Week 7

State of the Art Essay

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Universals and Properties

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1 Terminological Preliminaries

In traditional philosophical discussions, the following sorts of entities have been treated as paradigmatic universals: qualities, quantities, kinds, properties, relations, concepts, ideas. There is also a more restricted use of 'universal' which applies only to a small sub-family of these entities, namely, those which play a certain fundamental role in the constitution of reality – qualities, quantities, and natural kinds. According to this use, 'universal' does not apply to 'non-basic' properties (e.g. to what Locke would call mixed modes such as the property of being a parricide) or to concepts or ideas (e.g. the idea of a maximally perfect being). Though having sound historical credentials, this restricted use renders unintelligible many important traditional discussions. This is especially so in connection with logic and philosophy of language, where universals have been thought by many philosophers to be the sort of entities which are expressed by arbitrary linguistic predicates and whose primary purpose is to serve as the predicate entities of propositions.

In the tradition there is also a use of 'universal' which is restricted to entities that are 'repeatable' (i.e. can be present in, or shared by, a plurality of things) or to entities that underlie resemblances. But there is a broader use as well: in the tradition, there is an important family of universals that could have at most one instance (being an absolutely perfect being, being even and prime, etc.) and which cannot be associated with resemblances.

Much as some philosophers restrict the use of 'universal' to 'basic' or 'natural' universals, some restrict the use of 'property' to 'physical magnitudes' (Putnam 1972) or to 'natural' properties having causal powers (Shoemaker 1980).[1] Such restrictions do not reflect ordinary usage: in ordinary language, gerundive phrases of the form ⌜the property of being A⌝ refer to properties no more nor less than any other property term, and this is so even if ⌜A⌝ is complex and the associated property is 'non-basic' (e.g. the property of being green if examined before t and blue otherwise). In this paper, I will adopt the broader uses of 'universal' and 'property'. The more restricted question of qualities and natural properties will be considered near the close.

2 Epistemological Considerations

Many realist defences of universals are unconvincing to sophisticated nominalists; such realists are talking past their nominalist opponents. For example, many recent advocates of universals defend their view by noting that, when taken at face value, our common opinions seem committed to the existence of universals.[2] This style of defence should not convince nominalists with sophisticated doubts, for such nominalists may question whether common opinion is justified. After all, common opinion can be egregiously mistaken. To meet these doubts one has no choice but to put one's belief in universals on a more secure evidential basis. One might try to do this purely *a posteriori* – for example, by showing that universals are indispensable to the simplest theory based on the empirical evidence (phenomenal experiences and/or observations). But the writings of W. V. O. Quine should prevent us from slipping into dogmatic slumber on this point. A *purely* empirical justification of universals is doomed: when one brings to bear all the ingenious Quinean techniques of regimentation, the simplest theory based solely on empirical evidence will be a fully extensional theory having ontological commitment to nothing beyond actual particulars and perhaps sets formed ultimately from actual particulars. Bearing in mind that this sort of *purely* empirical theory is not constrained by common opinion or intuition, we are compelled to agree.[3]

Fortunately, intuition is a source of evidence as well. The use of intuitions is ubiquitous in logic, mathematics and philosophy (e.g. the use of Gettier intuitions to show that justified true belief is not knowledge). Given this, radical empiricists who hold that all evidence is empirical end up in an epistemically self-defeating situation. Here in broad outline is one such self-defeat argument.[4] Simply to proscribe intuitions as evidence would be an arbitrary departure from our epistemic norms. Doing so would therefore generate a reasonable doubt that one would be justified in accepting the theories formulated on the basis of the proposed circumscribed body of evidence. Appealing to those very theories to overcome this reasonable doubt would be question-begging. Alternatively, appealing to theories which admit other sources of evidence (e.g. intuition) would not count as justified according to the empiricist principle that only observation and/or phenomenal experience is evidence. Either way, then, radical empiricists would have no way of overcoming the reasonable doubt.

Once intuitions are acknowledged as having evidential weight, there is hope of showing that universals exist and settling their modal status. Some philosophers take a direct approach. For example, from the intuition that humility is a virtue (Armstrong 1978), or the intuition that some things have a property in common (Lewis 1983), these philosophers infer directly that universals exist. But sophisticated nominalists are unimpressed, for this direct approach disregards coherent non-realist interpretations of the language used to report these intuitions. For example, mathematical sentences with apparent commitment to abstract entities have been interpreted as disguised intensional-operator or adverbial sentences having no such commitment. So-called modal interpretations of mathematics fall into this family (see Field, chapter 27, this volume). Fictionalism inspires another kind of non-realist approach. On this approach, an atomic sentence (e.g. 'Apollo is a Greek god') can be taken as true even though singular terms occurring within it are genuinely vacuous and have no ontological commitment. What makes the sentence true is that it is suitably 'backed by' the beliefs or discourses of the speakers. Then, of course, there are non-objectual treatments of quantifiers, notably, various substitutional treatments (pronominal, proverbal, prosentential). If any such variety of non-realist interpretation is acceptable, then intuitions reported *within* the associated idioms would lose their apparent ontological commitment to universals.

