# *Propositions*

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Recent work in philosophy of language has raised significant problems for the traditional theory of propositions, engendering serious skepticism about its general workability. These problems are, I believe, tied to fundamental misconceptions about how the theory should be developed. The goal of this paper is to show how to develop the traditional theory in a way which solves the problems and puts this skepticism to rest. The problems fall into two groups. The first has to do with reductionism, specifically, attempts to reduce propositions to extensional entities—either extensional functions or sets. The second group concerns problems of fine-grained content—both traditional "Cicero"/"Tully" puzzles and recent variations on them which confront scientific essentialism. After characterizing the problems, I outline a non-reductionist approach—the algebraic approach—which avoids the problems associated with reductionism. I then go on to show how the theory can incorporate non-Platonic (as well as Platonic) modes of presentation. When these are implemented nondescriptively, they yield the sort of fine-grained distinctions which have been eluding us. The paper closes by applying the theory to a cluster of remaining puzzles, including a pair of new puzzles facing scientific essentialism.

## *1. Introduction*

This paper begins in the middle of a long story. To tell my part of the story, I will need to assume the central tenets of the traditional theory of propositions (for arguments in support of these tenets, see Bealer 1993a). These tenets include the following: (1) propositions are the primary bearers of such properties as necessity, possibility, impossibility, truth, and falsity; (2) they are mind-independent extra-linguistic abstract objects; (3) a belief state consists in a subject standing in the relation of believing to a proposition, and that proposition is the content of the belief (likewise for other intentional states—desire, decision, memory, etc.); (4) propositions are typically public: people commonly believe one and the same proposition and doing so is a prerequisite for successful communication; (5) propositions are what (literal utterances of declarative) sentences express or mean. Of course, some philosophers have been skeptical about abstract objects in general and for that reason alone have been skeptical about the traditional theory of propositions. But with the rise of modal logic, the resurgence of modal metaphysics, and the revolution in cognitive psychology and its realism about intentional states, this general skepticism strikes

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most philosophers as idle. Today, the traditional theory of propositions is the dominant view. All is not well with the theory, however. In the course of positive work on the theory, significant "internal" problems have emerged, and these problems have engendered a far more serious skepticism about the general workability of the traditional theory. In my view, these problems are tied to fundamental misconceptions of how the theory should be developed. The goal of this paper is to show how to develop the theory in a way which solves the problems and which puts this more serious form of skepticism to rest.

The problems I have in mind may be divided into two groups. The first has to do with reductionism. When people have tried to systematize the informal theory, they have found it difficult to avoid incorporating some form of reductionism. I have in mind the doctrine that propositions are really extensional functions from possible worlds to truth values; the doctrine that propositions are nothing but ordered sets (sequences, abstract trees, etc.) consisting of properties, relations, and perhaps particulars; the doctrine that properties (or concepts) are nothing but extensional functions from individuals to propositions; and so forth. While historically significant and formally elegant, these extensional reductions are simply not plausible: most of us have difficulty honestly believing that the very propositions we believe and assert are really functions or ordered sets, or that the very properties we see and feel are really functions. These reductions also have several problematic implications concerning existence and identity, implications which the informal theory, taken on its own, does not have. For example, these reductions suppress various distinctions which intuitively exist, or they proliferate distinctions which intuitively do not exist. Since these various shortcomings are mere artifacts of reductionism, it seems appropriate to adopt a non-reductionistic point of view from which propositions are seen as *sui generis* entities. But then another approach to systematizing the theory of propositions is needed.

The second group of problems concerns fine-grained content. Sentences containing co-referential names provide the most familiar illustration.[1] "Cicero is emulated more often than Tully" and "Tully is emulated more often than Cicero" prima facie do not mean *exactly* the same thing. So the proposition that Cicero is emulated more often than Tully and the proposition that Tully is emulated more often than Cicero would seem to

[1] I will focus on proper names, but there are analogous problems—and solutions (see §9.3)—involving predicates. For example, "Whatever chews masticates" and "Whatever masticates chews" prima facie do not mean *exactly* the same thing, but how is this possible given that "chew" and "masticate" are predicates for one and the same property? The solutions to these various problems can, I believe, be adapted to handle the problems Stephen Schiffer presents in "Belief Ascription" (1992) and other papers and, if desired, to systematize his resulting view that propositions are "shadows of sentences". See note 42 below.

differ somehow. But how can they? After all, proper names are rigid designators which are not synonymous with definite descriptions. Nor are ordinary proper-name sentences synonymous with metalinguistic sentences. Nor is it acceptable to resort to primitive mystery senses (Ciceroc-ity, Tullyicity, etc.). These considerations have driven some philosophers to hold that such propositions are actually one and the same *singular* proposition—namely, that $x$ is emulated more often than $y$ (where $x = y =$ Cicero = Tully). But most philosophers are unable to accept this singular-proposition theory with any conviction; it is simply too implausible. What is more, this theory implies that certain associated propositions cannot be simultaneously necessary and a posteriori: for example, the proposition that Cicero is *not* emulated more often than Tully. This problem also arises in more familiar examples: that Cicero is Tully; that Hesperus is Phosphorus; etc.[2] The singular-proposition theory thus clashes with the Kripke-Putnam doctrine of scientific essentialism, which has nearly universal acceptance. The intractability of these problems of fine-grained content has led Saul Kripke to declare, "I am unsure that the apparatus of 'propositions' does not break down in this area" (Kripke 1980, p. 21).

The two groups of problems—reductionism and fine-grained content—are related. For, as we shall see, the problematic implications of reductionism actually stand in the way of an acceptable treatment of fine-grained content. As I indicated, I believe that what is needed is a non-reductionistic theory of propositions. Showing how to develop one is the first goal of this paper. The second goal will be to show how this theory provides a framework for a new style of solution to problems of fine-grained content. Among the problems of content which this framework may be used to solve are those confronting scientific essentialism—the above problem of providing for propositions which can be both necessary and a posteriori, and additional problems which have not been discussed before.

Before beginning, I should say something about how I think of this paper. I do not conceive of it as an argumentative piece organized around a single line of argument but rather as belonging to another genre whose primary purpose is to give an overview of a *theory*, in this case, a non-reductionistic theory of propositions. Although in the course of the paper competing theories will be discussed critically, my remarks are not intended as refutations but rather as foils to help bring out the intuitive motivation of the theory I will be presenting or to isolate desiderata which

[2] Some singular-proposition theorists hope to use conversational pragmatics to explain the evident difference between, say, the proposition that Cicero is Tully and the proposition that Cicero is Cicero. But this does nothing to explain how the proposition that Cicero is Tully can be both necessary and a posteriori; according to scientific essentialism, however, *that very proposition* (not *other* propositions supplied by conversational pragmatics) must have both features.

the theory is designed to satisfy. I hope that readers—especially advocates of competing theories—will bear this in mind.

## 2. Discussion of the reductionistic theories

I begin with two preliminary remarks. First, in connection with the issue of reductionism, the primary question with which we are concerned is what propositions *are*. Are they identical to extensional functions, ordered sets, sequences, etc.; or are they *sui generis* entities, belonging to an altogether new category? This ontological question differs from the model-theoretic question of whether extensional entities might be used merely to *represent* propositions. While I am prepared to agree that the answer to the latter question is affirmative, this does not answer the ontological question. (For more on merely representing propositions, see note 11.) Second, I will take it as a desideratum that a theory of propositions should be formulated in such a way as to be compatible with *actualism*—the doctrine that everything there is actually exists. There are, I believe, compelling arguments for actualism and against possibilism—the doctrine that there truly are individuals that do not actually exist—but this is not the place to give them.[3] In any case, surely it is desirable that a theory should be compatible with actualism. I should say also that I do not deem Meinongian theories—and related theories of "nonconcrete substances"—to be actualist; "the golden mountain" does not denote any *actual object* in the ordinary sense of the term.

These two points have immediate implications for the possible-worlds reduction. The first has to do with actualism. According to the possible-worlds reduction, properties, relations, and propositions are reducible to set-theoretical constructs ultimately built up from possible (often nonactual) particulars—possible people, possible stones, possible worlds, etc. Propositions, for example, are supposed to be identical to functions from possible worlds to truth values (specifically, the truth value the proposition would have in that world). And properties are identical to functions from possible worlds to sets of things (specifically the set of possible things which would have the property in that world). For example, the proposition that I dream = the function that maps possible worlds in which I dream to the true and other possible worlds to the false. And a sensible property such as the aroma of coffee = the function that maps possible worlds to the set of things which have the aroma of coffee in that world. Clearly, these reductions are wedded to possibilism and so fail to meet the above desideratum. The second implication has to do with intuitive plau-

[3] See, for example, Adams (1974), Jubien (1988), Bealer and Mönnich (1989), and many others.

sibility. When I believe (doubt, justify, assert) some proposition, do I believe (doubt, justify, assert) a function? On the face of it, this is not plausible. Advocates of this reduction seem to have lost "the naive eye". The possible-worlds reductionist might try to reply that this objection is an instance of the so-called "fallacy of incomplete analysis": the prima facie implausible consequence results from wrongly mixing analyzed and unanalyzed notions; when the analysis is completed, the problem vanishes.[4] But this reply does not work in the context of the traditional theory of propositions, which we are assuming here. According to this theory, when we believe a proposition, we are straightforwardly related to it by the relation of believing, the familiar two-place relation. In this setting, given that the possible-worlds reduction tells us what propositions *are* (as opposed to how they might be represented model-theoretically), it follows that, when I believe that I am dreaming, I am related by the familiar relation of believing to a function. And this is surely implausible.

