COGNITIVE SIGNIFICANCE AND COEXTENSIONALITY

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To my Mom

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Cognitive significance, as Frege was thinking of it, is a value speakers assign to sentences based on their informativeness. He was particularly concerned with explaining how sentences containing coextensional terms that, intuitively, express the same thought, or proposition, can differ in this respect. For example, sentences of the form '*a* = *a*', express trivial truths and are knowable a priori, yet, sentences of the form '*a* = *b*' often convey information which is neither trivial nor grounded a priori. The question is how to explain this, given that both sentences (if true) say the same thing about the same object, namely, that *a* is identical to itself. This has come to be known as Frege's puzzle. Frege, and many others, have taken the puzzle as an indication that such sentences do not, in fact, say the same thing and, as a result, have sought to explain differences in cognitive significance *semantically*. My aim is twofold. First, I raise a number of objections to the semantic approach, among them an argument that assumptions implicit in the construction of the puzzle straightforwardly rule out a semantic solution. Second, in light of this, I consider the virtues of a non-semantic approach and ultimately outline a non-semantic solution that does the explanatory work with the fewest assumptions. As an added bonus, I show how this account easily

extends to various related puzzles and problems, including empty names, negative existentials, and substitution in opaque contexts.

CHAPTER 1
INTRODUCTION

Cognitive Significance and Frege's Puzzle

It was once believed that the Morning Star, Hesperus, was distinct from the Evening Star, Phosphorus, but we have since discovered that, in fact, Hesperus is identical to Phosphorus. Perhaps only a philosopher would take issue with this sentence. After all, it is widely held—or at least widely claimed—that it took the advent of the telescope to conclusively determine that Hesperus is (identical to) Phosphorus. But what did the telescope reveal exactly? That the identity relation holds between a *pair* of objects? The identity relation, by definition, holds between a single object and itself, and nothing else. Moreover, it does not take empirical evidence to tell us that us that each object bears this relation to itself. No one has ever doubted that Hesperus = Hesperus, or that Phosphorus = Phosphorus. So, why are we inclined to speak as though we *discovered* that Hesperus = Phosphorus? Frege addressed this issue in "On Sense and Reference."

> Identity challenges reflection through questions which are connected with it and are not altogether easy to answer. . . . "a = a" and "a = b" are sentences of obviously different cognitive significance: "a = a" holds a priori and according to Kant is to be called analytic, whereas sentences of the form "a = b" often contain very valuable extensions of our knowledge and are not always grounded a priori.

Cognitive significance, as Frege appears to be thinking of it, is a value that speakers assign to sentences based on what can be learned from them. But we need to be careful in spelling this out. For one thing, Frege's remark that sentences of the form 'a = b' "often contain very valuable extensions of our knowledge" suggests that the cognitive values we assign them is dependent on their semantic content. But it is not clear that this follows. In fact, there are compelling arguments for rejecting this claim, so it will be

useful to define ‘cognitive significance’ in a way that does not presuppose this at the outset. The following definitions are an attempt to do this in a neutral way.

First, what a speaker can learn from a sentence is dependent on what follows from the sentence, if true, and what the speaker believes at the time:

(CS1) For any speaker, x, what x can learn at *t* from a sentence S (in language L) is what follows from S's being true (in L) and what x believes at *t*.

Given (CS1), we can spell out what it means for sentences to differ in cognitive significance in terms of what can be learned from them:

(CS2) For any sentences of L, S, S', for any x, for any time *t*, S and S' differ in cognitive significance (in L) for x at *t* iff what x can learn at *t* from S (in L) differs from what x can learn at *t* from S' (in L).

Finally, given (CS2), we can say, more generally, what it means for sentences to differ in cognitive significance:

(CS3) For any sentences of L, S, S', S and S' differ in cognitive significance (in L) iff it is possible for there to be an x and a time *t* such that what x can learn from S (in L) at *t* differs from what x can learn from S' (in L) at *t*.[1]

This definition is useful because it brings to light four points worth emphasizing about the puzzle.

I. While Frege suggests that the puzzle is peculiar to identity sentences, it seems clear that the same puzzle arises for sentences containing coextensional terms that do not involve the identity predicate. For example, sentences of the form ‘if a

[1] More relativization would be required for context sensitive sentences but, for simplicity, I ignore it here.

is F then a is F' and 'if a is F then b is F', where 'a' and 'b' co-refer, can also differ in cognitive significance, leading to the same puzzle.

II. To say that two sentences differ in cognitive significance is not necessarily to say that one of the sentences is *a priori*, and the other is not. For example, two *a posteriori* sentences containing coextensional terms can differ in cognitive value: 'Mark Twain is the author of *The Adventures of Huckleberry Finn*' and 'Samuel Clemens is the author of *The Adventures of Huckleberry Finn*'. Thus, while properties like *being a priori* and *being a posteriori* may provide sufficient conditions for when two sentences differ in cognitive significance they do not provide necessary conditions.

III. The cognitive value that a speaker assigns to a sentence is speaker relative. This may be true even in less obvious cases, like those involving identity claims. For example, take the pair 'Mark Twain = Mark Twain' and 'Mark Twain = Samuel Clemens'. The former is *a priori* and trivially true whereas the latter is often said to be *a posteriori* and informative. However, consider the epistemic status of the sentences for Mark Twain. Presumably, for Twain, they were equivalent in cognitive value. This suggests that cognitive significance should not be thought of as a property of sentences *simpliciter*, but as a relational property holding between sentences and speakers.

IV. The puzzle is not peculiar to proper names. The puzzle arises with coextensional expressions in general, including descriptions, indexicals, common nouns, and predicates. There are contexts, for example, in which each of the following pairs of

sentences involve extensionally equivalent terms and differ in cognitive value for a particular speaker.

(1a) The first Postmaster General is the first Postmaster General
(1b) The first Postmaster General is the inventor of bifocals

(2a) If something is gold then it is gold
(2b) If something is gold then it is Au

(3a) All eye-doctors are eye-doctors
(3b) All eye-doctors are oculists

(4a) This is this
(4b) This is that (where the same thing is demonstrated by ‘this’ and ‘that’)

(I)-(IV) suggest basic desiderata for a solution to the puzzle. An adequate account should accommodate each of these points.

While much of my focus will be on Frege’s puzzle and identity sentences, ultimately, my aim is to understand how coextensional sentences *of any type* can differ in cognitive significance. My hope is that coming to a better understanding of Frege’ puzzle will provide sufficient insight into the nature of the more general problem. I will begin by drawing a distinction between semantic and non-semantic approaches to the puzzle, discussing common examples of each type and the difficulties they face. In the remainder of the project I will outline an account, a species of the non-semantic variety, which avoids these difficulties. In addition, I will show that the proposal easily extends to a wide range of related and, perhaps a few seemingly unrelated, philosophical problems, including: the problem of empty names, fictional discourse, negative existentials, and substitution in belief and modal contexts.

CHAPTER 2
THE SEMANTIC APPROACH

Solutions to Frege's puzzle can be seen as falling into two general categories, semantic and non-semantic. The semantic approach seeks to account for differences in cognitive significance by positing some difference in semantic content between the sentences in question. According to this line, sentences of the form 'α = α' and 'α = β' differ in cognitive significance because they differ in semantic content. Non-semantic solutions, as the name suggests, seek to explain differences in cognitive significance by appeal to non-semantic factors. In this chapter, I focus on examples of semantic approaches, beginning with the theories of Frege and Russell and reviewing some of the standard objections. In the remainder of the chapter, I raise a number of objections against semantic solutions in general.

The Semantic Metalinguistic Solution

Initially, Frege (ibid.) treated sentences of the form 'α = β' as expressing a relation between proper names.

> What one wishes to express with "a = b" seems to be that the signs or names 'a' and 'b' name the same thing; and in that case we would be dealing with those signs: a relation between them would be asserted.

If this is right, then the identity predicate in such cases does not express a relation between objects in the world; rather, it expresses a relation between *names*. This suggests a *semantic* explanation of why 'α = α' and 'α = β' differ in cognitive value: the former *literally* says that 'α' and 'α' co-refer, a seemingly *a priori* truth,[2] while the latter says that 'α' and 'β' co-refer, which is something one comes to know *a posteriori*.[3]

[2] In ordinary language there are counterexamples because a name may have multiple bearers.

[3] There are apparent counterexamples to this as well; recall the example mentioned earlier regarding the epistemic status of 'Mark Twain = Samuel Clemens' for Mark Twain.

On this view, the identity predicate in statements of the form ‘α = β’ does not express the identity relation but the linguistic relation *has the same referent as*; the sentence ‘α = β’ says that ‘α’ has the same referent as ‘β’. It is a *semantic* solution in that it seeks to explain the difference in cognitive significance between ‘α = α’ and ‘α = β’ by treating the sentences as having distinct semantic content. On this account, the type of information conveyed is linguistic and part of the meaning of the sentence.[4]

The most common complaint against the metalinguistic solution is that it is counterintuitive. Frege, himself, later denounced it for this reason. As noted at the outset, that Hesperus is Phosphorus, e.g., is generally taken to be an astronomical discovery, and not just a fact about our use of the names ‘Hesperus’ and ‘Phosphorus’.