The prospect of such non-realist interpretations have rendered the direct intuitive arguments for mathematical objects unpersuasive. If this is so in philosophy of mathematics, surely analogous non-realist moves could be made in metaphysics against universals. In view of this, I believe that the most promising way to establish the existence and modal status of universals is by means of a *modal argument* which focuses on the behaviour of intensional abstracts – 'that'-clauses and gerunds – in modal contexts.[5] (For now I will assume that Meinongianism is mistaken; I will return to that topic in the final section.)

3 The Existence and Modal Status of Universals

The argument begins with four premises about logical form.

1 The intuitive validity of arguments such as the following support the premise that 'is true', 'is possible', 'is necessary', 'is impossible', 'is logically true', 'is probable', etc. are one-place predicates:[6]

Whatever is necessary is true.	$(\forall x)(Nx \rightarrow Tx)$
Whatever is true is possible.	$(\forall x)(Tx \rightarrow Px)$
∴ Whatever is necessary is possible.	$\therefore (\forall x)(Nx \rightarrow Px)$.

(At this stage, it is not supposed that the quantifiers here are objectual.)

2 Given premise 1, 'that'-clauses must be singular terms;[7] otherwise, intuitively valid arguments such as the following would be fallacies of equivocation:

Whatever is true is possible.	$(\forall x)(Tx \rightarrow Px)$
It is true that A.	$T[A]$
∴ It is possible that A.	$\therefore P[A]$.[8]

3 Analogous considerations lead to the premise that 'that'-clauses may contain externally quantifiable variables.

4 Extrapolating on the foregoing, we arrive at the further premise that gerundive phrases ⌜being such that A⌝ are also singular terms which may contain externally quantifiable variables.

Our next premise is that sentences of the form ⌜It is F that A⌝ have referential truth conditions: ⌜It is F that A⌝ is true iff there is something[9] which the 'that'-clause ⌜that A⌝ designates and to which the predicate ⌜F⌝ applies. The argument for this premise is that the non-referential alternatives fail.

Consider, for example, approaches which attempt to give truth conditions for operator sentences of the form ⌜F-ly, A⌝ and then use them as the truth conditions for sentences of the form ⌜It is F that A⌝ (hereafter ⌜F[A]⌝). First, these approaches cannot be made *systematic*: non-referentialists have no clue about how to state *in general* the conditions under which sentences of the form ⌜F-ly, A⌝ would be true for an arbitrary ⌜F⌝ in an arbitrary language.[10] Moreover, this approach breaks the logical connections that ⌜F[A]⌝ has to other kinds of sentences involving the predicate ⌜F⌝. For example, it is silent about sentences of the form ⌜Ft⌝, where ⌜t⌝ is a name, definite description, or variable rather than a 'that'-clause.[11] On this approach, therefore, there would be no way to explain why arguments like the following are logically valid:

Leibniz's Law is necessary.	Ft
Leibniz's Law is that identical things have the same properties.	t = [A]
∴ It is necessary that identical things have the same properties.	∴ F[A]

The logical connection between the premises and the conclusion is a complete mystery on the sentential-operator approach.

The second non-referential approach is a form of fictionalism mentioned earlier. According to it, sentences of the form ⌜F[A]⌝ are likened to ordinary vacuous-name sentences such as 'Apollo is a Greek god': in both cases the singular terms are deemed not to refer to anything at all. The sentence 'Apollo is a Greek god' is true because it is suitably 'backed by' relevant beliefs or discourses on the part of the ancient Greeks. On analogy, perhaps ⌜F[A]⌝ is true because it is 'backed by' some relevant body of beliefs (or discourses). There are several problems with this proposal. First, what prevents the fictionalist strategy from being used against entities which even nominalists would refuse to abandon (stars, germs, etc.)? Second, we standardly use 'that'-clause constructions to talk about beliefs, so these constructions would, on pain of a vicious regress, require a referential account. Third, there are not 'enough' beliefs to 'back' every true sentence of the form ⌜F[A]⌝. Consider, for example, the epistemically crucial family of contingent sentences: ⌜It is causally necessary that A⌝, ⌜It is probable that A⌝, ⌜That A is explained by the fact that B⌝, ⌜It is observed that A⌝, and so forth. Here it seems plain that the world, above and beyond our mere beliefs (or discourses), is needed in order to separate these sentences into true and false.[12] Of course, it would do no good to 'modalize' the fictionalist proposal, for the result would be expressed with 'that'-clause sentences of the form ⌜Possible [A]⌝.