Another concern with the possible-worlds reduction is that it implies that all necessarily equivalent propositions are identical—a plainly unacceptable consequence. Many 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 before, as a function from possible worlds to sets of possible dreamers. Although this revisionary view avoids the present concern, it does not avoid the previous two. Moreover, since the revisionary view is a possibilist variation on the propositional-complex reduction, it is faced in addition with the issue of arbitrariness (see below) which confronts that view.[5]

A final concern with the revisionary possible-worlds reduction is whether it can really be reductionistic.[6] Intuitively, it is necessary *that*

[4] The fallacy of incomplete analysis is of a piece with the doctrine that a whole sentence (proposition) is the smallest unit of analysis. It has been invoked in defending Frege's analysis of number against the objection that it has the implausible consequence that numbers have elements, e.g. that {1} is an element of the number 1. I need not take a stand on whether this defense of Frege succeeds. The point in the text is that possible-worlds theorists are in a different situation once they accept the basic tenets of the traditional theory of propositions.

[5] In Bealer (1998b) I show that the transmodal problem which confronts the propositional-complex reduction also undermines possible-worlds reductions, and I further argue that the standard possible-worlds treatment of modal language is unsatisfactory.

[6] This difficulty is not a Cantor-style worry about cardinality. (See, for example, Davies 1981, p. 262.) I am willing to assume that the latter worry 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.

*some proposition is necessary.*[7] Let us apply the possible-worlds reduction of properties to the property of being a necessary proposition. This property would be the function (set of ordered pairs) from possible worlds to the set of necessary propositions. But the set of necessary propositions includes the proposition that some proposition is necessary (because, as just indicated, this proposition is itself necessary). Thus, this proposition belongs to a set belonging to an ordered pair belonging 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 a set which belongs to an ordered pair which belongs to the property of being necessary. That is, being necessary $\in \ldots \in$ being necessary. Hence, the property of being necessary cannot be a set-theoretical construct built up entirely from possible *particulars* (possible people, possible stones, and the like). 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.

We come next to the propositional-complex reduction. According to it, propositions are identical to ordered sets (sequences, abstract trees) whose elements are properties and relations (and perhaps particulars), where properties and relations are taken to be primitive entities. For example, the proposition that you dream is the ordered set <dreaming, you>, where the property of dreaming is taken to be a primitive entity. Similarly, the proposition that you dream and I think is the ordered set <conjunction, <dreaming, you>, <thinking, me>>; the proposition that someone dreams is the ordered set <existential generalization, dreaming>; and so forth. The first concern with this reduction is that, on the face of it, it is not intuitively plausible. When I believe (doubt, justify, assert) the proposition that you are dreaming, do I stand in the familiar relation of believing (doubting, asserting) to an ordered set? Moreover, as before, in the context of the traditional theory of propositions, it does no good to raise the point about the fallacy of incomplete analysis. The second concern with the propositional-complex theory is that there is no way to determine which

[7] 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 context this would be absurd.

ordered set is the alleged item I believe. Is it <dreaming, you>? Or is it <you, dreaming>? The choice is utterly arbitrary. Admitting this kind of wholesale arbitrariness into a theory would be unwarranted if there were an otherwise acceptable alternative which is free of it.

Another concern about the propositional-complex theory is associated with the phenomenon of "transmodal quantification".[8] (This problem arises only for propositional-complex theories which are intended to be compatible with actualism. It does not arise for the above possible-worlds version of the theory, which is explicitly possibilist. A special reason for discussing the phenomenon of transmodal quantification here is that it provides a particularly difficult problem for any anti-existentialist version of actualism. But, as we shall see, an anti-existentialist version of actualism is required for an acceptable solution to the problem of fine-grained content.) The following intuitively true sentence is a simple illustration of transmodal quantification:

> Every $x$ is such that, necessarily, for every $y$, the proposition that $x = y$ is either possible or impossible.[9]

We may symbolize this sentence thus:

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

On the propositional-complex theory, (i) is equivalent to:

(ii) $(\forall x) \Box (\forall y)$ (Possible $<x, \text{identity}, y>$ $\vee$
Impossible $<x, \text{identity}, y>$).

(A propositional-complex theorist might try to block this step by holding that it is an instance of the "fallacy of incomplete analysis". But, as before, this sort of reply does not work in the context of the traditional theory of propositions. On that theory, propositions are the primary bearers of the properties of possibility and impossibility, so given that the propositional-complex theory tells us what propositions *are*, explicitly identifying them with ordered-sets, the indicated step must be accepted.) There are two readings of (ii) depending on the scope of the singular term "$< x$, identity, $y>$". The narrow scope reading entails:

$(\forall x) \Box (\forall y) (\exists v)\ v = <x, \text{identity}, y>$.

Yet, necessarily, a set exists only if its elements exist. So the narrow scope reading of (ii) entails:

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

[8] In Bealer (1993a) I explain this problem of transmodal quantification in greater detail. In that discussion, the worry about the "fallacy of incomplete analysis" is avoided without having to assume the traditional theory of propositions, as I do here.

[9] One could replace "$x = y$" with "if $x$ and $y$ exist, $x = y$".

That is, everything necessarily exists. A false conclusion. (At least according to actualism, which we are assuming here. Possibilists, of course, would accept this conclusion. What is not the case on their view is that everything is necessarily actual.) On the other hand, consider the wide scope reading. On it, (ii) entails that every $x$ is such that, necessarily, for all $y$, there exists an actual set $<x, \text{identity}, y>$. In symbols,

$$(\forall x) \Box (\forall y) (\exists_{\text{actual}} v)\ v = <x, \text{identity}, y>.$$

But here we have a similar difficulty. Necessarily, a set is actual only if its elements are actual. Thus, the wide scope reading of (ii) entails:

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

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. So, on both of its readings, (ii) entails falsehoods. But, according to the propositional-complex thesis, (ii) is equivalent to a true sentence, namely, (i). Thus, the propositional-complex theory fails to handle this example of transmodal quantification. And the problem generalizes. Of course, in this and the earlier problems, the underlying error is to think that propositions literally have *members* or *parts*, that things are literally *in* them. (Notice that the above 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. That it is possible that there should have been more planets than there actually are does not entail that there are possible but non-actual planets.)

Consider next the propositional-function reduction. According to it, a property (or relation) is nothing but an extensional function from objects to propositions, where propositions are taken to be primitive entities. For example, the property being in pain = $(\lambda x)$(the proposition that $x$ is in pain). For any given object $x$, the proposition that $x$ is in pain = $(\lambda x)$(the proposition that $x$ is in pain)($x$) = the result of applying the function $(\lambda x)$(the proposition that $x$ is in pain) to the argument $x$.[10] But is being in pain really a *function*? It is hard to see why one would accept this counterintuitive thesis

[10] On a closely related propositional-function theory (suggested by Alonzo Church and others), the sense of a predicate of individuals is a function from individual concepts (e.g. senses of proper names of individuals) to propositions. This theory runs into problems analogous to those discussed in the text. For further discussion of these and kindred points, see Bealer (1989).

given that there are straightforward, intuitive theories which take properties at face value and given that intuitions form the evidential basis for the theory of properties, relations, and propositions in the first place. Identifying being in pain with a function would seem to be a symptom of over-mathematizing philosophy.

Furthermore, the propositional-function reduction seems unable to accommodate a certain kind of fine-grained content. Take, for instance, the following case involving properties of integers. Being even = being an $x$ such that $x$ is divisible by two, and being self-divisible = being an $x$ such that $x$ is divisible by $x$. (The same point could be made using some other identities, stipulatively defined if necessary.) The following identities are then derivable on the propositional-function reduction:

> That two is even = $(\lambda x)$(that $x$ is even)(two) = $(\lambda x)$(that $x$ is divisible by two)(two) = that two is divisible by two = $(\lambda x)$(that $x$ is divisible by $x$)(two) = $(\lambda x)$(that $x$ is self-divisible)(two) = that two is self-divisible.