While I think this objection has some force, it seems to me that there is an underlying problem which should be addressed. The problem is that it is not clear what is driving the intuition that identity statements in ordinary discourse are about objects in the world. It is suggested that the truth of ‘Hesperus = Phosphorus’ is an empirical discovery, but, again, what was discovered, exactly? Not that a relation holds between *two* objects, because, given that the sentence is true, there is only *one* object in question. Nor can the sentence be said to express the proposition that Hesperus is identical to itself, as this is an *a priori* truth, not something that came to be known through empirical means. I will return to this question in the next section to see whether Frege’s preferred solution can provide a satisfactory answer.

[4] There is a non-semantic version of the metalinguistic solution which I will consider in the next chapter.

Another problem facing the (semantic) metalinguistic approach is that it is specifically aimed at cases involving identity claims. However, as noted earlier (in (I)) the puzzle is not peculiar to identity sentences. For example, take the sentences ‘if Hesperus is a planet then Hesperus is a planet’ and ‘if Hesperus is a planet then Phosphorus is a plane’. These two sentences differ in cognitive significance, presumably, for the same reason ‘Hesperus = Hesperus’ and ‘Hesperus = Phosphorus’ do, but the proposed solution clearly does not apply to such cases because it turns on a particular way of interpreting the identity predicate and, hence, works only for identity sentences.

Description Theories

Assuming that the identity predicate in sentences of the form ‘α = β’ is to be understood as it traditionally has been as expressing the identity relation, as opposed to a relation between the names ‘α’ and ‘β’, a semantic solution must posit different semantic values for ‘α’ and ‘β’. This line is incompatible with Mill’s view of proper names, the view that the meaning of a proper name is exhausted by its referent. The argument can be formulated as follows.

1. ‘α = α’ and ‘α = β’ differ in cognitive significance. [premise]
2. If two sentences differ in cognitive significance then they differ in semantic content. [premise]
3. ‘α = α and ‘α = β differ in semantic content [1, 2]
4. If the semantic contents of ‘α’ and ‘β’ are exhausted by their referents then if ‘α and ‘β co-refer then ‘α = α’ and ‘α = β do not differ in semantic content. [premise]
5. ‘α and ‘β’ co-refer. [premise]
6. The semantic contents of ‘α’ and ‘β’ are not exhausted by their referents. [3, 4, 5]

Thus, it appears that a semantic solution is incompatible with the Millian view of proper names, which suggests that the merits of a semantic solution to Frege's Puzzle depend heavily on its treatment of proper names.

Bertrand Russell suggested that ordinary proper names are abbreviated definite descriptions, which are best represented as quantified noun phrases.[5] On his view, a sentence of the form 'Hesperus is F' does not express a singular proposition which has Hesperus as a constituent. Instead, it takes the form of an existential sentence:

(1) $(\exists x)\ Hx\ \&\ ((y)\ Hy \rightarrow y = x)\ \&\ Fx$

Here, 'H' predicates a property (or conjunction of properties) said to be uniquely instantiated by the object. The logical form of 'Phosphorus is F', by contrast, contains a predicate distinct from H. Call it 'P':

(2) $(\exists x)\ Px\ \&\ ((y)\ Py \rightarrow y = x)\ \&\ Fx$

On this analysis, 'Hesperus = Phosphorus' differs in cognitive significance from 'Hesperus = Hesperus' because 'Hesperus' and 'Phosphorus' make different contributions to the sentence.

Frege held that proper names refer, but not directly. According to him, names refer by semantically expressing something else, a *sense*. The sense of an expression is a conceptual representation of whatever object uniquely fits the representation. According to this view, 'Hesperus' and 'Phosphorus' have the same referent but express different senses, which are said to *determine* the same referent. Thus, like Russell, Frege sought to explain differences in cognitive significance by positing distinct

[5] It is not clear to me that Russell's comments about proper names are best construed as *semantic* considerations, but I will assume they are, as this seems to be the general consensus (and, in any case, one could hold such a view).

semantic content for coextensional terms. Such theories are known as description theories because they treat proper names as referring via some descriptive content which speakers commonly associates with the name.

Objections to Description Theories

There are, however, serious difficulties facing theories of this sort. The most obvious problem, I think, is that the puzzle we are interested is not limited to sentences involving proper names. It is unclear, for instance, how such considerations could be extended to account for examples involving common nouns, such as (3a) and (3b).

Moreover, there are independent reasons for rejecting a solution to the puzzle that appeals to a description theory of proper names, because there are well known problems facing description theories in general. I will briefly mention two of the most commonly cited, each noted by Saul Kripke (1980).

First, intuitively, proper names are rigid, i.e., they designate the same object in every possible world in which the object exists. Most definite descriptions, by contrast, are not rigid; ‘the brightest object in the evening sky’, for example, might have designated an object other than Hesperus. Thus, the problem is that treating (non-rigid) descriptions as giving the meaning of proper names clashes with our modal intuitions. This is known as the modal problem

Second, a speaker may fail to associate descriptive content which uniquely determines the referent of a name, or may associate inaccurate content with a name, and yet still be a competent user of the name. For instance, suppose a speaker associates only some general descriptive content with ‘Hesperus’, say, *a celestial object*. According to the description theory, the speaker fails to refer to anything when using the name ‘Hesperus’ because the descriptive content *a celestial object* fails to

pick out Hesperus from among other celestial objects. Also, a speaker may associate descriptive content with a name that the referent of the name does not satisfy. For example, suppose one mistakenly associates the content *the brightest star in the evening sky* with Hesperus (in fact this was the case, as Venus was initially thought to be a star). The description theory predicts, implausibly, that each time the speaker uses the name 'Hesperus' he refers not to Venus but to Sirius. This is an example of what is known as the semantic problem. .

The Generic Semantic Solution

Frege's and Russell's theories exemplify an essential feature of the semantic approach. A semantic solution to Frege's puzzle requires positing distinct semantic contents for coextensional expressions. Presumably, as with descriptive theories of names, these contents will include distinct characteristics or properties associated with the object(s). However, since we do not want to limit our account to names, it will be useful to characterize this feature, more generally, in terms of coextensional expressions (names, common nouns, indexicals, etc.). The question we are interested in is how to understand differences in cognitive significance between two sentences that differ at most in having distinct coextensional expressions; call them e_1 and e_2. The semantic theorist must posit some property or set of properties P_1 as part of the content of e_1, and some property or set of properties, P_2 as the content of e_2 such that $P_1 \neq P_2$. The details—the particular properties involved and how these contribute to the truth-conditions of the sentence—may vary, but for the purposes of the subsequent discussion the details are unimportant. I will often allude to Frege's theory in my examples, because it is widely known, but what will be said should apply to any semantic theory that has this feature.

The Singularity Problem

As I see it, there is a fundamental problem that undermines any semantic solution of the generic type, as well as any semantic solution that treats the identity sign as expressing a relation between two (or more) objects (such as Frege's semantic metalinguistic solution). The instantiation of logical principles (the laws of identity, noncontradiction, excluded middle, Leibniz' Law, etc.) and inference rules (*modus ponens*, *modus tollens*, *reductio ad absurdum*, etc.) requires that for any name, *n*, the following two conditions be met.

(R1) *n* designates a single object on each of occasion of use (i.e., *n* is a singular term)

(R2) *n* designates the same object on each occasion of use

Without (R1) and (R2), we could not guarantee the truth of even seemingly *a priori* sentences of the form 'a = a', '~(*Fa* & ~*Fa*)', and '*Fa* v ~*Fa*'.

A semantic account of cognitive significance is committed to the view that 'Hesperus = Hesperus' expresses a trivial truth while 'Hesperus = Phosphorus' expresses a non-trivial truth. However, there is an implicit assumption in Frege's puzzle which seems to undermine this view. The assumption is that 'Hesperus' and 'Phosphorus' meet conditions (R1) and (R2). Part of the story is that the sentences 'Hesperus = Hesperus', 'Phosphorus = Phosphorus', and 'Hesperus = Phosphorus' are all true. And we can grant this only on the assumption that the terms designate one and the same object on each occasion of use, i.e., that 'Hesperus' and 'Phosphorus' meet conditions (R1) and (R2); otherwise it would be possible for a sentence like 'Hesperus = Hesperus' to predicate identity of distinct objects. One upshot is that this straightforwardly rules out Frege's original solution, the semantic metalinguistic solution.

According to that solution, a sentence like ‘Hesperus = Phosphorus’ says that the terms ‘Hesperus’ and ‘Phosphorus’ co-refer. However, conditions (R1) and (R2) preclude this. If ‘Hesperus’ and ‘Phosphorus’ are singular co-refering terms then whatever relation is expressed by ‘Hesperus = Phosphorus’ is a relation between an object and itself, not two distinct objects. That ‘Hesperus’ and ‘Phosphorus’ co-refer is a fact about *two* objects, viz., the names ‘Hesperus’ and ‘Phosphorus’, not a single object. By parity of reasoning, this would also rule out any view that treats the identity predicate as expressing an irreflexive relation.

