possibility to outstrip physical possibility, for he holds that whatever we can picture—and presumably 'spatial presentations' count as pictures—is possible (cf. TLP 3 together with 3.02).

that we have a priori knowledge both of the correct analyses of ordinary names and of the contextual definitions by means of which terms for complexes are eliminated. This creates a problem concerning how Wittgenstein can be entitled to say that we are not presently acquainted with objects. For to understand a proposition we must understand its analysis, and to understand its final analysis we must understand the names that figure in it, and so be acquainted with the objects that are their meanings. But some tension in Wittgenstein's position on this point is just what we should expect given his later somewhat jaundiced view of his earlier reliance on the idea of philosophical discovery:

> I [used to believe that] the elementary propositions could be specified at a later date. Only in recent years have I broken away from that mistake. At the time I wrote in a manuscript of my book…, 'The answers to philosophical questions must never be surprising. In philosophy you cannot discover anything.' *I myself, however, had not clearly enough understood this and offended against it.* (WVC: 182, emphasis added)

The remark that Wittgenstein quotes here from 'a manuscript of the *Tractatus*' did not survive into the final version, but its sentiment is clearly echoed in the related remark that: 'there can never be surprises in logic' (6.1251). Wittgenstein is clear that despite his better judgement he had unwittingly proceeded in the *Tractatus* as though there could be such a thing as a *philosophical* surprise or discovery. The idea that the true objects would be discovered *through analysis*, but nonetheless not known a priori, is plausibly another illustration of this tendency.

On the conception of the *Tractatus*, the objects are to be discovered by grasping fully analysed propositions—presumably, *with* the awareness that they *are* fully analysed. But since that is so, we shall not have fully explained how we are supposed to be able to discover the objects unless we explain how, in practice, we can know we have arrived at the final analysis of a proposition. But on this point, unfortunately, Wittgenstein has little to say beyond the dark hint of *Tractatus* 3.24:

> That a propositional element signifies [*bezeichnet*] a complex can be seen from an indeterminateness in the propositions in which it occurs. We know that everything is not yet determined by this proposition. (The notation for generality contains a prototype). (3.24)

An indeterminateness in propositions—whatever it might amount to—is supposed to alert us to the need for further analysis. We therefore possess a positive test for analysability. It by no means follows, however, that the absence of indeterminacy can be used as a positive test for *un*analysability. At the very least, further arguments would need to be given before we could accept this claim. But even then there would be further problems, for it is quite unclear what Wittgenstein means by an 'indeterminateness' in a proposition. The indeterminateness presently at issue is plainly not the one considered earlier: what is in question now is the indeterminateness of propositions, not of senses. But what does that amount to?

According to one line of interpretation, due originally to W. D. Hart (Hart 1971), a proposition is indeterminate when there is more than one way it can be true. Thus if

I say 'G. W. Bush is in the United States,' I leave open where in particular he might be. The source of the indeterminacy is the implied generality of this statement, which is tantamount to: 'Bush is *somewhere* in the United States.' This line of interpretation has the merit that it promises to make sense of the closing parenthetical remark of 3.24. This kind of indeterminacy, however, cannot be what Wittgenstein has in mind at 3.24—viz., a mark by which we could tell that a proposition admits of further analysis—since any disjunction of elementary propositions would be indeterminate in just this sense.

According to a second line of interpretation, a proposition is indeterminate in the relevant sense if the result of embedding it in some context is structurally ambiguous. Consider, for example, the result of embedding '$F[A]$' in the context 'it is not true that ...', where 'A' is temporarily treated as a semantically simple term designating a complex. (Keep in place the assumption that a sentence containing a non-referring semantically simple term is neither true nor false.) In this case the question would arise whether the result of this embedding is neither true nor false evaluated with respect to a world in which A does not exist, or simply true. The first option corresponds to giving the apparent name wide scope with respect to the logical operator, the second to giving it narrow scope. Such a scope ambiguity could not exist if 'A' were a genuine Tractarian name, so its presence could reasonably be taken to signal the need for further analysis.

So far, so good, but where does the business about the generality notation 'containing a prototype' come in? Nothing in the present explanation has yet done justice to this remark. Nor does the present explanation really pinpoint what it is that signals the need for further analysis. That, at bottom, is the fact that we can imagine circumstances in which the supposed referent of 'A' fails to exist. So, again, there is reason to be dissatisfied with this gloss on indeterminacy.

It must be concluded that Wittgenstein never really supplied an adequate way of telling when a proposition would be fully analysed, and, consequently, that he failed to indicate a way of recognizing the Tractarian objects.