Thus, the proposition that two is even is identical to the proposition that two is self-divisible. But surely this is not so: someone could be consciously and explicitly thinking the former while not consciously and explicitly thinking the latter. Indeed, someone who is thinking the former might never have employed the concept of self-divisibility. Because the non-reductionist theory which we will be considering takes properties at face-value, not as functions, but as *sui generis* entities, this sort of problem never arises.

A final problem facing all three reductionistic theories (possible-worlds, propositional-complex, propositional-function) has to do with "degrees of granularity". As standardly formulated, each reductionistic theory is committed to the view that there is only one type of proposition; each theory excludes the idea that there might be several distinct types of propositions, ranging from coarse-grained to fine-grained. (Illustration: because <conjunction, $A$, $B$> $\neq$ <conjunction, $B$, $A$>, the propositional-complex theory *entails* that the conjunction of $A$ and $B \neq$ the conjunction of $B$ and $A$; this rules out the possibility of another type of conjunctive proposition whose identity conditions are blind to the order of the conjuncts.) Yet it can be argued that there are not only contexts calling for highly fine-grained propositions but also contexts calling for highly coarse-grained propositions, as well as contexts calling for propositions of intermediate granularity. An example of a type of proposition of intermediate granularity (which will be of use in §7) is a type which, while sensitive to individual contents, is insensitive to the various ways in which those contents might be combined as long as the same content inputs always yield necessarily equivalent outputs. Of course, to accommodate a

multiplicity of types of propositions, the reductionistic theories might try to reduce the remaining types of propositions to equivalence classes or to sequences or whatever. But how artificial. On the non-reductionistic theory we will be considering, it is straightforward to treat a spectrum of distinct granularities concurrently without resorting to counterintuitive steps like these. This approach thus allows us to avoid a false dilemma that is common in recent discussions in philosophy of mind. "Are mental contents fine-grained or coarse-grained?" Answer: "Both, and often they are of intermediate granularity." (For ease of presentation, I will confine myself to a fine-grained setting except in §7.)

All the preceding problems result from the fact that each of the surveyed theories attempts to *reduce* intensional entities of one kind or another to extensional entities—either extensional functions or sets. I believe that this extensional reductionism has obscured basic facts about properties, relations, and propositions which hold the key to solving our other main problem—the problem of fine-grained content.[11] For all these reasons, it would seem that a non-reductionistic approach is appropriate.

## 3. *A non-reductionistic approach*

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. Until the advent of extensionalism, this was the dominant point of view. It is what Plato and Aristotle ges-

[11] In what follows I will indicate how to construct non-reductionist models (what I call "intensional structures") for the theory of properties, relations, and propositions. One could instead try to construct models based upon possible-worlds functions, propositional complexes, or propositional functions. Such models, however, would be mere representational devices: in them the entities playing the role of properties, relations, and propositions would not be the real thing but only artificial surrogates (extensional functions, ordered sets). By contrast, in the intensional structures described below, the entities playing that role are those very properties, relations, and propositions. Surely, if reductionism is mistaken, one ought to be able to construct models which are non-reductionist in this sense.

ture toward in their metaphor of truths arising from a "weaving together" of universals. I propose returning to this non-reductionist point of view.

The key to doing this 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* entities. The primary aim is then to analyze their behavior with respect to the 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 partitions into subdomains: particulars, propositions, properties, binary relations, ternary relations, etc., taken as primitive entities. The set of logical operations includes those listed above plus certain auxiliary operations. The possible extensionalization functions assign an extension to each of the items 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.[12]

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

To deal with contingent existents, we single out a distinguished property in the domain, namely, existence (which we hereafter indicate with $\mathcal{E}$). For each possible existensionalization function $H$, $H(\mathcal{E})$ is the set of items in the domain which exist relative to $H$. The treatment of the quantificational operations is then straightforward. Consider the operation of existential generalization, exist. For properties $F$ in the domain, exist($F$) is the proposition that there exists an $F$. Then $H(\text{exist}(F))$ = true iff, for some $y$ in

[12] Thus, an intensional structure is a triple $<D, \tau, K>$. The domain $D$ partitions into subdomains: $D_{-1}$, $D_0$, $D_1$, $D_2$, .... Subdomain $D_{-1}$ consists of particulars; $D_0$, propositions; $D_1$, properties; $D_2$, binary relations; etc. $\tau$ 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.

$H(\mathcal{E})$, $y$ is in $H(F)$. That is, the proposition that there exists an $F$ is true relative to $H$ iff, for some $y$ that exists relative to $H$, $y$ is in the extension of $F$.

This completes my sketch of the non-reductionist approach. Before I am able to present my solution to the problem of fine-grained content, however, I will have to develop three preliminary ideas which will serve as essential components of that solution. The first concerns existentialism and the problem of transmodal quantification (discussed in §2). The second concerns the kind of predication involved in descriptive propositions. The third concerns the distinction between Platonic and non-Platonic modes of presentation. In each case I will only be able to highlight the main points, but that should suffice for the larger purpose of clarifying how I propose to deal with the problem of fine-grained content.

## 4. *Existentialism and transmodal quantification*

Existentialists believe (roughly) that, necessarily, a proposition exists only if its "constituents" exist; anti-existentialists believe (roughly) the contrary.[13] Existentialists would be right if propositions were reducible to sets, sequences, or some other kind of extensional complex, for in that case propositions would literally have members or parts, things would be literally in them. But we saw above that such extensional reductionism is the wrong way to think of propositions. One sort of problem arose in connection with transmodal quantification, which is exhibited in sentences such as "Every $x$ is such that, necessarily, for every $y$, either it is possible or impossible that $x = y$".[14] To illustrate how the non-reductionist approach can accommodate anti-existentialism, consider a somewhat simpler case: for all $x$, necessarily, it is possible that $x = x$.[15] In symbols, $(\forall x) \Box$ Possible $[x = x]$. Anti-existentialists would hold: for all $x$, necessarily, there exists something—namely, the proposition that $x = x$—which is possible. In symbols, $(\forall x) \Box (\exists u)$(Possible $u$ & $u = [x = x]$). The non-reductionist approach provides a framework for showing how the proposition $[x = x]$ could exist even when the contingent particular $x$ did not. The proposition that $x = x$, like all proposi-

[13] See Plantinga (1983). The special contribution of the non-reductionist approach is that it provides a way to develop anti-existentialism without having to posit necessarily unanalyzable individual essences (i.e. primitive "Haecceities").

[14] In Bealer (1993a) I argue that no form of existentialism can accommodate transmodal sentences like these. I should emphasize, however, that the general non-reductionist approach given in the present paper is strictly neutral on the existentialism/anti-existentialism debate.

[15] One could replace "$x = x$" with "if $x$ exists, $x = x$".

tions, is an irreducible intensional entity. Although the operation of singular predication maps self-identity and $x$ to this proposition, one is free to hold that the existence of this proposition does not *entail* the existence of $x$. Consider an analogy. The author-of function maps this article to me. However, the existence of me does not *entail* the existence of this article; I could have refrained from writing it.

Diagrams can be helpful here. The first figure represents the actual relationship between the proposition $[x = x]$, the property self-identity, and $x$. $G$ is the actual extensionalization function, and $G(\mathfrak{E})$ the set of actually existing things. In this situation, all three items actually exist.

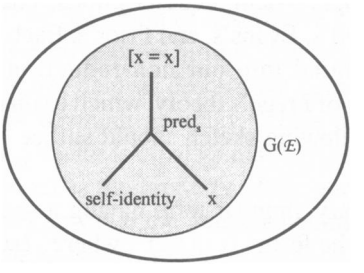


*Figure 1*

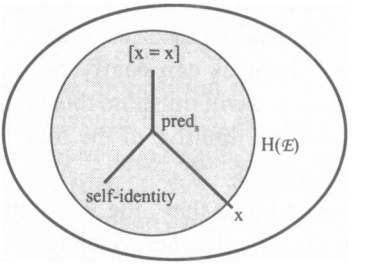


*Figure 2*

Now consider the possible situation represented in the second figure. Here we have a possible but non-actual relationship between $[x = x]$, self-identity, and $x$. In this situation, $[x = x]$ and self-identity exist, but $x$ does not. This account allows one to hold that, for all $x$, necessarily, the proposition that $x = x$ exists. That is, $(\forall x) \Box (\exists u)\, u = [x = x]$. This is what anti-existentialists hold.

Traditional "logical atomism" is not quite right on the picture that emerges. Traditional atomism requires that, necessarily, existing propositions have complete analyses exclusively in terms of basic properties, basic relations, and existing particulars. But according to anti-existentialism, it is possible for a proposition to exist even if there did not exist relevant particulars ("constituents") that would be needed for such an analysis. Nevertheless, a *modal* logical atomism is feasible. The proposition that $x = x$, for example, would not have the indicated sort of analysis in the event that $x$ did not exist; nevertheless, this proposition is such that it is *possible* for it have the indicated sort of analysis—specifically, this would be possible if $x$ were to exist. Ever more complex cases (such as the transmodal case above) can be handled by iterating the same idea.[16]

[16] The following intuitively true sentence can be treated in this way: "Possibly, there exists an $x$ such that, possibly, there exists a $y$ such that the proposition that $x$ and $y$ do not coexist is necessarily true".