On the other hand (R1) and (R2) also raise a problem for any semantic theory that treats the identity sign in the standard way, as signifying the identity relation. Given (R1) and (R2), it follows that ‘Hesperus = Hesperus’ says that Hesperus bears the identity relation to itself, which is *a priori* and, hence, uninformative. But, then, it also follows from (R1) and (R2), given that ‘Hesperus’ and ‘Phosphorus’ co-refer, that ‘Hesperus = Phosphorus’ expresses the same *a priori* proposition. Thus, the only obvious *a posteriori* premise in the set-up of the puzzle is that ‘Hesperus’ and ‘Phosphorus’ co-refer, and, as we have just seen, this cannot be what is expressed by ‘Hesperus = Phosphorus’, given (R1) and (R2). For this reason, it seems to me that the semantic approach is unequipped to explain the apparent informativeness of sentences like ‘Hesperus = Phosphorus’.

The Variance Problem

If differences in cognitive significance were to be explained semantically, we would expect any competent speaker to acquire the same—or at least very similar—information in coming across a sentence of the form ‘α = β’ because such information

would be expressed by the sentence.[6] However, there may be counterexamples. Pythagoras came to believe that the names ‘Hesperus’ and ‘Phosphorus’ designated the same *star*. Copernicus came to believe that the names designated the same *planet*. Presumably, prior to forming these beliefs, each man assigned different cognitive values to sentences of the form ‘Hesperus = Hesperus’ and ‘Hesperus = Phosphorus’. However, given their background beliefs about the nature of the object (Pythagoras believed it was a star, Copernicus believed it was a planet) it could have been the case that the contents of their beliefs differed, respectively. For example, suppose Pythagoras came to believe (something like) that the brightest *star* in the morning and the brightest *star* in the evening are one and the same *star*, while Copernicus came to believe (something like) that the brightest *planet* in the morning and the brightest *planet* in the evening are one and the same *planet*. Such discrepancies should not be possible if the explanation of why ‘Hesperus = Hesperus’ and ‘Hesperus = Phosphorus’ differ in cognitive significance is based on differences in semantic content. If the correct explanation were that ‘Hesperus’ differs in semantic content from ‘Phosphorus’ then we would expect Pythagoras and Copernicus to have formed *the same* (or a very similar) belief in discovering that the terms co-refer but it seems possible that they did not.[7]

One available move here is to treat semantic content as speaker-relative. Sainsbury (2002) suggests something along these lines, positing senses for expression tokens rather than types. But adopting this line runs the risk of yielding the sort of

[6] At least, assuming, that sentences do not vary in meaning for different speakers.

[7] In any case, it is not difficult to imagine cases that have this peculiar result.

psychological theory that Frege, for one, was opposed to. I will examine this option in greater detail in Chapter 5.

The Semantic Problem Generalized

Consider Pythagoras's belief that the names 'Hesperus' and 'Phosphorus' designate distinct stars. The sentence 'Hesperus = Phosphorus' might have been cognitively significant for him for reasons that are inconsistent with what we now know about the referent of these names, namely, Venus. For instance, in recognizing the truth of 'Hesperus = Phosphorus', he might have come to believe that the brightest star in the evening was identical to the brightest star in the morning. To explain his epistemic position semantically we must assume that part of the semantic content of the terms 'Hesperus' and 'Phosphorus' includes the property of *being a* star, which seems counterintuitive because the names pick out a planet, not a star.

The Problem of Ignorance

A further problem for the semantic approach is that there appear to be cases where the only suitable semantic content is metalinguistic. For example, suppose a competent English speaker with no knowledge of the Roman orator Cicero, nor any familiarity with the names 'Cicero' or 'Tully', comes across the sentence "Cicero is Tully." Despite her ignorance, it is plausible to think that the sentence will differ in cognitive significance for her from the sentence "Cicero is Cicero" because, in encountering the former, she comes to form the non-trivial belief that 'Cicero' and 'Tully' co-refer. If we take a semantic approach to explaining cognitive significance then we must say that this metalinguistic information constitutes the semantic content of "Cicero is Tully" because, by hypothesis, the speaker is not in possession of any additional information about the names 'Cicero' or 'Tully' that could plausibly count as semantic

content. This explanation would commit the semantic theorist to the (semantic) metalinguistic view, which seems untenable for reasons we have already considered.

The Modal Problem Generalized

Kripke's modal considerations raise further complications for the view that identity statements like 'Hesperus = Phosphorus' are informative. The difficulty lies in reconciling the view that such sentences are informative with the view that the identity predicate expresses a relation between objects in the world. According to Frege, the truth of 'Hesperus = Phosphorus' is *a posteriori* because it expresses a proposition involving two distinct senses, the sense of 'Hesperus' and the sense of 'Phosphorus', and it is not *a priori* that these two senses determine the same object. But then it would seem to follow, contrary to the identity thesis ((x)(y) if x = y then □ x = y), that 'Hesperus = Phosphorus' does not express a necessary truth. For example, take Frege's theory and suppose that the sense associated with 'Hesperus' is something like *the brightest object in the morning sky* and the sense of 'Phosphorus' is *the brightest object in the evening sky*. Then 'Hesperus = Phosphorus' expresses the proposition that the brightest object in the morning sky = the brightest object in the evening sky. But, as Kripke pointed out, this is not a necessary truth because the descriptions flanking the identity sign are not rigid designators (terms that pick out the same object in every possible world). Frege's objection to the metalinguistic account was that, intuitively, the truth of a sentence like 'Hesperus = Phosphorus' is an empirical discovery. Interestingly enough, Kripke (1980, pp. 28-29) has made similar remarks:

> [We] see a star in the evening and it is called 'Hesperus'…. We see a star in the morning and call it 'Phosphorus'. Well, then we find… that Hesperus and Phosphorus are in fact the same. So we express this by 'Hesperus is

> Phosphorus'. Here we're certainly not just saying of an object that it is identical with itself. This is something we discovered.

However, we have just seen that this view, while intuitively compelling, clashes with another intuitively compelling view: that true identity statements are *necessarily* true. It seems to me that any semantic approach which treats the identity sign as expressing the identity relation is going to face the same difficulty. Again, on any semantic view, the informativeness of a sentence of the form '*a* = *b*' will be explained by positing distinct semantic content for '*a*' and '*b*'. This content will involve properties of, or associated with, the object *a*/*b*. But it is not clear that this can be done in a way that is consistent with the view that such sentences express necessary truths. On the Millian view of proper names, the explanation is straightforward: the names '*a*' and '*b*' have the same semantic content, object *a*. Thus, the sentence '*a* = *b*' is true. Furthermore, by the identity thesis, the sentence is *necessarily* true (assuming proper names are rigid designators). But if we posit non-Millian values for 'a' and 'b' there does not appear to be a tenable way to reconcile the view that 'a = b' is both necessarily true and informative. Take any such theory and let P_a be the property or properties that makeup the content of '*a*' on the theory, and let P_b be the property or properties that are constitutive of the content of '*b*'. The problem is that unless P_a and P_b are essential properties—properties had by *a* necessarily—then '*a*' and '*b*' will not be rigid designators and, thus, it will not follow that '*a* = *b*' is necessarily true.

There are a couple work-around options for this problem. One method involves *rigidifying* the terms flanking the identity sign by invoking modifiers that in effect transform them into rigid designators. A common way of doing this is by prefixing the nominal of a definite description with the term 'actual'. For instance, the descriptions 'the

actual brightest object visual in the evening sky' and 'the actual brightest object visual in the morning sky' are said to pick out the same object in every possible world, viz., Venus. If this is right, then the following expresses a necessary truth.

(2) The actual brightest object visual in the evening sky = the actual brightest object visual in the morning sky.

Thus, if 'Hesperus = Phosphorus' expresses something like (2) then we could develop a semantic theory of the generic type that yields necessarily true identity statements. The problem with this move, however, is that, in effect, it treats the expressions flanking the identity sign as contributing nothing more to the sentence than the unique object denoted by [(the F)], even though there is a term appearing in it which has an intension, and our grasping its intension is relevant to our understanding of what it picks out. In other words, to get the result we want—that sentence (2) is necessarily true—we have to understand it as expressing the same proposition that 'Hesperus = Phosphorus' expresses on the Millian view of proper names: that a particular object (Venus) is identical to itself. This is an *a priori* truth, and one that holds irrespective of the expressions we use to pick out the object in question. Thus, while the rigidifier move does yield necessarily true sentences of the form '*a* = *b*', it does not ultimately help us account for the intuition that they're informative.