So what type of entities are designated by 'that'- clauses?[13] For terminological convenience, let us call entities of this general type *propositions*. This is not question-begging, for it does not prejudge the question of what these entities really *are*. Are they *sui generis* and irreducible; or are they linguistic entities, psychological entities, extensional complexes (e.g. ordered sets or sequences), possible-worlds constructs, etc.? Nor does it prejudge the question of the modal status of propositions. Are they *in rebus* or *ante rem*? (I will come to *post rem* views in a moment.)

Advocates of the *in rebus* view hold the following two tenets: first, for all x, necessarily, the proposition that . . . x . . exists only if x itself exists; second, necessarily, for all y, the proposition that . . . y . . . is actual only if y is itself actual. Advocates of the *ante rem* theory of propositions deny both. In contemporary philosophy, the most familiar example of an *in rebus* theory identifies propositions with extensional complexes – ordered sets or sequences. (For an example see note 17.) I will now defend the *ante rem* view.

I begin with a preliminary logical point. Given that ⌜F[A]⌝ has referential truth conditions, wholly general semantical considerations entail that the following is always true:

$$F[A] \rightarrow (\exists z)(z = [A]\ \&\ Fz).^{14}$$

According to the standard conception of logical truth, a sentence is logically true if its truth is guaranteed by wholly general semantical considerations concerning canonical truth conditions. So given this standard conception, it follows that ⌜$F[A] \rightarrow (\exists z)(z = [A]\ \&\ Fz)$⌝ is a truth of logic. Suppose now that we modalize both sides of this conditional. For the left-hand side we have: $\Box$ F[A]. For the right-hand side there are two candidates:

(a) $\Box\ (\exists z)(z = [A]\ \&\ Fz)$.
(b) $(\exists z)(z = [A]\ \&\ \Box\ Fz)$.

These two candidates correspond to two ways of taking the scope of the singular term ⌜[A]⌝: (a) narrow scope and (b) wide scope.[15] Given that ⌜$F[A] \rightarrow (\exists z)(z = [A]\ \&\ Fz)$⌝ is logically true, we may be assured that, if ⌜$\Box$ F[A]⌝ is true, then (a) or (b) or both must be true. This generalizes to more complex cases: when a 'that'-clause occurs in a modal context, it has either a narrow-scope reading or a wide-scope reading (or both); accordingly, it may be existentially generalized with, respectively, either a narrow-scope quantifier or a wide-scope quantifier.

With this preliminary in place, the defense of the *ante rem* view now proceeds by exclusion, eliminating first the *in rebus* view with a two-pronged reductio. The focus is on a family of intuitively true sentences which I call *transmodal* sentences. Here is an illustration:

> Every x is such that, necessarily, for every y, the proposition that x = y is either possible or impossible.[16]

We may symbolize this sentence thus:

(i) $(\forall x) \Box (\forall y)(\text{Possible } [x = y] \vee \text{Impossible } [x = y])$.

We know that the embedded 'that'-clause has either narrow scope or wide scope (or both). Suppose it has narrow scope. Then (i) would imply:

(ii) $(\forall x) \Box (\forall y)(\exists z)z = [x = y]$.[17]

That is, every x is such that, necessarily, for every y, the proposition that x = y exists. Therefore, given the first tenet of the *in rebus* view, this implies:

$(\forall x) \Box (\exists v)v = x$.

That is, everything is such that, necessarily, it exists. A false conclusion, for surely there exist contingent objects.

On the other hand, consider the wide-scope reading of (i). On it, (i) entails that every x is such that, necessarily, for all y, there exists an *actual* proposition that x = y.[18] In symbols,

(iii) $(\forall x) \Box (\forall y)(\exists_{\text{actual}} z)z = [x = y]$.[19]

But, given the second tenet of the *in rebus* view, this implies:

$\Box (\forall y)y$ is actual.

That is, necessarily, everything (including everything that might have existed) is among the things that actually exist. Again, a false conclusion: clearly it is possible that there should have existed something which is not among the things that actually exist.[20] So, on both of its readings, the intuitively true sentence (i) entails falsehoods if the *in rebus* view is correct. So the *in rebus* view is incorrect. (In the following section we will rebut a possible-worlds response to this argument.)

Clearly, much the same sort of transmodal argument carries over *mutatis mutandis* to *post rem* theories of propositions, according to which propositions are some sort of mind-dependent psychological entity. This leaves the *ante rem* theory.