5. The Dismantling of Logical Atomism

Wittgenstein's turn away from logical atomism may be divided into two main phases. The first (1928–9), documented in his 1929 article 'Some Remarks on Logical Form' (PO, 29–35), exhibits a growing sense of dissatisfaction with certain central details of the *Tractatus*'s logical atomism, and notably with the thesis of the independence of elementary propositions. During this phase, however, Wittgenstein is still working within the broad conception of analysis presupposed in the *Tractatus*. The second phase (1931–2) involves a revolutionary break with this whole conception.

5.1 First phase: The colour-exclusion problem

The so-called 'colour-exclusion' problem is a difficulty that arises for the *Tractatus*'s view that it is metaphysically possible for each elementary proposition to be true or false regardless of the truth or falsity of the others (4.211). In view of its generality, the problem might more accurately be termed 'the problem of the manifest incompatibility of apparently unanalysable statements'. The problem may be stated as follows: Suppose that *a* is a point in the visual field. Consider the propositions *P*: '*a* is blue' and *Q*: '*a* is red' (supposing 'red' and 'blue' to refer to determinate shades). It is clear that *P* and *Q* cannot be true together; and yet, on the face of it, it seems that this incompatibility (or 'exclusion' in Wittgenstein's parlance) is not a *logical* impossibility. In the *Tractatus* Wittgenstein's response was to treat the problem as merely apparent. He supposed that in such cases further analysis would always succeed in revealing the incompatibility as logical in nature:

> For two colours, *e.g.*, to be at one place in the visual field is impossible, and indeed logically impossible, for it is excluded by the logical structure of colour.
>
>   Let us consider how this contradiction presents itself in physics. Somewhat as follows: That a particle cannot at the same time have two velocities, that is, that at the same time it cannot be in two places, that is, that particles in different places at the same time cannot be identical. (6.3751)

As Frank Ramsey observes in his review of the *Tractatus* (Ramsey 1923), the analysis described here actually fails to reveal a logical incompatibility between the two statements in question; for, even granting the correctness of the envisaged reduction of the phenomenology of colour perception to facts about the velocities of particles, the fact that one and the same particle cannot be (wholly) in two places at the same time still looks very much like a synthetic a priori truth. It turns out, however, that Wittgenstein was well aware of this point. He knew that he had not taken the analysis far enough to bring out a logical contradiction, but he was confident that he had taken a step in the right direction. In a *Notebooks* entry from August 1916 he remarks that: 'The fact that a particle cannot be in two places at the same time does look *more like* a logical impossibility [than the fact that a point cannot be red and green at the same time]. If we ask why, for example, then straight away comes the thought: Well, we should call particles that were in two places [at the same time] different, and this in its turn all seems to follow from the structure of space and particles.' (NB: 81; emphasis added) Here Wittgenstein is *conjecturing* that it will turn out to be a conceptual (hence, for him *logical*) truth about particles and space (and presumably also time) that particles in two distinct places (at the same time) are distinct. He does not yet possess the requisite analyses to demonstrate this conjecture, but he is optimistic that they will be found.

In 'Some Remarks on Logical Form' Wittgenstein finally arrives at the view that some incompatibilities cannot, after all, be reduced to logical impossibilities. His change of heart appears to have been occasioned by a consideration of incompatibilities involving the attribution of qualities that admit of gradation—e.g. the pitch of a tone, the bright-

ness of a shade of colour, etc. Consider, for example, the statements: 'A has exactly one degree of brightness' and 'A has exactly two degrees of brightness.' The challenge is to provide analyses of these statements that make manifest the logical character of the impossibility of their both being true. What Wittgenstein takes to be the most plausible suggestion—or a sympathetic reconstruction of it at least—adapts the standard definitions of the numerically definite quantifiers to the system described in the *Tractatus*. It makes essential use of the idea that the identity or distinctness of the sign does duty for the signs of identity and distinctness. Using 'Bx' to mean 'x is a degree of brightness', the two statements are analysed respectively as: '$(\exists x)$ (B(x) & A has x) & ~$(\exists x,y)$ (B(x) & B(y) & A has x and A has y)' and '$(\exists x,y)$ (B(x) & B(y) & A has x and A has y) & ~$(\exists x,y,z)$ (B(x) & B(y) & B(z) & A has x & A has y & A has z)'. But the suggestion fails. Wittgenstein diagnoses the problem as follows: the analysis—absurdly—makes it seem as though when something has a degree of brightness there could be a substantive question which of the two—x or y—it was—as though a degree of brightness were some kind of corpuscle whose association with a thing made it bright (cf. PO: 33).