This treatment of propositions does not require mysterious primitive Haecceities for their analysis: a complete structural understanding can be had, as atomists thought, although it will be modal in some cases. I believe that this idea can be exploited to accommodate all the usual phenomena that lead some philosophers to adopt possibilism (vs. actualism) and eternalism (vs. presentism).[17]

## 5. Descriptions

I come now to the second preliminary topic—definite descriptions. There are four leading theories: Frege's, Russell's, Evans's, and Prior's. Each of these theories can easily be incorporated into our non-reductionist approach. I will illustrate this in the case of Frege's theory, which to many is the most intuitive of the four. The following sketch should suffice for our purposes.

Frege holds that ⌜the $F$⌝ is an ordinary singular term having a sense and often a reference. Such terms have the form ⌜$(\iota x)(Fx)$⌝, where ⌜$(\iota x)$⌝ is an unary operator which combines with a formula to yield a singular term. The singular term ⌜the $F$⌝ refers to the unique item satisfying the predicate ⌜$F$⌝ if there is one; if there is not, ⌜the $F$⌝ has no reference. The truth conditions are: (i) if ⌜the $F$⌝ has a reference, ⌜The $F$ $G$s⌝ is true (false) iff ⌜$(\forall x)(Fx \rightarrow Gx)$⌝ is true (false); (ii) otherwise, ⌜The $F$ $G$s⌝ is neither true nor false. The truth-value gap in clause (ii) is not essential; gaps can be eliminated by the following revision of clause (ii): if ⌜the $F$⌝ has no reference, ⌜The $F$ $G$s⌝ is false. (I will adopt this simplifying convention.)

To incorporate Frege's theory, consider intensional structures in which the set of logical operations contains the logical operation *the* (akin to the Frege-Church operation ι). One may think of the values of *the* as "individual concepts": *the*($F$) would then be the individual concept of being the $F$. (For each possible extensionalization function $H$, $H$(*the*($F$)) = $H$($F$) if the latter has exactly one element; otherwise, it is the null set.) Consider now the property of being $G$ and the individual concept of being the $F$. What is their relation to the proposition that the $F$ $G$s? Not singular predication: when the operation of singular predication is applied to the property of being $G$ and the concept of being the $F$—that is, $\text{pred}_s(G, \textit{the}(F))$—the value is the proposition that the concept of being the $F$ $G$s. This is a *very* different proposition! The relation of singular predication is, thus, not the relation holding between the property of being $G$, the concept of being the $F$, and

[17] For a qualification on the question of actualism, see §8.5.

the proposition that the *F* Gs. Rather, the relation holding between them is a quite distinct kind of predication, which may be called *descriptive predication*—$\text{pred}_d$, for short. Descriptive predication is implicit in the informal theory of Fregean senses: it is the relation holding between the sense of a predicate ⌜*G*⌝, the sense of a definite description ⌜the *F*⌝, and the sense of a sentence ⌜The *F* Gs⌝.[18] In order to capture the informal Fregean theory of definite descriptions in our non-reductionist approach, one thus considers intensional structures containing both *the* and $\text{pred}_d$: the proposition that the *F* Gs = $\text{pred}_d(G, \textit{the}(F))$. This proposition is true relative to an extensionalization function *H* iff, relative to *H*, the extension of being *F* has exactly one element and that element belongs to the extension of being *G*.

The operation of descriptive predication is also used for other sorts of descriptive propositions. For example, consider one of Stephen Neale's number-neutral descriptive propositions: the proposition that whoever shot Kennedy is crazy.[19] This proposition would be $\text{pred}_d(C, \textit{whe}(S))$, where *whe* is Neale's number-neutral description operation. This operation takes the property of shooting Kennedy (that is, *S*) as argument and gives as value the number-neutral descriptive property of being whoever shot Kennedy, that is, *whe*(*S*). Relative to a possible extensionalization function *H*, the proposition $\text{pred}_d(C, \textit{whe}(S))$ is true iff the extension of *whe*(*S*) is a non-empty subset of the extension of *C*. The point is that, in addition to various description operations—*the*, *whe*, etc.—there is an operation of descriptive predication which takes predicative intensions and subject intensions as arguments and gives associated propositions as values.

These remarks on descriptions illustrate a larger point: namely, the non-reductionist approach provides a framework for a *general semantics*. It does so without having to reduce properties, relations and propositions to possible-worlds constructs and without having to resort to the rigid type theory implicit in the usual possible-worlds categorial syntax. Davidson's truth-conditional approach also provides a general semantics; but, unlike the proposed approach, it does not identify the *propositions* meant by sentences and so does not conform to one of the central

[18] If, instead, one were to systematize the informal theory by identifying the sense of a predicate of individuals with a function whose arguments are individual concepts and whose values are propositions, the relation of descriptive predication would collapse into a special case of the relation of application of function to argument. This approach, however, exposes the informal theory of senses to the flaws noted earlier in connection with the propositional-function reduction. When the informal theory is divorced from the propositional-function reduction, one arrives at the picture presented in the text.

[19] See Neale (1990). Neale's elegant treatment provides truth conditions but does not identify the *propositions* expressed by such sentences. This remaining task is what is accomplished by the ideas being described in the text.

tenets of the traditional theory of propositions listed at the outset. Our approach, by contrast, does this in a straightforward fashion. At the same time, it preserves the valuable insights which have been uncovered by possible-worlds semantics and truth-conditional semantics. Indeed, once relevant syntactic structures are uncovered and once the accompanying truth conditions are found, the rest is virtually automatic: one need only restrict oneself to intensional structures which contain corresponding logical operations whose behavior matches those truth conditions.

## 6. *Non-Platonic modes of presentation*

The domain of an intensional structure is the union of relevant subdomains, where one of these subdomains is thought of as consisting of properties (or concepts).[20] But we could instead think of this subdomain as consisting of modes of access or modes of presentation (*Arten des Gegebenseins*). Properties (which are purely Platonic entities) are one kind of mode of presentation. But certain *constructed* entities also present things to us. For example, pictures do. Certain *socially* constructed entities also function in this capacity; the most prominent are linguistic entities. Indeed, linguistic entities provide the only access most of us have to various historical figures (e.g. Cicero). These linguistic entities have the important feature of being *public*, shared by whole communities.

Names are one kind of linguistic entity which provide us with access to objects. Think of all the people you know by name only. (In what follows names will be understood, not as mere phonological or orthographic types, but as fine-grained entities whose existence is an empirical fact and for which it is essential that they name what they do.[21] For example, Cicero the Illinois town and Cicero the famous orator share a name in the phonological or orthographic sense but not in the fine-grained sense. In the latter sense, but not the former, the existence of the two names is an empirical matter: the name of the town is fairly new; the name of the orator is very old. Given that the name of the town exists, it is essential to it that it name the town; likewise, given that the name of the orator exists, it is essential to it that it name the orator. This conception meshes perfectly with Kripke's rigid-designator conception of names. Names of this kind are "living names".) Naming practices are another kind of linguistic entity

[20] That is, the domain $D$ is the union of disjoint subdomains $D_{-1}$, $D_0$, $D_1$, $D_2$, ..., where $D_1$ is thought of as consisting of properties (or concepts).

[21] As Kit Fine says, "Under this alternative conception, what would be an empirical fact is that the word, or token of it, existed. But given the word, it would be essential that it meant what it did" (Fine 1994, p. 13).

which provide us with access to objects. For example, the practice of using "Cicero" to refer to Cicero provides us with a kind of access to the orator. (On the Kripke picture, a naming practice consists of an initial act of baptism together with an ongoing convention for using the name with the intention of referring to whatever it was that was referred to by previous uses of the name. The practice thus provides those who follow it with a kind of access to the originally baptized object.) In much the same way, historical naming trees provide us with access to their termini; indeed, a naming tree may be thought of as a naming practice "spread out in history". In so far as these linguistic entities (names, practices, trees) provide us with access to objects, they qualify as modes of presentation. There is much to say about the metaphysics of these kinds of entities, but the foregoing should suffice for the purpose at hand.