Another option is to subscribe to a dual-content view, according to which, such sentences express two (or more) propositions. Bealer (1993), for example has argued that a sentence of the form 'a = b' expresses (at least) two propositions, a proposition that is knowable *a priori*, and a proposition that is knowable *a posteriori*. Perry (2001) has advanced a similar view. In each case the *a priori* proposition is said to be a singular proposition whereas the *a posteriori* proposition is said to include contingent

information about the referent which is tracked through conventional use of the terms that flank the identity sign. On the face of it, this line provides an answer to the modal problem. That ‘Hesperus = Phosphorus’ expresses a singular proposition explains the intuition that the sentence is necessarily true because it expresses the necessary truth that Hesperus/Phosphorus is self-identical. That ‘Hesperus = Phosphorus’ expresses an additional *a posteriori* proposition helps explain the intuition that the sentence is informative, because, in addition to the trivial information that Hesperus is self-identical, it also expresses non-trivial information—*a posteriori* information associated by convention among speakers of the language—about the referent. Unfortunately, this move does not avoid the problem of variance, the semantic problem, or the problem of ignorance.[8] Moreover, I think it will become clear that such a move is unmotivated. Ultimately, we can account for differences in cognitive significance without assuming that sentences are ambiguous in this way.

[8] At least, not without the consequence that the *a posteriori* proposition expressed can vary from speaker to speaker.

CHAPTER 3
THE NON-SEMANTIC APPROACH

The Non-semantic Metalinguistic Solution

The non-semantic approach seeks to explain the cognitive value a speaker assigns to a sentence by appealing to information which is independent from the information conveyed by the sentence. For example, one might endorse a *non-semantic* version of the metalinguistic account, according to which differences in cognitive significance are the result of metalinguistic information that is posited as part of the speaker's belief, as opposed to the semantic content of the relevant sentence. According to this line, sentences of the form 'α = β' differ in cognitive significance from those of the form 'α = β' as the result of the speaker's epistemic position with respect to the names 'α' and 'β'; she does not believe that 'α' and 'β' co-refer. Unlike Frege's metalinguistic solution (what I've been calling the 'semantic metalinguistic solution'), however, this information is not part of the meaning of the sentence. For instance, 'Hesperus = Phosphorus' does not express the proposition that 'Hesperus' and 'Phosphorus' co-refer, however, a speaker might infer this information upon encountering the sentence and thereby come to form a belief that she would not come to form in encountering the sentence 'Hesperus = Hesperus'. This provides a non-semantic explanation of why a speaker may assign different cognitive values to the sentences 'Hesperus = Phosphorus' and 'Hesperus = Hesperus'.

The good news about the non-semantic metalinguistic solution is that it avoids most of the difficulties raised against the accounts we have considered so far. First, it is compatible with the view that the sentences in question are about objects in the world, not names of objects, because it does not say anything about what is expressed by the

sentences. Second, it is not limited to identity statements; it can be easily extended to most of the cases mentioned in (IV) at the outset—in each case, the difference in cognitive value is simply attributed to differences in the linguistic vehicle. Additionally, since it is neutral with respect to what constitutes the semantic content of the sentences in question—including the semantic content of proper names—it does not face Kripke's objections to description theories. Furthermore, it provides us with an explanation of cases of ignorance. For example, consider again the Cicero case mentioned above. The sentence 'Cicero is Tully' may differ in cognitive significance from 'Cicero is Cicero' for a speaker who has no knowledge of Cicero because, in encountering the former, she may come to form a belief that she would not come to form in encountering the latter, namely, that 'Cicero' and 'Tully' co-refer. In this way, 'Cicero is Tully' is informative (for her) while 'Cicero is Cicero' is not.

The bad news is that this solution faces difficulties of its own. For one thing, like the previous solutions we considered, it is seemingly incompatible with the intuition that 'Hesperus = Phosphorus' expresses an *a posteriori* truth about objects in the world. For whether one tries to explain the intuition semantically or non-semantically, the metalinguistic approach is committed to an explanation which hinges on information about the terms involved, not about the objects those terms refer to.

I mentioned that the metalinguistic solution works for most of the example in (IV), however, one type of example it obviously cannot handle is a case like (1), where the demonstratives flanking the identity sign demonstrate the same object (imagine, e.g., the speaker pointing to two very different photographs of the same object).

(1) This = this

Intuitively, (1) could be informative in such a context. However, the metalinguistic view does not offer a satisfactory explanation since its explanatory power turns on there being distinct expressions in play.[9]

A further problem for the metalinguistic approach is that we can imagine cases where the puzzle arises even though the relevant linguistic information is not available. Consider the following thought experiment. Suppose that, prior to being introduced, Clark Kent and Lois Lane work as reporters for the Daily Planet newspaper in Metropolis. Lois has certain beliefs about Clark—that he is a reporter, that he is mild-mannered, and so on—but, importantly, she does not know that he goes by the name 'Clark Kent'. But suppose one day on her lunch break, Lois witnesses Clark enter a phone booth and emerge in tights and a cape, matching the description of the local super hero. It seems to me that there are three intuitively compelling assumptions one might make about the case described. 1) Lois comes to form a new non-trivial belief. 2) If Lois was aware of the fact that her coworker goes by the name 'Clark Kent' she might choose to express this new belief with the sentence "Clark Kent is Superman." 3) She would *not* choose to express this same belief with the sentence "Superman is Superman." Thus, it seems reasonable to say that "Clark Kent is Superman" and "Superman is Superman" differ for Lois in cognitive significance. However, it is clear that Lois's new belief is not the metalinguistic belief that 'Clark Kent' and 'Superman' co-refer, because she does not know that the name 'Clark Kent' refers to Clark Kent. Thus, the metalinguistic account (semantic or non-semantic) is of no help to us here. Call this the "Lois Lane problem."

[9] Assuming it hinges on types and not tokens. In any case, it is counterintuitive to think that the information conveyed, or inferred, in such a context is linguistic in nature.

CHAPTER 4
TOWARDS A NEW SOLUTION

Refining the Explanandum

Despite the problems facing the non-semantic metalinguistic solution, it seems to me that it is on the right track.[10] More specifically, I think it gives us sufficient conditions for explaining why sentences may differ in cognitive significance (for example, the Cicero case) but that it does not give us necessary conditions, as revealed by the Lois Lane problem and the demonstrative case. In my view, these problems arise because the metalinguistic solution is too narrow. Like all standard solutions to Frege's puzzle, it starts with the assumption that the explanandum essentially involves linguistic expressions, but it is not clear that this is the right place to start. We represent things in a number of ways which often leads to the same sorts of issues. Questions arise over whether two photographs are of the same person, whether two works of art are of the same place or thing, whether two observations are of the same phenomenon, and so on. Of course, such examples can be, and often are, cast as puzzles about linguistic expressions—we can use them to construct sentences of the form 'α = β' or 'all Fs are Gs' and then ask how they differ from sentences of the form 'α = α' or 'all Fs are Fs'. But it does not follow from this that the solution directly involves facts about these sentences or their constituent terms. In fact, it might be that thinking of the puzzle in this way is running interference on developing the right solution. It might be that the putative examples supervene on this more general phenomenon of co-representation. This is the line I plan to develop in the following chapters.

[10] See Biro (1995) for a more detailed discussion of the virtues of the metalinguistic solution.

I will use ‘representation’, at least initially, very broadly to include anything that intuitively is about, or picks out, some object for some particular individual. (In the broad sense I have in mind, most anything is apt to count as a representation, but typical examples include, words, books, photos, paintings, sculptures, sounds, mental images, etc.). For ease of exposition, I will set aside ontological issues; ‘Sherlock Holmes’ represents Sherlock Holmes, the Venus de Milo represents Aphrodite, and so on. (I will return to the ontological question, as it bears on issues I wish to address later.)

A Representational Account

The view I want to outline is a species of the non-semantic variety which is consistent with desiderata (I)-(IV) and avoids each of the difficulties mentioned in connection with the earlier solutions. To see how this approach differs from the ones we have considered so far let’s return to Metropolis and the Lois Lane problem.

Lois discovers something extraordinary about a certain male coworker. And while she does not know the man by name, it seems reasonable to suppose that, if she did, she might choose to express this belief with the sentence “Clark Kent is Superman.” It is also reasonable to assume that the sentence would differ for her in cognitive significance from the sentence “Clark Kent is Clark Kent” or “Superman is Superman.”

What exactly does Lois’s discovery consist in? Just prior to the event Lois witnessed an apparently ordinary man, a man with apparently ordinary properties like *being a reporter* and *being mild-mannered*, enter a phone booth. Let K be the set of these properties. It seems safe to say that whatever other properties constitute K, properties like *being faster than a speeding locomotive* and *being able to leap tall buildings in a single bound* are not among them. Let S be the set of these properties

(i.e., the set of properties Lois associates with the name ‘Superman’). Prior to the event, Lois believed that her coworker instantiated the properties of K. Afterwards, she comes to believe that he instantiates the properties of K *and* S.[11] So the information she comes by, upon witnessing this man in suit and tie enter a phone booth at time t_0 and emerge in tights and cape at t_1, can be characterized as a relation between a certain individual and two sets of properties, K and S.

So far there is nothing philosophically puzzling about the case described. The puzzle arises on the assumption that Lois would deem it appropriate to express her new belief, or something very similar, with the sentence “Clark Kent is Superman” (if she knew his name) and that this sentence would differ in cognitive significance for her from the sentence “Clark Kent = Clark Kent” or “Superman is Superman.” But this seems entirely plausible. We can imagine her asking around, learning his name, rushing into the editor’s office exclaiming “Clark Kent is Superman!”, and the announcement coming as a shock to the editor and everyone else at the Daily Planet. By contrast, the announcement “Superman is Superman!” would not make headlines. So the question is how to explain the difference between “Clark Kent is Superman” and “Superman is Superman” in this context, and whether the explanation is best understood as semantic or non-semantic.