But what *are* propositions? There are two positions – reductionism and the view that they are *sui generis* irreducible entities. Most reductionist theories of propositions are either *in rebus* or *post rem* theories. For example, according to nominalist reductions, the entities designated by 'that'-clauses are identified with linguistic entities (e.g. sentences in a natural language or a 'language-of-thought') or with ordered sets formed from contingent particulars – either concrete particulars (e.g. you and me) and/or abstract particulars (e.g. tropes). And according to conceptualist reductions, the entities designated by 'that'-clauses are identified with mental entities (mind-dependent conceptual entities). Since each of these reductions is *in rebus* or *post rem*, the transmodal argument shows that they fail.[21]

The difficulties evident in all the failed alternatives fall into a distinct pattern having to do with the fact that they treat propositions ('that'-clause entities) *extensionally*, as entities that are somehow 'composed of' other entities. Of course, the underlying error is to think that things are literally *in* propositions. As Frege says (in 'The Thought'): 'We really talk figuratively when we transfer the relation of whole and part to thoughts.' The way to avoid this problem is to treat propositions as irreducibly *intensional*. The deeper philosophical point is that entities which are irreducibly intensional in this way are uniquely equipped to be the vehicles of 'transmodal' content which can exist independently of whether any relevant contingent particulars exist.

If we are forced to admit that 'that'-clauses designate irreducibly intensional entities, uniformity supports the thesis that our other category of intensional singular terms – namely, gerundive phrases ⌜being F⌝ – likewise designate irreducibly intensional entities.[22] These intensional entities are universals – the property of being an x such that Fx, the relation of being an x and y such that Rxy. We are thus led to the view that universals are irreducible *ante rem* intensional entities.[23]

4 The Possible Worlds Approach to Propositions and Properties

I believe that the transmodal argument is decisive if one accepts actualism (as most people do). I once believed, however, that the argument would not work in the context of the possible worlds theory. I now believe that the argument is successful even in that context, as I will now explain.

Believers in possible worlds might try to block the argument by making use of their alleged distinction between 'world-relativized' quantifiers and 'non-world-relativized' quantifiers.[24] In particular, they might hold that, although in our reductio we rightly inferred

$(\forall x) \Box (\exists v)v = x$,

we were wrong to report this conclusion as saying the following intuitively false thing:

Everything is such that, necessarily, it exists.

In the context, '$(\forall x) \Box (\exists v)v = x$' is not the right way to symbolize this false remark; rather, one must use a world-relative quantifier:

$(\forall x)(\forall w)(\exists v \text{ in world } w)v = x$.

Since the transmodal argument did not succeed in deriving the latter but only the former, it fails.

I believe this response to the transmodal argument does not succeed, for the proposed treatment of quantifiers in modal contexts is unsound. According to the usual possible-worlds treatment, ordinary modal sentences of the form:

It is necessary that, for some v, Fv.

can be analyzed with a world-relative quantifier:

For all possible worlds w, for some v *in world* w, Fv.

And they can also be analysed with a non-relativized quantifier:

For all possible worlds w, for some v, Fv.

Context is supposed to settle whether the quantifiers are to be world-relative or not. (Universal quantifiers within modal contexts are to be treated analogously.)

This sort of analysis might have an initial plausibility for operator sentences of the form ⌜Necessarily, for some v, Fv⌝. In symbols: ⌜$\Box(\exists v)Fv$⌝. (I return to these sentences in a moment.) But our considerations about logical form showed that ⌜It is necessary that A⌝ is *not* an operator sentence of the form ⌜$\Box$ A⌝ but instead is a *predicative* sentence of the form ⌜N [A]⌝. Accordingly, 'It is necessary that, for some v, Fv' has the form: 'Necessary [$(\exists v)Fv$]'. If our possible-worlds theorists tried to use their analysis on this sentence, they would be led to this:

$N[(\exists v \text{ in } w)Fv]$.

Since 'w' occurs free, this is not even a sentence! The point is that the existential quantifier '$(\exists v)$' cannot be implicitly relativized to any possible world w, for no such world is introduced by the sentence. This is dramatized by the fact that the original 'that'-clause sentence 'It is necessary that, for some v, Fv' entails:

$(\exists z)(z = [(\exists v)Fv] \,\&\, Nz)$.[25]

This, in turn, entails:

$(\exists z)z = [(\exists v)Fv]$.

It would be preposterous to represent this with the following non-sentence:

$(\exists z)z = [(\exists v \text{ in } w)Fv]$.

The possible-worlds analysis is even more preposterous in 'mixed' settings, for example: x believes that some organism is carbon-based; it is not necessary that some organism is carbon-based; therefore, x believes something which is not necessary, namely, that some organism is carbon-based.[26]

Given that the existential quantifier 'for some v' in the sentence 'It is necessary that, for some v, Fv' cannot be a world-relative quantifier, as possible-worlds theorists allege, the original representation must be accepted at face value:

$N[(\exists v)Fv]$.

where '$(\exists v)$' is an ordinary non-world-relative existential quantifier (occurring, of course, within an intensional context generated by the intensional abstraction operator '[ ]').