Wittgenstein concludes that the independence of elementary propositions must be abandoned and that terms for real numbers must enter into atomic propositions, so that the impossibility of a thing's having both exactly one and exactly two degrees of brightness is treated as an irreducibly mathematical impossibility. This in turn contradicts the *Tractatus*'s idea that all necessity is logical necessity (6.37).

5.2   Second phase: Generality and analysis

Frege and (arguably) Russell maintain that the quantifiers have meaning in isolation. By contrast, the *Tractatus* treats them as incomplete symbols that are to be eliminated in accordance with the following schemata:

$$\forall x.\Phi x \leftrightarrow \Phi a \,\&\, \Phi b \,\&\, \Phi c \ldots$$
$$\exists x.\Phi x \leftrightarrow \Phi a \text{ v } \Phi b \text{ v } \Phi c \ldots$$

Universal (existential) quantification is treated as equivalent to a possibly infinite conjunction (disjunction) of propositions. Wittgenstein's dissatisfaction with this view is expressed most clearly in the still unpublished parts of G. E. Moore's notes of Wittgenstein's lectures from Michaelmas term 1932:[19]

> Now there is a temptation to which I yielded in [the] *Tractatus*, to say that
> (x). fx = logical product[20] (of all propositions of the form fx) fa . fb . fc....
> ($\exists x$).fx = [logical] sum, fa v fb v fc...
> This is wrong, but not as absurd as it looks. (MA: 34, entry for 25 November 1932)

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[19]   These remarks from the Moore Archive are further discussed in Proops 2001.

[20]   'Logical product (sum)' is Wittgenstein's terminology—borrowed from Russell—for a conjunction (disjunction).

Explaining why the *Tractatus*'s analysis of generality is not *palpably* absurd, Wittgenstein says:

> Suppose we say that: Everybody in this room has a hat = Udall has a hat, Richards has a hat etc. This obviously has to be false, because you have to add '& *a*, *b*, *c*, . . . are the only people in the room.' This I knew and said in [the] *Tractatus*. But now, suppose we talk of 'individuals' in R[ussell]'s sense, e.g. atoms or colours; and give them names, then there would be no prop[osition] analogous to 'And *a*, *b*, *c* are the only people in the room.' (MA: 35, entry for 25 November 1932)

Clearly, in the *Tractatus* Wittgenstein was not making the simple-minded mistake of forgetting that 'Every *F* is *G*' cannot be analysed as '*Ga* & *Gb* & *Gc* . . .' even when *a*, *b*, *c*, etc. are in fact the only *F*s. (Unfortunately, his claim that he registered this fact in the *Tractatus* is not borne out by the text.) His idea was rather that the *Tractatus*'s analysis of generality is offered only for the special case in which *a*, *b*, *c*, etc. are individuals in Russell's sense. Wittgenstein had supposed that in this case there is no proposition to express the supplementary clause that is needed in the other cases. Unfortunately, Wittgenstein does not explain why there should be no such proposition, but the answer seems likely to be the following: What we are assumed to be analysing is actually 'Everything is *G*.' In this case any allegedly necessary competing clause—for example, '*a*, *b*, *c*, etc. are the only *things*'— would be nonsense produced in the misfired attempt to put into words something that is *shown* by the fact that when analysis bottoms out it yields as names none but those that figure in the conjunction '*Ga* & *Gb* & *Gc* . . .' (cf. TLP 4.126, 4.1272).

What led Wittgenstein to abandon his analysis of generality was his belief that he had failed to think through the infinite case. He had proceeded as though the finite case could be used as a way of thinking about the infinite case, the details of which could be sorted out at a later date. By 1932 he had come to regard this attitude as mistaken:

> There is a most important mistake in [the] Tract[atus] . . . . I pretended that [a] proposition was a logical product; but it isn't, because '. . .' don't give you a logical product. It is [the] fallacy of thinking
>
> 1 + 1 + 1 is a sum
>
> It is muddling up a sum with the limit of a sum
>
> (MA: 37, entry for 25 November 1932)