In the present case we are assuming that Lois Lane would deem it appropriate to express her new belief with the sentence ‘Clark Kent = Superman’. The semantic theorist needs to say that ‘Clark Kent = Superman’ expresses something different than

[11] Or some combination of properties from both sets, as some of them may be incompatible. For example, K might contain the property *having human strength* while S could contain the property *having super-human strength*.

‘Superman = Superman’. A natural move would be to posit the properties of *K* as part of the semantic content of ‘Clark Kent’ and the properties of S as part of the content of ‘Superman’. This would yield a semantic solution to the puzzle: ‘Clark Kent = Superman’ differs in cognitive significance from ‘Clark Kent = Clark Kent’ because the two sentences have distinct semantic content. The problem, of course, is that this solution faces the problems covered in chapter 2.

The metalinguistic approach (semantic or non-semantic) does not work either. For one thing, by hypothesis, Lois does not have (at t_1) the relevant linguistic information (viz., that the man in question is named ‘Clark Kent’) required by the theory. What is more, even if she did have this information, it is counterintuitive to say that her discovery comes to nothing more than the knowledge that the names ‘Clark Kent’ and ‘Superman’ co-refer—it seems more accurate to say that it would involve non-linguistic properties like those in *K* and *S*.

As I see it, the semantic approach, while intuitively compelling, demands too much and that the metalinguistic approach, while less demanding, is too narrow. My strategy is to incorporate virtues of both. Consider, again, how the scenario might play out once Lois comes to learn that the man in question goes by the name ‘Clark Kent’. We can imagine her rushing into the editor’s office and exclaiming “Clark Kent is Superman!” with the intention of expressing something informative. By contrast, she would not run in and exclaim “Clark Kent is Clark Kent!” or “Superman is Superman!” with the same intention. This suggests that she does not believe that the editor realizes the two sentences are about the same individual, a reasonable assumption. Presumably the editor, and most everyone else in Metropolis—anyone who is not in Lois’s epistemic

position with respect to the matter—would form a new belief on this basis (the belief may vary from one person to the next because personal representations may differ, a point which will be accommodated by the positive proposal). Hence, for those people, the sentences “Clark Kent = Superman” and “Superman = Superman” differ in cognitive significance.

I think it is important, if possible, to preserve the intuition that often when we use identity sentences we intend to convey information about the extension(s) of the terms and not information about the terms themselves. It seems clear that Lois intends to convey information about Clark Kent, not the name ‘Clark Kent’ when uttering the sentence “Clark Kent is Superman.” However, unlike the semantic theorist, I think this point can be accommodated without semantic commitments. The main thing is recognizing that the puzzle in such cases is an instance of a phenomenon which is not peculiar to language. The present case is a clear example because the puzzle only arises when we consider how Lois would express her new belief *with a sentence*. Intuitively, what Lois intends to convey with the sentence “Clark Kent is Superman” is very similar, if not identical, to what she learned at t_1. What is required is a way of spelling this out that is compatible with our intuitions about the case. Intuitively, Lois has two distinct ways of representing Clark Kent, the *Clark Kent way* and the *Superman way*. Presumably, the former bears some relation to the properties of K, and the latter bears the same (type of) relation to the properties of S. From a theoretical standpoint, I do not think anything crucial hinges on how we understand this relation, so long as it captures what the speaker has in mind. It strikes me that the most economical approach is to simply identify them. Then we can characterize Lois’s epistemic position in the

following Russellian fashion. At $t_{0,}$ Lois believes that there is an *x* such that K*x* and a *y* such that S*y* and $x \neq y$ (where K and S predicate the properties of K and S, respectively). [12] At t_1 she believes that there is an x such that Kx and Sx.[13] Less idiomatically, she learns of a particular individual that, in addition to some ordinary characteristics (the properties of K), he exhibits some extraordinary characteristics (the properties of S). It is reasonable to suppose that this is what Lois intends to convey with the sentence "Clark Kent is Superman," because she believes her audience associates these characteristics (or at least a good number of them) with the names 'Clark Kent' and 'Superman'. In effect, on this view, the identity sentence is a shorthand way of conveying this descriptive information. In this respect, the suggestion is similar to the idea behind descriptive theories. The crucial difference, however, is that, on the present proposal, all that follows is that the information is *implicated*; it does not follow that it is expressed by the sentence.[14] The upshot is that we preserve the intuition that the information conveyed by sentences of the form 'α = β' is about objects in the world, without the semantic complications.

Thus, according to this view, it is not the semantic content that does the explanatory work; rather, it is what we might call the "representational content," which is captured by content clauses of the form "there is an x such that Rx…" where R is a predicate that includes properties that the speaker believes are instantiated by the object in question. Representational content is clearly speaker-relative. Thus, the

[12] For a full-fledged Russellian treatment, we need an additional conjunct specifying that the predicates are uniquely satisfied, but I will omit this detail for the sake of simplicity.

[13] Or some combination of the properties of K and S.

[14] This leaves open the possibility that the information *is* part of the content, in case there are independent reasons for thinking so.

account avoids the semantic problem and the problem of variance. Nonetheless, we should expect some overlap among speakers; typically, speakers associate a lot of the same properties with extensional expressions (e.g. *having the ability to fly*, and *being faster than a locomotive* are properties most speakers associate with the name 'Superman'.), so we secure the notion that when speakers use an expression they ordinarily have the same object in mind.

Another upshot of the proposal, is that it shows that Frege's puzzle does not pose a special problem for Mill's view of proper names. Recall the argument against the Millian theory:

1. 'α = α' and 'α = β' differ in cognitive significance. [premise]
2. If two sentences differ in cognitive significance then they differ in semantic content. [premise]
3. 'α = α and 'α = β differ in semantic content [1, 2]
4. If the semantic contents of 'α' and 'β' are exhausted by their referents then if 'α and 'β co-refer then 'α = α' and 'α = β do not differ in semantic content. [premise]
5. 'α and 'β' co-refer. [premise]
6. The semantic contents of 'α' and 'β' are not exhausted by their referents. [3, 4, 5]

On the present view, premise (2) is false. Recall, the primary support for (2) is based on the view that sentences like 'Hesperus = Phosphorus' express *a posteriori* truths; it is said that 'Hesperus = Phosphorus' expresses an *a posteriori* truth, whereas 'Hesperus = Hesperus' expresses an *a priori* truth, and this could not be the case unless the sentences differ in content. I've already pointed out several problems for the view that identity sentences can express *a posteriori* truths, but now I think we are in a better position to see why this should not be seen as evidence for premise (2). Frege suggested that the truth of 'Hesperus = Phosphorus' was a major astronomical

discovery but, again, it is unclear what this comes to. Consider the case of Pythagoras and Copernicus. Pythagoras initially believed ‘Hesperus’ and ‘Phosphorus’ referred to distinct stars; Copernicus initially believed that the names referred to distinct planets. We can imagine each man coming to form a new belief in recognizing the truth of the sentence “Hesperus = Phosphorus.” Do they each come to form the same belief? If they each learn that ‘Hesperus’ and ‘Phosphorus’ co-refer then yes, but then this is the sort of view that the example is supposed to undermine. So, supposing Frege was right that ‘Hesperus = Phosphorus’ expresses an *a posteriori* truth about some object in the world, what was discovered, exactly? On Frege’s theory, the names ‘Hesperus’ and ‘Phosphorus’ refer by expressing distinct senses, conceptual representations of whatever object uniquely fits the representation. This is supposed to explain why ‘Hesperus = Phosphorus’ differs in cognitive significance from ‘Hesperus = Hesperus’ but, intuitively, it gets the wrong result in a case such as this. Take Pythagoras, who initially believed that ‘Hesperus’ and ‘Phosphorus’ referred to distinct stars. We can imagine him discussing his “discovery,” claiming that at one time he believed that the brightest star in the morning was distinct from the brightest star in the evening but that he has since come to believe that they are one and the same star. If Frege was right, then we should be able to use this information to explain why ‘Hesperus = Phosphorus’ and ‘Hesperus = Hesperus’ differed in cognitive significance for Pythagoras (and why it differed for everyone else at the time who believed the same). We should be able to say that ‘Hesperus’ and ‘Phosphorus’ express distinct senses: ‘Hesperus’ expresses something like ‘the brightest star in the evening’ and ‘Phosphorus’ expresses something like ‘the brightest star in the morning’, however, we cannot say this for at least two

reasons. First, Venus does not meet either description, because Venus is not a star (the semantic problem). Second, we can easily imagine cases in which the sentences ‘Hesperus = Phosphorus’ and ‘Hesperus = Hesperus’ differ in cognitive significance for different individuals (the problem of variance). Suppose that, for Copernicus, the sentences differed in cognitive significance because his associated belief was that the brightest *planet* in the morning is distinct from the brightest *planet* in the evening. On a Fregean view, we would have to say that ‘Hesperus’ expresses something like ‘the brightest planet in the evening’ and ‘Phosphorus’ expresses something like ‘the brightest planet in the morning’. But this would conflict with Pythagoras’s case. Intuitively, Pythagoras and Copernicus came to form distinct beliefs. Thus, ‘Hesperus = Phosphorus’ and ‘Hesperus = Hesperus’ differed in cognitive significance for Pythagoras and Copernicus for different reasons, and a theory that treats the sentences as having distinct semantic content cannot explain this.