Thus, if the transmodal argument is formulated in this predicative idiom (rather than the operator idiom), it cannot be blocked by the appeal to world-relative quantifiers. So formulated, the argument therefore stands – whether or not one believes in possible worlds. Furthermore, given that quantifiers occurring in predicative contexts such as 'It is necessary that, for some v, Fv' are not equivocal in the way worlds theorists allege, it is wholly implausible that they are equivocal in operator contexts such as 'Necessarily, for some v, Fv'. So the transmodal argument should stand even when formulated in the operator idiom, as it was above. Again, this is so whether or not one believes in possible worlds.

It should be clear that the problem of transmodals befalls all the possible-worlds reductions of propositions and properties in the literature; for all those reductions try to identify these entities with extensional complexes built up ultimately from possible particulars (possible people, possible stones, etc.). For example, transmodal arguments can be used to refute the familiar reduction, according to which (1) a proposition is the set of possible worlds in which the proposition is true, and (2) a property is a set of possible things which have the property (Lewis 1983). (See notes 17 and 19 for an indication of how the argument would go in detail.)

Besides the transmodal problem, the familiar possible-worlds reduction is beset with a number of other problems. The best known is the problem of logical omniscience: as it stands, the possible-worlds reduction implies that all necessarily equivalent propositions are identical – a plainly unacceptable consequence.[27] (For example, Leibniz's Law is that identical things have the same properties; Leibniz's Law is *not* that water = H_2O.) Some possible-worlds reductionists have responded to this problem by holding that propositions are really ordered sets (sequences, abstract trees) whose elements are possible-worlds constructs built up ultimately from possible particulars. For example, on this theory, the proposition that you dream is the ordered set <dreaming, you>, where the property of dreaming is treated as the set of possible dreamers.

Although this revisionary view avoids the problem of logical omniscience, it is faced with yet another problem.[28] Intuitively, it is necessary *that some proposition is necessary*.[29] Let us apply the possible-worlds reduction of properties to the property of being a necessary proposition. This property would be the set of things which are necessary propositions. But this set includes the proposition that some proposition is necessary (because, as just indicated, this proposition is itself necessary). Thus, this proposition belongs to the property of being necessary. But, according to the revisionary theory, this proposition is itself an ordered set, one of whose elements is the property of being necessary. Hence, the property of being necessary belongs to an ordered set which belongs to the property of being necessary. That is, being necessary ∈ . . . ∈ being necessary. Hence, the property of being necessary cannot be a set-theoretical construct built up entirely from possible *particulars*. But the goal of possible-worlds reductionists is to reduce everything either to a particular or to a set ultimately built up entirely from particulars. The upshot is that the possible-worlds reduction fails for the property of being necessary. And, in general, it fails for every iterable property (this includes pretty much every philosophically interesting property). There is no choice but to acknowledge that these properties are irreducible *sui generis* entities. But if these are irreducible *sui generis* entities, uniformity supports the thesis that all other properties are as well.

5 A Non-reductionistic Theory

If any of the extensionalist theories considered above were correct, it would be relatively straightforward to systematize the theory of properties, relations and propositions. But given that they are mistaken, a non-reductionistic method is needed. The following gives the intuitive idea.[30]

Consider some truisms. The proposition that A & B is the conjunction of the proposition that A and the proposition that B. The proposition that not A is the negation of the proposition that A. The proposition that Fx is the predication of the property F of x. The proposition that there exists an F is the existential generalization of the property F. And so on. These truisms tell us what these propositions are essentially: they are by nature conjunctions, negations, singular predications, existential generalizations, etc. These are rudimental facts which require no further explanation and for which no further explanation is possible.

The key to developing this non-reductionist point of view is, ironically, to mimic a certain approach to extensional logic – the algebraic approach – but now in an intensional setting. To do this, one assumes that examples like those just given isolate fundamental logical operations – conjunction, negation, singular predication, existential generalization, and so forth – and one takes properties, relations and propositions as *sui generis* irreducible entities. The primary aim is then to analyse their behaviour with respect to relevant fundamental logical operations. This may be done by studying intensional model structures (intensional structures, for short).

An intensional structure consists of a domain, a set of logical operations and a set of possible extensionalization functions. The domain divides into subdomains: particulars, propositions, properties, binary relations, ternary relations, etc., taken as *sui generis* irreducible entities. The set of logical operations includes those listed above plus certain auxiliary operations. The possible extensionalization functions assign an extension to each proposition, property, and relation in the domain: each proposition is assigned a truth value; each property is assigned a set of items in the domain; each binary relation is assigned a set of ordered pairs of items in the domain; etc. One extensionalization function is singled out as the actual extensionalization function: the propositions which are true relative to it are the propositions which are actually true; etc.[31]

To illustrate how this approach works, consider the operation of conjunction, conj. Let H be an extensionalization function. Then, conj must satisfy the following: for all propositions p and q in the domain, H(conj(p, q)) = true iff H(p) = true and H(q) = true. Similarly, if neg is the operation of negation, then for all propositions p in the domain, H(neg(p)) = true iff H(p) = false. Likewise, for singular predication $pred_s$, which takes properties F and arbitrary items y in the domain to propositions in the domain: $H(pred_s(F, y))$ = true iff y is in the extension H(F).[32]