My goal is to show how, in a non-reductionist setting, non-Platonic modes of presentation contribute to a new style of solution to puzzles about fine-grained content. For the purpose of illustration, it does not matter just which kind of non-Platonic mode we use: there is a natural one-one mapping from living names onto naming practices and a natural one-one mapping from naming practices onto naming trees. I will therefore use a neutral notation which finesses the question of just which of these types of non-Platonic modes is best; specifically, I will use expressions surrounded by straight double-quotes ("Cicero", "Tully", etc.) to denote the most promising one. Accordingly, "Cicero" might be our practice of using "Cicero" to refer to Cicero; or "Cicero" might be the historical naming tree associated with this practice; or "Cicero" might be the living name itself.[22]

In so far as "Cicero", "Tully", etc. present objects to us, there are natural intensional structures in which they are elements of the subdomain of modes of presentation. Since "Cicero" and "Tully" both present Cicero (= Tully), the extensionalization functions H in such intensional structures would behave accordingly: $H$("Cicero") = {Cicero} = {Tully} = $H$("Tully"). This is so despite the fact that these two non-Platonic modes are distinct (i.e. "Cicero" $\neq$ "Tully"). In these intensional structures, relevant logical operations are defined for all modes of presentation—non-Platonic as well as Platonic. So, for example, the operation of descriptive predication $\text{pred}_d$ may take as arguments, say, the property of being a person and "Cicero". The result $\text{pred}_d$(being a person, "Cicero") would be a proposition. Likewise, for $\text{pred}_d$(being a person, "Tully"). These non-Platonic modes of presentation (as opposed to descriptive properties obtained from them by means of *the*, *whe*, or some other

[22] If some other kind of non-Platonic mode of presentation (besides names, practices, trees) proved to be more promising, "Cicero" would be a mode of presentation of that kind.

description operation) are themselves arguments in these descriptive predications.

Let us examine some of the features which these two propositions would have. Given that "Cicero" and "Tully" are distinct, $\text{pred}_d$(being a person, "Cicero") and $\text{pred}_d$(being a person, "Tully") would be distinct. Moreover, since the intensional structures under consideration are anti-existentialist in character, there could be circumstances in which these two propositions would exist even though the contingent, socially constructed modes of presentation "Cicero" and "Tully" would not exist. This is the very same point made in our discussion of anti-existentialism, except that here descriptive predication is playing the role played there by singular predication. Next, let us agree with essentialists like Kripke that every person is necessarily a person.[23] Given that $H$("Cicero") = {Cicero} = {Tully} = $H$("Tully"), we know that $H(\text{pred}_d$(being a person, "Cicero")) = true and $H(\text{pred}_d$(being a person, "Tully")) = true. Since this holds for all possible extensionalization functions $H$,[24] our two propositions $\text{pred}_d$(being a person, "Cicero") and $\text{pred}_d$(being a person, "Tully") would be necessarily true. This is in agreement with Kripke and others who maintain that the proposition that Cicero is a person and the proposition that Tully is a person are necessarily true.[25]

Furthermore, our two propositions—$\text{pred}_d$(being a person, "Cicero") and $\text{pred}_d$(being a person, "Tully")—are distinct from all propositions expressible with the use of definite descriptions (with or without actuality

[23] For all $x \in D$, if $x \in G$(being a person), then for all possible extensionalization functions $H$, $x \in$ H(being a person). (As before, $G$ is the actual extensionalization function.) Some essentialists deny that each person is necessarily a person; instead, they hold that each person is such that, necessarily, *if he exists*, he is a person. If this is right, we would require: if $x \in G$(being a person), then, for all $H$, if $x \in H(\mathcal{E})$, $x \in H$(being a person).

[24] I am taking it for granted that "Cicero" and "Tully" are rigid. In the case of living names, it is essential to them that they name what they do. In any case, Kripke's doctrine is that names are rigid, whether or not they are living names. In the case of naming practices, if there were a practice of using "Cicero" to refer to someone other than Cicero, it would not be *our* practice (i.e. *this* very practice of using "Cicero" to refer to *him*). The same thing holds for historical naming trees, for the origin of an historical naming tree is an essential part of it. (This is not to say that every part of an historical naming tree is an essential part of it, any more than every part of an oak tree is an essential part of it.)

[25] Likewise, $\text{pred}_d(\text{pred}_d$(identity, "Tully"), "Cicero") has the same modal value (i.e. necessity) that Kripke and others attribute to the proposition that Cicero = Tully. Because $\text{pred}_d(\text{pred}_d$(identity, "Tully"), "Cicero") is a posteriori, we are thus able to explain how the proposition that Cicero = Tully can be both necessary and a posteriori, as scientific essentialism requires. This generalizes to solve the problem (discussed at the outset of the paper and in note 2) which confronts singular-proposition and hidden-indexical theories. In §9.5 I will indicate how, at the same time, we are able to know a priori that, *if* Cicero = Tully, the proposition that Cicero = Tully is both necessary and a posteriori.

operators). The proposition $\text{pred}_d$(being a person,"Cicero"), for example, is distinct from each of the following: the proposition that the thing presented by "Cicero" is a person; the proposition that the thing presented by *this* non-Platonic mode of presentation is a person; the proposition that the thing actually named "Cicero" is a person; and so forth. Finally, these propositions—$\text{pred}_d$(being a person, "Cicero") and $\text{pred}_d$(being a person, "Tully")—are not metalinguistic in any of the following standard senses. First, given that our theory is anti-existentialist, the two propositions are ontologically independent of "Cicero" and "Tully" in the sense that it would be possible for the propositions to exist even if those socially constructed linguistic entities were not to exist.[26] Those entities are certainly not literally *in* or *parts of* the propositions. Second, the propositions are distinct from all propositions expressible by sentences containing metalinguistic vocabulary. Third, when a person—perhaps a child—is thinking of one of these propositions, the person need not be employing—and, indeed, might not even possess—any relevant concepts from linguistic theory (the concept of a name or the concept of a naming practice). These propositions are seamless; only in their logical analyses do the linguistic modes of presentation appear. (For more on this point, see §8.1–2.)

Let me sum up. Our goal is a theory of propositions in which, for example, the proposition that Cicero is a person and the proposition that Tully is a person have the following features. They should be distinct. They should be ontologically independent of contingently existing things in so far as they should be able to exist in situations in which relevant contingent things do not; the latter should not be literally *in* them. They should have the right modal value, namely, necessity. They should not be the sort of proposition expressible by sentences containing definite descriptions. Finally, they should not be metalinguistic in any of the standard senses mentioned above. Propositions such as $\text{pred}_d$(being a person, "Cicero") and $\text{pred}_d$(being a person, "Tully") have all these features and should therefore be considered promising candidates for the sort of propositions that have been eluding us.[27]

[26] That is, there are possible extensionalization functions $H$ such that $\text{pred}_d$(being a person, "Cicero") $\in H(\mathfrak{E})$ and "Cicero" $\notin H(\mathfrak{E})$.

[27] The propositional-complex theory could be extended to incorporate non-Platonic modes of presentation. Predictably, our previous arguments would then apply against this extended theory. But there would be another problem as well. On the extended theory the proposition that Tully is a person would be identical to the ordered set <being a person, "Tully">. Intuitively, however, it would be possible for Tully to exist even if this ordered set did not, for it would be possible for Tully to exist and the non-Platonic mode "Tully" not to exist (for example, when Tully has no name at all). The extended propositional-complex theory therefore has the implausible consequence that there are possible circumstances in which the person Tully exists but the proposition that Tully is a person does not!

## 7. Names with partial content

The proposal just sketched relies on non-Platonic modes of presentation—"Cicero", "Tully", etc.—which are identified with living names, naming practices, or historical naming trees. There are other proposals which would feature other kinds of non-Platonic modes of presentation (e.g. clusters of recognitional routines causally involving Cicero in an essential way; percepts which are essentially individuated by their objects; expressions in the "language of thought"; etc.). In the present context, there is no need to declare any one of these proposals to be most promising. The point is that within the non-reductionist framework one is able to have finely distinguished propositions which are neither descriptive nor metalinguistic in the standard senses and which have all the other desired features.

On each of the above proposals, when we assert a sentence containing a name, our use of the name contributes absolutely no descriptive content to the asserted proposition. According to many philosophers, this is exactly the right outcome. Other philosophers, however, think that although a name does not have the sort of descriptive content which fixes a unique referent, a name nevertheless has *some* descriptive content (a "sortal content")—namely, a content which fixes the *sort* (or category) to which the referent must belong. (I will call this the "partial-content view" in contrast to the above no-content view.) For example, according to a single partial-content view, being a person might be the "partial content" of an ordinary personal name; being a building might be the partial content of an ordinary building name; being a country might be the partial content of an ordinary country name; and so forth.[28]

The above general framework allows one to systematize this kind of view. To get an idea of how to do this, consider an oversimplified version. On the no-content view, the proposition that Cicero is eloquent would be identified with the proposition $\text{pred}_d$(eloquence, $C$) and $C$ would be just the purely non-Platonic mode of presentation "Cicero". The partial-content view is exactly the same except that $C$ might instead be the result of conjoining a purely non-Platonic mode ("Cicero") and a purely Platonic mode (being a person). That is, $C$ = conj("Cicero", being a person). The idea is that, just as a purely non-Platonic mode can be an argument in a descriptive predication—e.g. $\text{pred}_d$(eloquence, "Cicero")—it can be an argument in a conjunction: conj("Cicero", being a person). $C$ behaves as expected: $x$ is in the extension of $C$ iff "Cicero" presents $x$ and $x$ is a person.[29] Propositions

[28] In Bealer (1998a) I develop this idea informally under the rubric of the "categorial parts" of a concept.