The meta-representational view, by contrast, handles these sorts of cases easily because, first, it is irrelevant on this view whether or not the representational content *accurately* characterize the object in question, and, second, unlike senses, it may (or may not) vary from one individual to the next. Initially, Pythagoras believes there are two stars, one that is only visible at night and one that is only visible in the morning. He has two distinct ways of representing Venus, one as a morning star, one as an evening star. Let ‘M’ stand for a predicate that captures the former and ‘E’ a predicate that captures the latter. Initially, he believes that there is an x such that Mx and a y such that Ey and that $x \neq y$. His later epistemic position consists in the belief that there is a single object which instantiates the properties of M and E (or, more idiomatically: that there is an x

such that Mx and Ex). Note, the fact that Venus is not a star is irrelevant, on this proposal, because even if Pythagoras were to learn of his mistake it would not change the fact that he *came to believe* that a single object instantiated both sets of properties, which is all that is required to explain why ‘Hesperus = Phosphorus’ is cognitively significant for him. We can, mutatis mutandis, explain Copernicus’s position.

CHAPTER 5
RELATED PUZZLES

Empty Names and Fictional Discourse

Another virtue of (R) is that it helps explain certain intuitions about ordinary discourse with fewer complications than a semantic theory. For example, consider the problem of empty names (names without referents). Intuitively, sentences containing empty names, like ‘Pegasus has wings’ and ‘Hamlet is a Dane’, are truth evaluative. ‘Pegasus has wings’ seems true while ‘Pegasus has antlers’ seems false. This is especially problematic for the Millian view of proper names, because if the semantic content of a proper name is exhausted by its referent then such sentences are semantically incomplete and neither true nor false.

I think the reason that sentences containing empty names are often treated as truth-evaluative in ordinary discourse is that they are (or, at least, can be) cognitively significant. An individual may come to form a new belief upon reading them or hearing them uttered. However, like the case of identity sentences, I do not think anything follows about the semantic content of the names involved. The representational framework can do the work of explaining these sorts of cases as well. Consider the sentence ‘Santa Claus has eight flying reindeer’. Believers and non-believers both assent to this sentence. A child may assent to the sentence because she believes it is true that a man owns eight flying reindeer, while adults may assent to the sentence because they believe it is true that *according to a myth* an individual owns eight flying reindeer (or something along those lines). Nonetheless, *in some sense*, they think the sentence is about the same thing. If we say that people assent to ‘Santa Claus has eight flying reindeer’ because the sentence is true then we need to explain how a

sentence containing a name without a referent could be true or false. This has been tried, by appeal to non-Millian theories of names, but these face difficulties already discussed. The general difficulty, as I see it, for any non-Millian account of empty names is this. If there is more to the semantic content of a name than its referent then the additional content must, in some way, involve properties to explain why the sentence is true or false and this inevitably leads to counterintuitive results. Take any proper name, N. If N is non-empty then a sentence of the form 'N is f' is true just in case N is f. If N is empty on the Millian view of proper names 'N is f' is not true because there is no object, N, that is f. Thus, to say that 'N is f' is true when 'N' is empty we must posit semantic content which is distinct from the referent. Presumably this will involve certain properties. Let P_1, P_2, P_3, …P_n be any such properties. It seems there are two options at this point, if we want to hold that 'N is f' is true: either F is identical to one of the properties P_1, P_2, P_3, …P_n or its instantiation is entailed by the instantiation of P_1, P_2, P_3, …P_n.[15] The upshot is that any *true* sentence containing an empty name will turn out *analytic* on such an account.[16]

[15] The sort of property entailment I have in mind is a necessary relation, e.g., instantiating the property *being red* entails instantiating the property *being colored*. Predication is then the analogue of instantiation: if we can predicate 'is red' of x then we can predicate 'is colored' of x. Hence, if 'N is red' were true in virtue of meaning then it would follow that 'N is colored' is true in virtue of meaning.

[16] This only applies to theories that claim there are *true* sentences containing empty names. On some non-Millian theories, such sentences are not true. For example, a descriptive theorist that appeals to a Russellian view of definite descriptions will treat sentences containing empty names as existential sentences. As a result, any sentence containing an empty name will turn out false because nothing will satisfy the description. For this reason, I think such theories are inadequate as explanations for cognitive significance—again, presumably the reason certain sentences containing empty names appear true is because they are cognitively significant, and, hence, descriptivist theories of this sort fail as *explanations* of cognitive significance because they do not help us explain the intuition that the sentences are true. The only exception to this that I can see is a semantic account based on an ontological theory such as Alexi Meinong's. Meinong held that names like 'Pegasus' and 'Hamlet' refer to beings of a sort—it just so happens that such entities do not exist in the same way that ordinary spatiotemporal objects do. One might argue that such entities have certain properties contingently, in which case certain sentences ascribing properties to them would not count as analytic (e.g., if it were the case that 'Pegasus' refers to such an entity and Pegasus does not essentially instantiate the property *having wings* then 'Pegasus has

Take the sentence

1. Hamlet is indecisive

If the sentence is true then the explanation must be that either the semantic content of 'Hamlet' includes the property of *being indecisive* or the semantic content involves some property, or properties, the instantiation of which entails the instantiation of *being indecisive*. In either case, the result is that (1) is *analytic*, which seems false.[17] The meta-representational theory does not have this consequence because it is neutral with respect to the semantic content of such sentences. It does not commit one to the view that these sentences are truth evaluative; instead, it offers an explanation of why one might be inclined to say that they are. In fact, it is a matter of some dispute among Shakespearean scholars whether or not (1) is true. Both sides hold that the sentence is meaningful and truth-evaluative but some have reasons for assenting to the sentence, while some have reasons for dissenting. Disagreements like this suggest that something is genuinely at issue in such cases, but no semantic theory of proper names *alone* can account for it. Any theory that treats the sentence as false (or untrue), such as Mill's or Russell's, clearly will not help. And any theory that treats the sentence as true appears to be committed to the view that the sentence is true solely in virtue of meaning, something presumably neither side would endorse.

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wings' wouldn't be true in virtue of meaning alone). In any case, Meinong's theory of objects is not a widely held view.

[17] Perhaps there are examples involving empty names where this result is less worrisome. The French mathematician Joseph Le Verrier sought to explain peculiarities in Mercury's orbit by positing the existence of an unobserved planet named 'Vulcan'. A semantic theorist could plausibly argue that the sentence 'Vulcan is a planet' is analytic because *being a planet* is part of the content of 'Vulcan' in virtue of the way the name was introduced. However, the problem remains when we consider apparently contingent attributions that are not included in the introduction of the name, for example, 'Vulcan's atmosphere contains trace amounts of argon' or 'Vulcan is heavily cratered'.

Many philosophers have suggested introducing qualifiers like ‘according to myth’ or ‘according to fiction’ to explain the apparent truth of sentences containing empty names. For example, we might understand a speaker’s utterance of “Pegasus has wings,” as expressing, or implicating, something like (P).

(P) According to myth, Pegasus has wings.

One obvious problem with this suggestion, as it stands, is that the empty name remains. Evaluating the truth of (P) is no less difficult than evaluating the truth of ‘Pegasus has wings’, because, first, we must specify what, if anything, ‘Pegasus’ contributes to the meaning of the sentence. If we treat ‘Pegasus’ as a Millian name, the sentence (P), like ‘Pegasus has wings’, is semantically incomplete and, hence, not true. In this case, the analysis clearly does not help us explain the intuition that the speaker conveys something true. On the other hand, if we treat ‘Pegasus’ as a non-Millian name, the semantic treatment alone may be enough to explain why the sentence appears to be true (suppose, for example, that we treat the name descriptively and part of the description includes the predicate ‘has wings’). In this case, we would not need an analysis like (P). So, it is unclear how this move, as it stands, could be of use.

For another thing, we can easily imagine cases where the speaker wishes to convey something true with an empty name which cannot be captured with a general qualifier like ‘according to myth’ or ‘according to story’. To use the earlier example, suppose a child that believes in Santa utters the sentence “Santa Claus has eight flying reindeer.” It seems clear that the child does not mean to convey something like (H).

(H) According to myth, Santa Claus has eight flying reindeer.

Presumably, she means to convey whatever one would convey with that sentence if the name ‘Santa Claus’ was not empty. This is a point accommodated by the representational account because it does not presuppose that the speaker knows the name is empty. On (R), the speaker’s disposition to utter, or assent to, “Santa Claus has eight flying reindeer” is accounted for by the fact that she believes that the name ‘Santa Claus’ refers to a person that owns flying reindeer.