This non-reductionistic approach can be extended to more complex settings in which, for example, both fine-grained intensional entities (concepts, propositions) and coarse-grained intensional entities (properties, relations, states) are treated concurrently and in which a relation of correspondence between the two types of entities can be characterized in terms of the fundamental logical operations. The former type of entities are suited to serve as cognitive and linguistic contents, while the latter play a fundamental constitutive role in the metaphysical structure of the world.[33]

6 'Structural Universals'

One surely wants a theory in which the following sorts of property identities hold: the property of being a circle = the property of being a closed plane figure, points on which are equidistant from a common point.[34] The non-reductionist algebraic approach described above does this. Some people call properties of this sort 'structural universals' – suggesting that they have *parts*. This misleading way of talking is the result of the sort of extensionalism which we criticized above. I believe that 'puzzles'[35] arising from this way of talking are, for that reason, pseudo-puzzles requiring no answer.

But there is a real puzzle which most advocates of 'structural' universals do not address. The following is a second property identity which also seems to hold: the property of being a circle = the property of being a closed curve, every arc of which has equal curvature. Surely nothing recommends this property identity over the earlier one, or vice versa; they are necessarily equivalent. Since each identity seems correct, how is it that someone can be thinking one of the following propositions without thinking the other: the proposition that something is a closed plane figure, points on which are equidistant from a common point and the proposition that something is a closed curve, every arc of which has equal curvature? The answer must be that, although the relevant *properties* are identical, the *concept* of being a closed plane figure, points on which are equidistant from a common point ≠ the *concept* of being a closed curve, every arc of which has equal curvature. Any adequate theory of universals must treat *both* properties and concepts. This can be done straightforwardly in our non-reductionist approach.[36]

7 Qualities and Natural Properties

Traditionally, not all properties were counted as *qualities*. Is there really an objective distinction between those properties which are qualitative and those which are not? In *Quality and Concept* (1982) I defended the traditional category of qualities (and their relational counterparts, called 'connections'). Qualities and connections may be contrasted with 'Cambridge-like' universals such as grue. My reason for accepting the ontology of qualities and connections, besides its immedi- ate intuitive appeal, was that it has wide-ranging applications and, given that we already have established the general ontology of universals, the alternatives are less economical. The applications included: the general characterization of the struc- ture of phenomenal experience, the statement of supervenience principles and principles of induction, the solution of Nelson Goodman's new riddle of induc- tion, the statement of truth conditions for counterfactuals, and the analysis of a host of philosophically central notions – the notions of theoretical explanation (and perhaps causation itself), change, non-arbitrary classification, similarity, order- liness and randomness. David Lewis (1983) invoked a similar list of applications to defend what he calls 'natural properties'. If he were to drop his unsuccessful attempt to reduce properties to possible-worlds constructs (criticized above), his view would come very close to that in *Quality and Concept*.

8 Ontology: Actualism, Possibilism, Meinongianism

Our non-reductionist theory can be developed within a possibilist setting by allowing non-actual possibilia into the domain. We may avoid this, however, by taking advantage of the following *ante rem* principle: necessarily, if it is possible for a property to exist, then it actually exists. The main idea is to let *singular identity properties* fulfil the theoretical functions played by non-actual possibilia. (x is a singular identity property iff it is possible for there to exist something y such that x = the property of being identical to y.) Although many of these properties do not have instances, they *could*; and, if they were to have instances, they would serve to individuate those instances. At the same time, singular identity properties – including those which do not have instances – are all actual, thus permitting the resulting construction to be fully actualist. Although this is not the place to spell out the details, this should be enough to make it plausible that the construction can be carried out without commitment to non-actual possibilia.

This sort of construction opens up a new vista. Consider a superficially possib- ilist language, that is, a language with sentences such as 'There is a possible move which I could have made but did not'. Suppose the above actualist framework is enriched with a new logical operation corresponding to 'there is a possible'. In this framework, one could then identify the propositions expressed by the superficially possibilist sentences, and by using singular identity properties, one could give general truth conditions for them, all the while invoking only actual objects in the

account. Suppose that, knowing of this prospect, we began to make positive assertions in this superficially possibilist language. Would we thereby be making ontological commitment to things beyond the actual? Would our ontology no longer be actualist? It hardly seems so.

Using other techniques, I believe that we are also able to give a wholly actualist semantics for a language which is superficially Meinongian. Knowing this seman- tics, if we began to make positive assertions in such a language, would we be making ontological commitment to Meinongian objects? Would our ontology cease to be actualist? Again, it does not seem so. (These points bring out a general difficulty with Quine's criterion of ontological commitment: it is tied too directly to the grammatical surface of language. If the foregoing is right, the notion of ontological commitment requires a deeper analysis in terms of that which is required to give general truth conditions for the propositions expressed by sentences of the language.)