[29] That is, for all extensionalization functions $H$, $x \in H(C)$ iff $x \in H$("Cicero") and $x \in H$(being a person).

expressed using names from other categories could be treated analogously. For example, the proposition that Liechtenstein is tiny might be identified with $\text{pred}_d$(being tiny, $L$), where $L$ is conj("Liechtenstein", being a country).

As it stands, this illustration of the partial content theory might not seem plausible. It is oversimplified on (at least) two counts. The first has to do with the topic of granularity mentioned at the close of §2. We indicated that there are good reasons to entertain a spectrum of distinct types of granularity ranging from coarse-grained to fine-grained. Suppose the proposition that Cicero is eloquent = $\text{pred}_d$(eloquence, $C$). I do not find it plausible that $C$ is a hyper-fine-grained concept of the sort that has a logical form. In particular, if $C$ = conj("Cicero", being a person), the kind of conjunction involved is not the same as that which is associated with propositions having logical form. On the contrary, $C$ ought to have the sort of intermediate granularity described at the close of §2.[30] Starting with the contents "Cicero" and being a person and applying logical operations of the sort associated with this intermediate granularity, we can arrive at $C$ in a variety of different ways (e.g. by conjoining the two contents in any order). We should not proliferate distinctions where, intuitively, there are none. As I have indicated, on the non-reductionist approach one can accommodate this intermediate type of granularity as well as more fine-grained types; not so on the reductionistic approaches.

The second count on which the above proposal is oversimplified is this. The above illustration associated a determinate sortal content with the name "Cicero", namely, being a person. But advocates of the partial-content theory need not hold that names have a *determinate* sortal content; they can hold that names have a content which serves merely to restrict the *range* of permissible sortals. For example, the proposition that Venus is bright might be something like $\text{pred}_d$(brightness, $V$), where $V$ is conj("Venus", $v$) and $v$ is equivalent to a conjunction of default conditionals which restrict the range of permissible sorts to which Venus may belong. Although $v$ does not entail that Venus be a planet, $v$ rules out a great many possibilities, e.g. the possibility that Venus is a symphony. This revised proposal would thus accommodate the fact that certain ancient astronomers believed, without being irrational, that Venus and other heavenly bodies were holes in the heavens. Of course, if $v$ is equivalent to a conjunction of default conditionals, this does not mean that $v$ is identical to a fine-grained conjunction of such conditionals. Quite the contrary, the most plausible proposal is that $v$ is a standard coarse-grained

[30] Why not identify $C$ with a standard coarse-grained intension? The reason is that it would then be indistinguishable from conj("Tully", being a person), and our solution to Frege's puzzle would fail.

intension. (In §9.5 we will return to the idea that the sortal content of a name merely restricts the range of permissible sortals.)

I take no stand on which of these alternative treatments of names is best. Rather, my intention has been to show only that the proposed non-reductionist framework systematizes a full spectrum of theories, ranging from no-content theories to various partial-content theories and way over to traditional descriptivist theories. This spectrum provides distinctions in content which are cut any way one would want. If this is right, an adequate solution to the problem of fine-grained content ought to be feasible within the proposed framework. It may be a question which of the spectrum of alternatives is best, but systematizing it should not be a problem.

In what follows (except §9.5) I will suppose for simplicity that the no-content theory is correct; my remarks would also hold mutatis mutandis for partial-content theories.

## *8. Discussion*

(1) I began the paper by noting that on the traditional theory propositions are extra-linguistic entities. As I have indicated, our analysis conforms to this tenet. Consider our example of the proposition that Cicero is a person. Given our anti-existentialism, this proposition is ontologically independent of "Cicero" in the sense that it is possible for it to exist in situation in which "Cicero" does not exist; "Cicero" is not *in* or *part of* the proposition. Moreover, when one is thinking that Cicero is a person, one need not be employing—and might not even possess—any relevant concepts from linguistic theory. Finally, this proposition is not expressible by any sentence containing metalinguistic vocabulary (e.g. it is not expressed by a sentence such as "The thing presented by "Cicero" is a person"). This point deserves some elaboration. There is an important distinction between the kind of analysis which gives a synonym of a sentence and the kind which gives a necessarily correct description of the logical form and content of the proposition expressed by the sentence. I have ventured the latter, not the former. It would be an elementary error to think that the existence of this kind of partly metalinguistic logical analysis implies the existence of a metalinguistic synonym. Indeed, there are many important points in philosophy and logic where synonyms are not available but analyses of the other kind are. The non-reductionist approach presents a general framework for studying this kind of analysis. Indeed, my opinion is that this approach is needed ultimately to clarify the relationship between natural languages and logicians' artificial languages.

(2) I have noted that, when a person—perhaps a child—believes the proposition $pred_d$(being a person, "Cicero"), the person need not be employing—and might not even possess—any relevant concepts from linguistic theory (the concept of a living name or the concept of a naming practice). This proposition is seamless; only in its logical analysis does the linguistic mode of presentation "Cicero" appear. The point generalizes. Believing a proposition does not in general require having command of its logical analysis or the modes of presentation that show up in that analysis. Indeed, anti-individualist examples show that the identity of some modes of presentation is determined, not by the individual, but by a whole speech community. The individual might be deeply ignorant about the identity of the mode of presentation.[31]

This point meshes neatly with interpretive liberalism.[32] (The proposed theory of propositions is strictly speaking neutral on this view, however.) According to it, what is required for a belief ascription to be appropriate (at least in many cases) is simply a relevant sort of interpretive rationale regarding the subject's cognitive commitments. In some cases, those commitments might well be determined in part by other people. Indeed, the ascribed proposition might even involve modes of presentation which are introduced by the ascriber, or the ascriber's community. For example, an advocate of interpretive liberalism might hold

[31] These points, together with §9.3 and note 42, show why Stephen Schiffer's skepticism (1992) about a propositional treatment of mental content is not justified. To begin with, most of Schiffer's arguments are aimed against hidden-indexical theories; since the present theory is not of that type, those arguments do not apply. Schiffer's main arguments against the present theory would evidently be an adaptation of his arguments against Fregean theories. For that style of argument to work against our theory, evidently Schiffer would need to assume something like the following: if our analysis of the proposition that Cicero is a person were correct, then whoever believed this proposition would need to believe—or be disposed to believe—that "Cicero" is a mode of presentation of the object of his belief. (Likewise, Schiffer would evidently need to suppose that, if two people believe this proposition, they would have to "think of" Cicero in the same way, namely, as falling under the mode of presentation "Cicero".) But this requirement is implausible: to someone who believes this proposition, the proposition is seamless; no auxiliary beliefs about—or dispositions to have beliefs about—the indicated mode of presentation are required (and there is no one "way" in which the person must "think of" the object). If there is doubt about this, I suspect it results from a lingering commitment to a reductionist view of propositions, specifically, to some kind of propositional-complex theory. Indeed, Schiffer explicitly attributes such a view to contemporary Fregeans. True, if to believe a proposition is to believe an ordered set, say, $<mode_1, mode_2>$, there would be a temptation to think that the modes of presentation making up this ordered set are transparent to the believer. But genuine propositions are seamless, and the believer is typically in the dark about how they should be analyzed and, in particular, about what modes of presentation would be involved in the analysis.

[32] A range of philosophers have advocated this view. For a development of an externalist version, see Bilgrami (1992).

that it would be appropriate to ascribe to Aristotle a belief that the Morning Star = the Evening Star, where the logical analysis of this proposition is in terms of descriptive predication, identity, and *our* modes of presentation "the Morning Star" and "the Evening Star".[33] In such cases, of course, the believers would not be acquainted with the propositions which are correctly ascribed to them as beliefs; acquaintance is an altogether different matter. Likewise, the beliefs that figure in a science of behavior might form a smaller class; science is also a different matter. The goal of this paper, of course, is not to give a systematic theory of belief ascription. Rather, the hope is to provide a theory of propositions rich enough to provide all the relevant contents needed to underwrite our belief-ascription practices. One can succeed at the latter goal without attempting the former. For that matter, one may even hold that a systematic theory of belief ascription is not possible. I need not take a stand on this question.