Negative Existentials

Negative existentials, sentences of the form ‘N does not exist’, where N is empty, raise additional problems. Consider the sentence “Atlantis does not exist.” On the face of it, the sentence is both true and about something. But if the sentence is true, it is not about something because the subject term, ‘Atlantis’ does not denote anything. Semantic theories face the same dilemma here as with empty names. Any semantic theory that treats the sentence as false will not help us. And any theory that treats the sentence as true faces the same difficulty mentioned above of explaining how this could be so without the implication that it is true solely in virtue of meaning. Furthermore, the qualifier move clearly does not work here, because, intuitively, it is false that, according to myth, Atlantis does not exist.

On the representational view, by contrast, we can easily explain the apparent truth of “Atlantis does not exist” in the Russellian way. One who utters, or assents to, the sentence believes that there is no x such that Ax (where ‘A’ predicates properties the speaker associates with the name ‘Atlantis’). One virtue of the analysis is that it accommodates apparent disagreements over to the truth value of sentences where it is not an open question whether the name refers. ‘Atlantis does not exist’ is a good

example, because some speakers will dissent from it on grounds that there is, or was, such a place.

Modal Contexts

Consider Gibbard's (1975) well known example of Goliath and Lumpl. Goliath is a statue and Lumpl is the piece of clay from which the statue is made. At all times that Goliath and Lumpl exist, it seems they share all the same intrinsic properties. And, in this sense, it seems that Goliath and Lumpl are one and the same physical object, and, hence, numerically identical. However, it also seems that there are certain properties which Lumpl could instantiate but Goliath could not, and vice versa. For example, it seems Lumpl could take the shape of something other than a statue, but, presumably, Goliath could not. This problem is presented as a metaphysical one, but it can be cast as a puzzle about reference. Consider the following sentences.

(SC1) Goliath = Lumpl

(SC2) Lumpl could survive being shaped into a sphere

(SC3) Goliath could not survive being shaped into a sphere

Notice, if proper names are Millian then the sentences are incompatible (assuming Leibniz' Law: for any x and y, x = y iff x and y share all and only the same properties). But if names are not Millian then it is not clear that this is the case. Suppose, instead, that 'Lumpl' and 'Goliath' have properties as part of their semantic content. For example, suppose they are descriptive. Suppose 'Lumpl' is equivalent to 'the piece of clay chosen by X at t_0' and Goliath is equivalent to 'the statue sculpted by X at t_1'. In this case, (SC1) may be true, though only contingently, since the descriptions are not rigid designators. And (SC2) and (SC3) may both be true, because, for instance, while it seems possible that Lumpl could survive being shaped into a sphere, it seems we

cannot say the same of Goliath.[18] On this line, the support for (SC2) and (SC3) is due to the semantic content of the names involved. If part of the meaning of 'Goliath' involves the property *being a statue* then predicating a property of Goliath that is inconsistent with *being a statue* will yield a sentence that is not true. However, the problem, as before, is that any such view of proper names will entail analytic sentences of the form 'N is f', which, arguably, are *not* analytic.[19] I think (R) provides a simple and intuitive solution here. It is clear from the way in which the case is presented that certain distinct properties need to be made salient in connection with the names 'Goliath' and 'Lumpl'. If they are not then there is no puzzle. If, for example, it is not made clear that 'Goliath' refers to a statue, there is no support for the claim made in (SC3). For this reason, it is reasonable to think that what is driving the intuition that (SC2) is true while (SC3) is false is the result of thinking about what is possible with respect to what sorts of properties can be co-instantiated.[20] The property *being a piece of clay* and the modal

[18] There is a wide-scope reading, on a Russellian analysis of definite descriptions, which seems true, where S is the predicate 'is a statue sculpted by X at t_1': $(\exists x)(Sx \ \& \ (y)(Sy \rightarrow y = x) \ \& \ (z)(Sz \rightarrow \text{Possible}: \sim Sz))$.

[19] The generalized semantic problem, for one, raises a worry here. Suppose, before unveiling the statue, that the artist introduces the name 'Goliath' in conversation, revealing only that the name refers to his latest work of art. This sparks some discussion among those in attendance over the exact nature of the referent—does 'Goliath' refer to a statue, a painting, a short film, a piano concerto? Arguably, those involved in the discussion are competent enough with the name, but if *being a statue* were part of its content, the matter would be easily settled before the work was unveiled.

[20] Jubien (2001) endorses this line. According to Jubien, metaphysical problems such as the statue and the clay arise as the result of *object fixation*. "We tend to think that since a boat or a statue (etc.) is a physical object, any truth *about the boat* is just a truth *about the physical object* (and vice versa). In somewhat different terms, we tend to think that a truth about an object *qua* boat is perforce a truth about the object *simpliciter* (and vice versa)." (p. 5). But this leads to problems when we consider examples like Gibbard's. If our thoughts about the object *qua* statue and *qua* piece of clay are thoughts about the physical object *simpliciter*, the result is a contradiction: the object does and does not instantiate the modal property *possibly being squashed*. Jubien suggests that what is really going on is this. In thinking about the object *qua* statue, our thoughts are not merely about the object, but also about the property *being a statue*, and this explains our modal intuition that the object couldn't be spherical, for example, because the object could not possibly instantiate the property *being a statue* and some non-statue shaped property.

property *possibly being spherical* can be co-instantiated, whereas the properties being a statue and *possibly being spherical* cannot. Drawing on this, we can describe the case in a way that is consistent with (SC1) as follows. When one assents to (SC2) she has a belief of the form:

(SC2*) Possibly: there is an x such that x is a piece of clay and x is spherical

When one assents to (SC3) she has a belief of the form:

(SC3*) ~Possibly: there is an x such that x is a statue and x is spherical

Clearly, (SC2*) and (SC3*) are compatible with (SC1) since they yield true sentences for any name we plug in for x. At the same time this solution does not require additional semantic commitments.

Belief Contexts

The cases we have considered thus far show that there is often an asymmetry between speakers' beliefs and the sentences they choose to express their beliefs. This is a point worth emphasizing because there are a number of puzzles in the philosophy of language that apparently hinge on it. More specifically, they hinge on whether the following claim is true, sometimes referred to as the disquotational principle (D).

(D) If a competent speaker (in language L) sincerely utters/assents to 'p' (in L) then 'that p' provides the content of the speaker's belief.[21]

Consider the following thought experiment proposed by Burge (1979). First, imagine a competent English speaker who reports to his doctor "I have arthritis in my thigh." The report is false because arthritis is a condition specific to joints, but the patient is unaware of this.

[21] A more accurate expression of the principle would require adjusting it to accommodate for context sensitivity (e.g., indexicals and tense); for simplicity I ignore this complication.

Now, imagine the very same patient, with all the same intrinsic properties and history, but in this case the patient's linguistic community uses the term 'arthritis' to pick out, not arthritis, but a rheumatoid condition which is not specific to joints but also occurs in thighs; call it 'tharthritis'. In this *counterfactual* case, when the patient reports to his doctor "I have arthritis in my thigh" the utterance is true.

Burge argues that we cannot attribute the same beliefs to the patient in the initial case and his counterfactual counterpart. In particular, while the content-clause 'that he (the patient) has arthritis in his thigh' provides the content of the patient's belief in the first case, it does not provide the content of the patient's belief in the counterfactual case—rather, in the counterfactual case the patient believes that he has *tharthritis* in his thigh. If this is right, then it follows that some mental contents fail to supervene on intrinsic properties, and, hence, that internalism about mental content is false, since, by hypothesis, the patient and his counterfactual counterpart share all the same intrinsic properties. The argument has roughly the following form.

1. The patient in the first case and the counterfactual case have all the same intrinsic properties.
2. The content-clause 'that he (the patient) has arthritis in his thigh' (in L) provides the content of the patient's belief in the initial case.
3. The content-clause 'that he (the patient) has arthritis in his thigh' (in L) does not provide the content of the patient's belief in the counterfactual case.
4. Hence, the patient in the first case and the counterfactual case do not share all the same belief contents, and, hence, do not share all the same mental contents. (2-3)
5. Hence, sameness of intrinsic properties does not guarantee sameness of mental content (i.e., internalism about mental content is not true.). (1, 4)

This argument implicitly appeals to an assumption regarding the relation between what speakers report, or assent to, and the contents of their beliefs. According to the thought

experiment, the patient in the initial case, call him Patient-A, *reports* “I have arthritis in my thigh,” and the patient in the counterfactual case, call him Patient-C, develops the disposition to *assent to* “I have arthritis in my thigh.” However, premises (2) and (3) do not directly follow from this; the argument requires a further premise to the effect that what competent speakers report, or assent to, provides the content of their beliefs. In other words, Burge is implicitly appealing to something like (D).

Kripke (1979) asks us to imagine the case of Pierre, a native French speaker, who, having heard about London while living in France, comes to assent to ‘Londres est jolie’, which, in English, translates to ‘London is pretty’. Pierre later moves to a borough of London, which he finds unattractive and eventually picks up enough English to dissent from ‘London is pretty’. The hitch is that he is still willing to assent to ‘Londres est jolie’, because he does not realize that London is the same city he heard about referred to as ‘Londres’. Kripke insists there is a genuine puzzle here if we accept (D), because it would seem to follow that Pierre has a pair of contradictory beliefs about London: that London is pretty and not pretty.