In the transmodal argument we supposed that Meinongianism is mistaken. Therefore, our conclusion was really a disjunction: either universals are irredu- cible *ante rem* entities, or Meinongianism is correct (or both). Suppose, for the sake of argument, that Meinongianism is correct at least to this extent: some parts of natural language are superficially Meinongian, and various positive sentences of this sort are true. What should philosophers make of this? Unlike Meinong, I believe that our situation would not be relevantly different from that just described. We should interpret the superficially Meinongian talk in the indicated way within an actualist framework which includes irreducible *ante rem* universals. For, among the choices available to us at this stage, this framework has by far the most economical ontology.

Notes

1 *Pace* Putnam and Shoemaker, there are 'natural' properties which are neither physical magnitudes nor causal powers, e.g. various 'natural' mathematical properties.

2 See Armstrong (1989) 'Methodology,' chapter 1. iv. Putnam (1972) also endorses a similar methodology in connection with our common scientific beliefs.

3 Michael Devitt (1980) makes some related criticisms of the 'common opinion' approach to philosophy.

4 In 'The Incoherence of Empiricism' (1992) I develop this argument in detail.

5 See my 'Universals' (1993) for full details.

6 Many treatments in the literature which are superficially different are really just special cases of this. For example, on the higher-order sentential-operator approach, 'Whatever is necessary is possible' is represented as '$(\forall p)(\Box p \rightarrow \Diamond p)$'. The sentential operators '$\Box$' and '$\Diamond$' are predicate-like inasmuch as they take singular terms (e.g. 'p') as arguments and these singular terms are open to quantification. Similarly, on an adverbial treatment the sentence would be represented along the following lines: '(∀p)(p-ly(Necessary) → p-ly(True))', where '-ly(Necessary)' and '-ly(True)' are predicate-like inasmuch as they take singular terms (e.g. the variable 'p') as arguments. In neither case need we take a stand at this stage on the semantical significance (if any) of these variables.

Dorothy Grover's prosentential approach is at odds with our premise, however. Perhaps the main problem with this approach is that, syntactically, it is rigidly *typed* whereas the parts of discourse that the theory is designed to capture are manifestly *type-free*. See, for example, note 11.

7 Davidson's paratactic theory is a special case.

8 Advocates of free logic might claim that the original argument is not strictly speaking valid unless it is supplemented with the premise ⌜That A is something⌝ or ⌜There is something identical to that A⌝. To accommodate the free logician, we would simply supplement our symbolized version with the premise ⌜$(\exists x)x = [A]$⌝, where ⌜[A]⌝ is a singular term.

Incidentally, the standard higher-order sentential-operator approach is a variant on our position in the sense that entire sentences ⌜A⌝ are substituends for quantifiable variables and, hence, count as singular terms.

9 This quantifier 'there is something' is objectual not substitutional. Using a substitutional quantifier here would only trigger a vicious regress.

10 A disquotational approach will not work, for we are seeking an answer which works for *arbitrary* languages, including those with sentences not translatable into English. Incidentally, if the referential approach were adopted, it is trivial to give general truth conditions for sentences of the form ⌜F-ly, A⌝ for arbitrary ⌜F⌝: ⌜F-ly, A⌝ is true iff ⌜F[A]⌝ is true.

11 There is no assurance that there will always be a sentence ⌜A⌝ that makes ⌜t = [A]⌝ true. For example, a sentence ⌜A⌝ that makes ⌜Romanticism = [A]⌝ true. The problem is compounded by the fact that there are not type restrictions on the ⌜t⌝. For instance when ⌜t⌝ is 'that which is most valuable', we need not know the category of the thing ⌜t⌝ designates.

12 ⌜It is F that A⌝ is thus fundamentally different from the category of atomic proper-name sentences ⌜Fa⌝. For it is at least plausible that there are general non-referential techniques for giving the truth conditions for *vacuous* proper-name sentences ⌜Fa⌝, e.g. when ⌜a⌝ is 'Apollo'.

13 We allow for the possibility that some entities of this general ontological type are not designated by any 'that'-clause, due to the expressive deficiencies of natural languages.

14 Since ⌜F[A]⌝ has referential truth conditions, we can be sure that the existential quantifier '$\exists z$' is objectual, not substitutional. See note 9.

15 I include the wide-scope reading in order to accommodate *in rebus* theorists who might think of ⌜[A]⌝ on analogy with a definite description.

16 One could replace '$x = y$' with 'if x and y exist, $x = y$'.

17 On an extensional-complex theory, (ii) might be represented thus:

$$(\forall x)\,\Box\,(\forall y)(\exists z)z = \langle x, \text{'identity'}, y\rangle .$$

Yet, necessarily, a set exists only if its elements exist. So (ii) would imply:

$$(\forall x)\,\Box\,(\exists z)z = x.$$

I.e. everything necessarily exists. This is the implausible consequence we are in the midst of deriving in the text in a more general setting.