Wittgenstein came to see his earlier hopeful attitude as, in effect, resting on the mistake of confusing 'dots of infinitude' with 'dots of laziness'. But beyond this: 'There was a deeper mistake—confusing logical analysis with chemical analysis. I thought "(∃*x*).*fx*" *is* a definite logical sum, only I can't at the moment tell you which.' (MA: 19, 25 November 1932; cf. PG: 210). Wittgenstein had supposed that there was a fact of the matter—unknown, but in principle knowable—about which logical sum '(∃*x*).*fx*' is equivalent to. This is but an instance of what Wittgenstein came to see as a more general flaw in his method of proceeding. He had thought that *one* could enumerate the simple objects, although *he* could not do it (MA: 92, entry for 10 February 1933); that analysis would bottom out in truth-functions of elementary propositions, though he could not discover those propositions at the moment (WVC: 182); and that the final analysis would one day display the composition

(or 'forms') of elementary propositions (ibid.). He came to regard each of these assumptions as unjustified, and indeed, as symptomatic of an unacceptable 'dogmatism' (WVC: 182). Most sweepingly of all, he came to believe that the very notion of a 'final analysis' of a proposition simply made no sense (MA: 90, entry for 6 February 1933).

We can discern the seeds of Wittgenstein's dissatisfaction with the notion of a 'final analysis' in certain unsatisfactory aspects of Russell's conception of analysis. First, there is the familiar point that there may not be a unique description associated with each ordinary name. Second, even if this were not a problem, in the context of the view, shared by Russell and Wittgenstein, that ordinary names do not have senses, it is unclear what property a description would need to have to qualify as the description associated with a given ordinary name. Russell cannot, for example, say that the description should express the same sense as the ordinary name, since for him neither the ordinary name nor the description has a sense (for that would entail their having meaning in isolation). Russell tries to get around this problem by saying that ordinary names are 'abbreviations' for descriptions (PLA: 200), but that is hardly satisfactory. An abbreviation, after all, is made up of parts of the expression it abbreviates. So whereas 'Homer' might be truly said to abbreviate 'the author of the Homeric poems' (cf. PM: 174–5), 'Scott' can scarcely be thought to abbreviate 'the author of *Waverley*'. Lastly, there is a more general problem with saying what exactly is supposed to be preserved in analysis.

Russell's conception of analysis at the time of the theory of descriptions—*ca*. 1905—is relatively clear: It involves pairing up one sentence with another that expresses, more perspicuously, the very same Russellian proposition. The analysans counts as more perspicuous than the analysandum because the former is free of some of the latter's apparent ontological commitments. By the time of *Principia Mathematica*, however, this relatively transparent conception of analysis is no longer available. Having purged his ontology of propositions in 1910, Russell can no longer appeal to the idea that analysans and analysandum express one and the same proposition. He now adopts 'the multiple relation theory of judgement', according to which the judgement (say) that Othello loves Desdemona instead of being, as Russell had formerly supposed, a dyadic relation between the judging mind and the proposition *Othello loves Desdemona*, is now viewed as a non-dyadic—or, in Russell's terminology, 'multiple'—relation whose terms are the judging mind and those items that were formerly regarded as constituents of the proposition *Othello loves Desdemona* (Russell 1994 [1910]: 155). After 1910 Russell can say that a speaker who sincerely assertively uttered the analysans (in a given context) would be guaranteed to make the same judgement as one who sincerely assertively uttered the analysandum (in the same context), but he can no longer explain this accomplishment by saying that the two sentences express one and the same proposition.

A further departure from the earlier, relatively transparent conception of analysis is occasioned by Russell's resolution of the set-theoretic version of his paradox. The solution involves giving an analysis of a sentence whose utterance could not be taken to express *any* judgement. One argues that the sentence '{$x: \varphi x$} ε {$x: \varphi x$}' is nonsense because the contextual definitions for eliminating class terms yield for this case a sentence that is itself nonsense by the lights of the theory of types (PM: 76). In *Principia*, then, there is no very clear model of what is preserved in analysis. The best we can say is

that Russell's contextual definitions have the feature that a (sincere, assertive) utterance of the analysans is guaranteed to express the same judgement as the analysandum, *if* the latter expresses a judgement at all.

Some of the unclarity in the conception of analysis introduced by Russell's rejection of propositions is inherited by Wittgenstein, who similarly rejects any ontology of shadowy entities expressed by sentences. In the *Tractatus* a 'proposition' (*Satz*) is a 'propositional sign in its projective relation to the world' (3.12). This makes it seem as though any difference between propositional signs should suffice for a difference between propositions, in which case analysans and analysandum can at best be distinct propositions with the same truth conditions.

For a variety of reasons, then, one cannot suppose that logical atomism is underlain by any precise or satisfactory conception of analysis. That failing, I would suggest, is precisely what Wittgenstein eventually came to regard as its deepest flaw.[21]

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