The force of Burge’s and Kripke’s thought experiments clearly hinge on (D), however, if the right solution to Frege’s puzzle is non-semantic, we may have good reasons for rejecting (D). On a non-semantic account, the putative examples of Frege’s puzzle may provide counterexamples to (D). The suggestion that a content clause like ‘that Hesperus = Phosphorus’ provides the content of one’s belief presupposes that the semantic content of the sentence, whatever it may be, is identical to one’s belief content. However, since the non-semantic approach is neutral with respect to semantic content, this need not be the case, and, arguably, is not the case. Intuitively, when one

assents to or utters “Hesperus is Phosphorus” she has an a posteriori proposition in mind. But suppose names are Millian, i.e., the meaning of a name is exhausted by its referent. On this view, ‘Hesperus is Phosphorus’ does not express an a posteriori proposition; it expresses the same proposition as that expressed by ‘Hesperus is Hesperus’. Hence, the content clause ‘that Hesperus is Phosphorus’, on the Millian view, does not provide the content of one’s belief in uttering or assenting to ‘Hesperus is Phosphorus’. Thus, sentences of the form ‘a = b’, which are intuitively informative, arguably provide counterexamples to (D).

CHAPTER 6
ALTERNATIVE NON-SEMANTIC SOLUTIONS

Before closing, I want to mention a few solutions which I think are similar in spirit to the meta-representational solution. Like (R), these are non-semantic theories. They seek to understand differences in cognitive significance by recognizing and explaining differences between speakers' thought content and the content expressed by the linguistic vehicle.

Nathan Salmon (1986) proposed a way of explaining differences in cognitive significance by treating belief as a ternary relation between believers, propositions, and a third relatum that varies according to the way in which believers may be familiar with a particular proposition. For example, when we say that a speaker does not believe that Hesperus = Phosphorus (though she believes that Hesperus = Hesperus), we mean to assert a relation between the speaker, the proposition that Hesperus = Phosophorus, and x, where x is the speaker's means by which she is familiar with the proposition. Suppose, x is the sentence 'Hesperus = Phosphorus'. Then we might say that the speaker does not believe that Hesperus = Phosphorus when she understands this information in the way she does when it is presented to her through the sentence 'Hesperus = Phosphorus'.

Salmon's view does not strike me as an ideal solution for a few reasons. First, the account is based on singular propositions. That is, it treats the propositional content expressed by a sentence containing a proper name as partly consisting of the referent of the name (e.g., the singular proposition expressed by 'Socrates is wise' consists of Sorcrates and the property *being wise)*. I think Salmon makes a fairly compelling case for thinking of propositions in this way, but it seems to me, as I hope is clear by this

point, that we can explain cognitive significance without taking on board a commitment to a specific theory of propositions, (or a commitment to propositions for that matter).

Second, it is not clear, exactly, how we're to understand the *x* relatum, as Salmon (ibid. p. 120), himself, points out.

> If A's believing p consists in there being something *x* such that A, p, and *x* stand in [this] relation, what is the extra something *x*? Is it a way of taking the proposition? Is it a mode of presentation of the proposition? Is it perhaps another proposition, or a sentence in the language of thought…? What sort of thing is it, and how are such things individuated?

Salmon leaves the question open, admitting that, on his account, part of the puzzle remains. I am inclined to think that the represetational view provides an answer here. It seems to me that representations, as I have characterized them, would fit the bill. But, then, I think representations can do the work without reconstruing belief as a three-place relation—in fact, without any presupposition about the nature of belief.

Third, since Salmon's belief relation includes singular propositions, empty names present an obstacle to a general account of cognitive significance. Consider a competent English speaker who assigns different cognitive values to the sentences 'Superman = Superman' and 'Superman = Clark Kent'. To explain a case like this on Salmon's proposal requires that the speaker bear a certain relation to some singular proposition. For an identity sentence containing a non-empty name (or names), the singular proposition expressed contains the referent of the name(s), but in cases like this, where the names do not refer, no singular proposition is expressed, thus, one of the relata is missing.

Kaplan (1977) proposed a similar account to Salmon's, invoking *character* as the third relatum. Character is a function, associated with expressions by convention, which takes contextual elements, such as speaker, place, and time as arguments and yields

contents as values. In addition to the above problems, Kaplan's view faces another difficulty. It is questionable whether characters are fine grained enough to handle all the problem cases. If characters are associated with expressions by convention then it should follow that different speakers will stand in the same belief relation to the proposition expressed by a sentence, but there appear to be counterexamples to this, as the problem of variance suggests. Intuitively, Pythagoras and Copernicus did not stand in the same belief relation to the singular proposition expressed by 'Hesperus = Phosphorus' because they each associated different properties with the referent (Pythagoras believed it was a star; Copernicus believed it was a planet).

Another way to understand substitution failure in attitude contexts is to explain it as the result of differences in standard conversational implacata. Kirk Ludwig (1996) has endorsed this line. We can understand Lois Lane's position by recognizing that she has different ways of picking out Clark Kent and when she utters the sentence "Clark Kent is Superman" she assumes her audience is in a similar position, associating different information with the names 'Clark Kent' and 'Superman'. She may therefore *implicate* something informative even if the sentence, itself, does not convey this information. Ludwig's view is based on a theory of thought content that he calls the 'Cartesian Theory of Mind'. A key feature of Cartesian thoughts about particulars is that the content can be represented by definite descriptions, which may or may not denote an object so described.[22] This solution is more in line with (R) insofar as it makes no assumptions about what exactly the speaker has in mind. Both accounts avoid the

[22] With the exception of thoughts directly about one's self.

variance problem, which seems to raise difficulties for the previous non-semantic solutions.

CHAPTER 7
CONCLUDING REMARKS

Cognitive significance is a property of linguistic expressions that can vary as a function of their informativeness.The puzzling cases are the ones in which *coextensional* expressions differ in this way. But there are two ways of understanding this. Do the expressions differ because they differ in semantic content, or is the difference merely the result of speakers drawing different inferences from them? Frege (ibid) distinguished between the sense of an expression and the image a particular individual associates with the referent.

> Someone observes the moon through a telescope. The moon is comparable with the referent; it is the object of observation which is mediated through the real image projected by the object lens into the interior of the telescope, and through the retinal image of the observer. The first may be comapred with the sense, the second with the presentation (or image in the psychological sense). The real image inside the telescope, however, is relative; it depends upon the standpoint, yet, it is objective in that it can serve several observers. Arrangements could be made such that several observers could utilize it. But every one of them would have only his own retinal image. Because of the different structures of the eyes not even geometrical congruance could be attained; a real conicidence would in any case be impossible (p. 201).

The analogy is intended to show that the sense of an expression, unlike the associated image, has an objective character, which would help explain how it could be that two or more individuals could come to associate the same sense with the same expression. This is a key distinction for Frege, and anyone trying to develop a semantic solution to the puzzle, because it avoids the view that the meanings of our expressions are speaker-relative. The problem, however, is that this distinction opens the door to a host of other puzzles and problems. For one, it requires a commitment to semantic content that is incompatible with the Millian view of proper names, so the semantic theorist must develop an account of names that avoids Kripke's objections. I've argued that Kripke's

semantic and modal objections pose considerable problems for any semantic theory, not just description theories. In addition, there is the problem of variance, which seems to undermine the distinction Frege wanted to draw; if differences in cognitive significance can vary between speakers, which seems undeniable, and these differences are the direct result of differences in semantic content, then it seems the conclusion that meaning varies between speakers is unavoidable. Perhaps the biggest difficulty facing the semantic approach is what I called the 'singularity problem'. If I am right, there are certain assumptions about referring terms that we must make in order to construct puzzles like Frege's and these assumptions are incompatible with the semantic approach.

For Frege, there was the subjective *mental* content an individual associates with the object, and some objective *semantic* content generally associated with the expression used to pick out the object. He then appealed to the latter, the semantic content (senses), to explain differences in cognitive significance. In my view, this is a mistake for two reasons. First, it runs into the aformentioned problems, which seem to me insurmountable. Second, it is not clear that we need to draw the distinction in the first place. If the subjective "images" that Frege refers to are mental representations—or, at least, like them in relevant respects—then, as I've argued, we can explain away the puzzles that arise for coextensional sentences without making additional assumptions about the semantic content of the sentences or expressions involved. The subjective content can do the work, and with fewer complications.[23] Perhaps it is

[23] I want to stress here that I do not mean 'subjective' in the sense that such content is, in some way, ineffable or inaccessible to anyone else; it is subjective merely in the sense that it occurs in the mind of the individual. Representations, while subjective in this sense, are nonetheless objective in the sense that different speakers may have representations that share the same properties.

assumed by the semantic theorist that, because we are dealing with linguistic items, the problem calls for a semantic solution. But this does not follow, and, as the examples we have looked at suggest, semantic analyses are not fine-grained enough to account for all the problem cases. I've outlined an alternative solution, a way of understanding differences in cognitive significance which meets desiderata (I-IV), avoids each of the objections to the other solutions we covered, and does so without additional semantic commitments.

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