18 '$(\forall x)(\exists z)z = [x = y]$ & $\Box(\forall y)$(Possible z $\vee$ Impossible z)' is not an acceptable wide-scope reading of (i), for this expression is not even a sentence since 'y' occurs free. *In rebus* theorists seeking a wide-scope reading of (i) need to invoke an 'actuality-quantifier' which may occur within modal contexts and which nevertheless has the force of indicating the existence of things that are now actual, as wide-scope quantifiers standardly do. The expression '$(\exists_{actual}z)$' is designed to serve this function.

19 On an extensional-complex theory, (iii) might be represented thus:

$$(\forall x)\Box(\forall y)(\exists_{actual}z)z = \langle x, \text{'identity'}, y\rangle .$$

But, necessarily, a set is actual only if its elements are actual. So (iii) would imply:

$$\Box(\forall y)y \text{ is actual.}$$

I.e. necessarily, everything (including everything that might have existed) is among the things that actually exist. This is the implausible consequence we are in the midst of deriving in the text in a more general setting.

20 This argument is entirely consistent with actualism: I am not supposing that there are things which are not actual; I am only supposing that it is *possible* that there should have existed things which are not among the things that actually exist. Nowhere in the argument am I committed to the existence of non-actual possibilia, for the relevant quantifiers always occur within *intensional* contexts, viz. 'it is possible that', 'necessarily', etc. As such, these quantifiers have *no* range of values. For example, that it is possible that there should have been more planets than there actually are does not entail that there are possible planets. To hold that there is such an entailment is an intensional fallacy.

21 If you knew that, necessarily, God exists and has all the requisite concepts, you might be able to avoid this conclusion.

22 An exception is the propositional-function theory, according to which gerundive phrases ⌜being F⌝ designate extensional functions from objects to propositions. See my 'Propositions' (1998) for criticism of this theory.

23 The above transmodal considerations allow us to reach an even stronger conclusion: necessarily, if a property, relation or proposition could exist, it actually exists. See my 'Universals' for the argument.

24 Lewis, *On the Plurality of Worlds*, section 1.2.

25 This entailment is ensured by the fact (established earlier) that ⌜$F[A] \rightarrow (\exists z)(z = [A] \,\&\, Fz)$⌝ is a truth of logic.

26 In symbols:

$$Bx[(\exists v)(Ov \,\&\, Cv)]$$
$$\neg N[(\exists v)(Ov \,\&\, Cv)]$$

$$\therefore (\exists z)(Bxz \,\&\, \neg Nz \,\&\, z = [(\exists v)(Ov \,\&\, Cv)]).$$

27 The problem is not limited to psychological contexts. For example, it is a truth of *logic* that all triangles are triangles but not that all triangles are trilaterals.

28 This difficulty is not a Cantor-style worry about cardinality. I am willing to assume that the latter can be avoided with some new kind of set theory. Incidentally, there are variants of the present problem that beset the original possible-worlds reduction.

29 Possible-worlds theorists might deny this by appealing to a Russell-style theory of types, but there are persuasive arguments that a type-theoretic treatment of modal language is unacceptable. They might also respond by holding that there is *no* property of being a necessary proposition, but in the dialectical context this would be absurd.

30 This method was presented in 'Theories of Properties, Relations, and Propositions' (1979), *Quality and Concept* (1982), 'Completeness in the Theory of Properties, Relations, and Propositions' (1983) and 'A Solution to Frege's Puzzle' (1993). The main ideas of this approach were developed in my dissertation, University of California at Berkeley, 1973.

31 Thus, an intensional structure is a triple $< D, \tau, K >$. The domain D partitions into subdomains: $D_{-1}, D_0, D_1, D_2, \ldots$. Subdomain D_{-1} consists of particulars; D_0, propositions; D_1, properties; D_2, binary relations; etc. τ is a set of logical operations on D. K is a set of extensionalization functions. G is a distinguished function in K which is the actual extensionalization function.

32 The *ante rem* character of the theory is explained in my 'Propositions' (1998).

33 This view is developed in *Quality and Concept* (1982).

34 Likewise, the property of being composed of methane = the property of being composed of.... (Of course, methane itself is not a property but rather a stuff.) As indicated, the positive account in my (1979, 1982) provides for such properties. The informal account proposed by John Bigelow and Robert Pargetter (1989) resembles this account.

35 See Lewis, 'Against Structural Universals.' Incidentally, Lewis holds that a theory of universals ought to provide a definition of necessity. Many philosophers (e.g. Prior, Fine) see no *requirement* that this be so, and I wholly agree with them. Nevertheless, a definition can be given within the non-reductionist theory; see section 46, *Quality and Concept*.

36 See sections 43–4, *Quality and Concept*.

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