(3) I have been invoking both Platonic and non-Platonic modes of presentation. For something to be a Platonic mode of presentation, it is necessary and sufficient that it be a property or relation (or concept). But what does it take for something to be a non-Platonic mode of presentation? Three points are called for. First, though theoretically attractive, a general analysis (jointly necessary and sufficient conditions) for the notion of a mode of presentation is not *required*; it is enough to have a (relatively clear) grasp of what does and does not count as a mode of presentation in the intended sense. And this we have. Second, the non-reductionist approach (if correct) does make it possible to give a general analysis; a mode of presentation is any item for which relevant fundamental logical operations (e.g. $\text{pred}_d$) are well-defined.[34] We then have the following: something is a non-Platonic mode of presentation iff it is a mode of presentation and it is not Platonic. As long as the non-reductionist theory is correct, this analysis is free of counterexamples. Third, there remains a further question even if the analysis is correct: by virtue of what do particular kinds of non-Platonic modes of presentation present things? Here, too, answers would be theoretically attractive, but none are *required*. Nevertheless, I believe that there are answers. Because we have an analysis of the general notion of non-Pla-

[33] Likewise, an advocate of interpretive liberalism might, as in P. T. Geach's example, hold that it would be appropriate for a reporter to say that Hob believes that a witch blighted the sheep and Nob believes that she killed the cow (Geach 1967). The logical analysis of Nob's proposition might involve the non-Platonic mode of presentation "she", where "she" might be the very token produced by the reporter. See §9.2 below.

[34] For example, $u$ is a mode of presentation iff $\text{pred}_d(v, u)$ has a value for some argument $v$.

tonic mode presentation, we are free to tackle the present question piecemeal. For example, by virtue of what do pictures present objects? By virtue of what do living names present objects? etc. To answer these questions, we should turn to the rich philosophical literature that deals with them. We find there a variety of promising approaches: causal, intentional (e.g. Gricean), historical, teleological, etc. Let the experts decide.[35]

(4) I have called upon non-Platonic modes of presentation in my explanation of various differences in fine-grained content; I have not taken a stand on how to integrate this explanation into our theory of language. One (to me, implausible) approach would be to identify non-Platonic modes of presentation as *senses* of proper names. More plausibly, the theory of propositions sketched here could be integrated into a semantics for whole sentences without holding that constituent proper names literally have any senses. What would be required is some regular connection between proper names and associated non-Platonic modes of presentation, and there is indeed such a connection for our standard kinds of proper names. Alternatively, the theory of propositions isolated here could be utilized in pragmatics alone. My goal has been to sketch a more satisfactory theory of propositions, not to take a stand on how it should be incorporated into a finished theory of language.

(5) In §2 I took it as a desideratum that a formulation of the theory of propositions should be consistent with actualism—the doctrine that everything there is actually exists. In the sort of intensional structures I have described, there are extensionalization functions $H$ such that $H(\mathfrak{E})$ contains something not contained in $G(\mathfrak{E})$. If intensional structures are understood as I informally described them, the domain $D$ would need to contain things that do not actually exist. Accordingly, they would not be actualist in character. In the present setting, the easiest way to make them fully actualist is to treat the domain $D$ as consisting of actually existing particulars, modes of presentation, and propositions plus actually existing ersatz entities which play the role of "non-actuals".[36] In the end, however, it is preferable is to adopt a more thoroughgoing intensionalism. The main idea is to build the theory around singular identity properties, that is, properties $x$ for which it is possible for there to exist something $y$ such that $x$ = the property of

[35] Suppose that propositional-attitude states must be invoked in answering the indicated questions. Someone might worry that the answers must then be circular. But it can be shown, I believe, that this is not so.

[36] Here is one way in which this may be done. Singleton sets consisting of anti-existentialist singular identity properties are to be the indicated ersatz entities: a singleton set $\{x\}$ plays the role of a "non-actual" iff it is *possible* that there exist an entity $y$ such that $x$ = the property of being identical to $y$ but that there does not *actually* exist anything $y$ such that $x$ = the property of being identical to $y$.

being identical to $y$. (In symbols, $x$ is a singular identity property iff $\Diamond(\exists y)$ $x = [v\colon v = y]$.) What makes this work is anti-existentialism—specifically, the fact that all properties (including singular identity properties) are anti-existentialist in character. In particular, each singular identity property $x$ exists necessarily and does so even if there exists no object $y$ in terms of which $x$ may be analyzed. Because they exist necessarily, singular identity properties may play a role somewhat analogous to that which possible individuals play in possibilist constructions, but without jeopardizing the actualist character of the theory.

In our original construction, existensionalization functions $H$ tell us the possible extensions of a property (or relation)—that is, the set of things that actually have the property or that would have the property if things were different. In the thoroughgoing intensionalist construction, the main work is done instead by intensionalization functions. These functions tell us the "intension" of a property, namely, a relevant set of singular identity properties. In the case of the actual intensionalization function, this is the set of singular identity properties which pick out items actually having the property. In the case of other intensionalization functions, these sets consist of those singular identity properties which would pick out the items that would have the property if things were other than they actually are. Using intensionalization functions, we can then characterize, much as before, the behavior of the fundamental logical operations with respect to items in the domain. For example, relative to intensionalization function $I$, exist($F$) = true iff, for some $x$ in $I(\mathcal{E})$, $x$ is in $I(F)$. That is, relative to $I$, the proposition that there exists an $F$ is true iff, for some singular identity property $x$ that is in the intension of the property existence, $x$ is also in the intension of $F$. In this manner, we achieve a way of making our construction fully consistent with actualism.[37]

## *9. Applications*

I will close by suggesting candidate solutions to some further puzzles about content.

(1) Kripke's (1979) puzzle about Pierre's beliefs.[38] Upon seeing a picture of a pretty-looking city labeled "Londres", Pierre states "Londres est jolie". Later, after living in an unattractive section of London, he states "London

[37] In this setting, all the elements of $D$ are actually existing particulars and genuine properties, relations, and propositions.

[38] Katz (1994) proposes an elegant descriptivist solution to Kripke's puzzle which is metalinguistic in a standard sense. Unlike Katz's solution, the proposal in the text is designed to be neither descriptivist nor metalinguistic in any standard sense.

is not pretty". Let us agree that Pierre does not have explicitly contradictory beliefs. But what, then, does he believe? A promising answer is that the proposition he believes on the first occasion is $pred_d$(being pretty, "Londres") whereas the proposition he believes on the second occasion is neg($pred_d$(being pretty, "London")).[39] These two propositions are not in contradiction, for $pred_d$(being pretty, "London") ≠ $pred_d$(being pretty, "Londres"). This is so because "London" ≠ "Londres".[40] This account satisfies Kripke's demand that Pierre's beliefs not be metalinguistic in any of the standard senses.

(2) The traditional problem of negative existentials. How can a sentence like "Pegasus does not exist" express a true proposition given that "Pegasus" lacks both a reference and a descriptive sense? The proposed solution is that the sentence expresses (something like) the true proposition neg($pred_d$(existence, "Pegasus")).

In a similar vein, recall Geach's puzzle of intentional identity (see note 33). Suppose Geach's reporter says, "Hob believes that a witch blighted the sheep and Nob believes that she killed the cow. But, of course, there

[39] Or he might also believe the singular proposition neg($pred_s$(being pretty, London)). This proposition does not contradict the one he believed originally, for $pred_s$(being pretty, London) ≠ $pred_d$(being pretty, "Londres").

If the interpretative liberalism described in §8.2 is correct, there might be an interpretative context in which it would be correct to report that Pierre believes both the proposition that London is pretty and its negation and, hence, that he has contradictory beliefs. Suppose so. Then the puzzle in the text would concern *other* interpretative contexts in which it would not be correct to report this. In such contexts, what propositions would we hold to be the objects of Pierre's beliefs when he sincerely asserts the indicated sentences? The proposal in the text is designed to answer that question.

[40] Kripke (1979) poses a second puzzle. In one conversation Peter sincerely and literally states "Paderewski has musical talent". But not knowing that the prime minister is the famous pianist, Peter in a subsequent conversation sincerely and literally states "Paderewski does *not* have musical talent". On the most straightforward interpretation, I believe it would be appropriate to say that Peter asserts and believes contradictory propositions, for example, $pred_d$(having musical talent, "Paderewski") and neg($pred_d$(having musical talent, "Paderewski")). One reason is this. Suppose that someone else, Paul, states the same two sentences except that Paul knows that the prime minister is the pianist. Although Paul speaks literally, he does not speak sincerely when he states the second sentence; on the contrary, he is telling a lie. Plainly, Paul asserts contradictory propositions. But surely he asserted the same things Peter asserted. To deny this, one would have to hold that Paul's mere intention to lie prevents Peter and Paul from communicating! Now Peter believed what he asserted, for he spoke sincerely. Since he asserted the same contradictory propositions asserted by Paul, it follows that Peter's beliefs are contradictory. This, of course, does not show that Peter was irrational. Rationality is determined, not by *all* of a person's beliefs, but only by a more privileged subset of them. Such propositions may be straightforwardly characterized within the proposed theory of propositions. Note that this theory is not itself committed to Peter's having contradictory beliefs; alternative interpretations are plainly feasible within the theory.

are no witches. So she does not exist". Suppose the reporter's negative existential utterance of "So she does not exist" expresses a true proposition. This proposition might be (something like): neg(pred$_d$(existence, "she")). Here "she" would be a non-Platonic mode of presentation, perhaps even the very token of the pronoun in the reporter's utterance.[41] We need not endorse exactly this hypothesis; but, if it is on the right track, our theory of propositions should, by similar means, be able to accommodate a variety of kindred phenomena (fiction, dreams, etc.) which have often led people to Meinongianism.

(3) A substitutivity failure involving synonymous predicates rather than co-referential names. How can the proposition that whatever chews masticates differ from the proposition that whatever masticates chews, given that chewing is the same property as masticating? A promising proposal is to explain the difference between these two propositions in terms of distinct non-Platonic modes of presentation of this property (e.g. "chew" and "masticate"). The two propositions are alike in all respects except that the *order* in which "chew" and "masticate" occur in their logical analyses is reversed.[42]

(4) A puzzle for scientific essentialism. Consider an English speaker who is familiar with the name "Phosphorus" but not "Hesperus". Suppose that by pure chance this person announces, "I hereby stipulate that 'Hesperus' is to be another name for Phosphorus". In this case, a line of reasoning akin to that used in the meter-stick example would commit Kripke to holding that there is something the person would thereby come to know a priori. Would it be the oft discussed necessity that Hesperus = Phosphorus? An

[41] Alternatively, "she" could be what Hans Kamp calls a discourse object (Kamp and Reyle 1993). Kamp's theory could be integrated into the theory of propositions presented here. This would fill a gap: as it stands his theory provides truth conditions for relevant sentences, but it does not tell us what *propositions* are expressed by such sentences.

[42] Of course, it is also natural to use "Whatever masticates chews" to express a "mixed" proposition whose logical analysis involves both a non-Platonic mode of presentation ("masticate") and a Platonic mode (the property of chewing). Likewise for "Whatever chews masticates". The difference between these two mixed propositions resides solely in the *order* in which these modes of presentation appear in the analyses.

By generalizing the ideas in the text all the way, one can get a family of propositions whose logical analysis involves exclusively non-Platonic modes of presentation (living names, living predicates, etc.)—and, of course, logical operations. The resulting propositions may be thought of as mere "shadows of sentences", as in Schiffer's recent view (Schiffer 1994). Unlike Schiffer, however, one would not be forced to give up compositionality and the various highly plausible explanations it provides.

A related idea is that a non-Platonic mode of presentation "arthritis" might well be involved in the logical analysis of the oblique object-level use of "arthritis" discussed by Tyler Burge (1979).

answer in the affirmative would result in the downfall of the scientific essentialist doctrine that such necessities are essentially a posteriori. The proposed approach to fine-grained content yields a natural solution to this problem. The new non-Platonic mode of presentation associated with the just introduced name differs from the long-standing non-Platonic mode of presentation associated with the old name. The proposition which our speaker comes to know a priori is a descriptive predication obtained from the new non-Platonic mode. The corresponding proposition obtained from the old non-Platonic mode is the familiar proposition which is essentially a posteriori. In my opinion, some such solution is needed for harmonizing Kripke's scientific essentialism and the sort of a priori knowledge which results from stipulative definitions.

(5) A second puzzle for scientific essentialism. You and I have a vivid twin-earth intuition for water: if all and only water here on earth is composed of $H_2O$, then on a twin earth a stuff which has all the macroscopic properties of water (drinkable, thirst-quenching, etc.) but which is composed of XYZ ($\neq H_2O$) would *not* qualify as water. But you and I lack the corresponding twin-earth intuition for drink; indeed, we have the contrary intuition: even if all and only drink on earth is composed of $H_2O$, on a twin earth a stuff which has all the macroscopic properties of drink (drinkable, thirst-quenching, etc.) but which is composed of XYZ *would* nonetheless qualify as drink. What accounts for the difference? No doubt the answer begins with the fact that water is a compositional stuff whereas drink is a functional stuff (drink is *for* drinking and quenching thirst). (For more on this puzzle and the compositional-stuff/functional-stuff distinction, see Bealer 1987.) But how does the compositional/functional distinction help to explain the curious asymmetry in our intuitions?

An answer (though perhaps not the only answer) may be formulated within the partial-content theory sketched in §7. According to it, the Platonic concepts of being a compositional stuff and being a functional stuff figure somehow in the sortal content of respective propositions about water and food The simplest way this could happen would be that the sortal content of the former would just *be* the concept of being a compositional stuff, and the sortal content of the latter would just *be* the concept of being a functional stuff.[43] But this would be too hasty.

[43] The proposition that water is plentiful would be $\text{pred}_d$(plentiful, $W$), where $W$ is conj("water", being a compositional stuff)). And the proposition that drink is plentiful would be $\text{pred}_d$(plentiful, $D$), where $D$ is conj("drink", being a functional stuff). There are, of course, associated *de re* propositions in whose analysis $W$ would instead be conj(being identical to $x$, being a compositional stuff), where $x$ is water itself, and $D$ would be conj(being identical to $y$, being a functional stuff), where $y$ is drink itself. But the moral would be much the same: if someone were to intuit *de re* propositions concerning water and drink, it would be the Platonic sortal contents, not the objects $x$ and $y$ themselves, that would drive the intuitions.

We have a wealth of other twin-earth intuitions which go against this simple proposal. Here are three illustrative examples concerning water. (i) If, like jade, all and only water here on earth falls into two distinct kinds whose instances, respectively, are samples of UVW and XYZ, then on a twin earth a stuff all of whose instances are composed of XYZ *would* qualify as a *kind* of water. (ii) If, like live coral or caviar, all and only water here on earth is composed entirely of certain micro-organisms, then on a twin earth a stuff which contains no micro-organisms whatsoever but which nevertheless contains the same chemicals as those found in samples of water on earth would *not* qualify as water.[44] (iii) If every disjoint pair of samples of water here on earth have different microstructural compositions but nevertheless uniform macroscopic properties, then on a twin earth a stuff which has those same macroscopic properties would qualify as water.

In the case of drink, on the other hand, twin-earth intuitions have a pattern of their own which is distinctively different from that of the various twin-earth intuitions concerning water.

Considerations like these suggest that the simplified partial-content view suggested above needs to be replaced with a subtler view. It is here that the idea suggested in connection with the Venus example in §7 comes into play. There we saw that names need not have a *determinate* sortal content; rather, they can have a content which serves merely to restrict the range of permissible sortals. For example, in the case of "water", the sortal content would be an intension which encodes the information contained in the twin-earth intuitions. As in the Venus example, this sortal content would be a coarse-grained Platonic property equivalent to a conjunction of default conditionals. Of course, in the case of "drink" the sortal content would be different, as is reflected in the differing pattern in the twin-earth intuitions. In each case, however, the respective Platonic sortal content is what drives our intuitions. Those intuitions provide us with a limited amount of a priori knowledge about water and food (e.g. the a priori knowledge associated, pro and con, with the respective twin-earth examples themselves). By contrast, the non-Platonic components ("water" and "food") are largely opaque to intuition; our knowledge of relevant modal truths concerning them requires empirical investigation.

We have here the makings of an explanation of the a priori evidence (twin-earth intuitions, etc.) needed to justify the philosophical doctrine of scientific essentialism and, at the same time, an explanation of why various modal propositions about specific natural kinds (and their microstructure) require empirical investigation, making them essentially a posteriori.

[44] Analogy: Suppose that you kill the live coral, crush the result, and reconfigure the remaining powder into rock-like "reefs". Now synthesize a chemically equivalent rock-like material and configure it into "reefs" on twin earth. Is it really coral?

*Summary.* My overall purpose here has been twofold. First, I have tried to show how the traditional theory of propositions can be developed without resorting to reductionism. Second, I have tried to show how the resulting non-reductionist framework provides a promising style of solution to the problem of fine-grained content. I would not claim that these proposals are entirely correct; surely some adjustment will be needed. But I hope they make it plausible that the two problems—the problem of reductionism and the problem of fine-grained content—do not, as some of our contemporaries fear, undermine the traditional theory of propositions itself.[45]

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[45] I gave earlier versions of this paper at the 1990 European Summer School in Logic, Linguistics, and Information at the University of Leuven, the 1992 American Philosophical Association Pacific Division Meeting, the University of Padua, École Polytechnique, Stanford University, UCLA, and University of Alberta. I am grateful for the very helpful comments made by members of the audiences during those sessions. I give a technical development of many of the ideas here in Bealer (1993b).

I presented the algebraic approach to the theory of propositions in "Theories of Properties, Relations, and Propositions" (1979), *Quality and Concept* (1982), and "Completeness in the Theory of Properties, Relations, and Propositions" (1983). The main ideas of this approach were developed in my dissertation, University of California at Berkeley, 1973.

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