Wondering about Witches
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Some people wonder whether there are witches, others believe that there are some, and many think there are none. All of them raise hard issues about meaning and propositional attitudes. Suppose, for example, that there are no witches. Then it seems the term 'witch' refers to nothing. So, plausibly, the word 'witch' means nothing. Hence, sentences that contain the term 'witch', such as 'There are no witches', say nothing. Therefore, a person who sincerely utters 'There are no witches' says nothing, and so says nothing that she believes. Similarly, for a person who utters 'There are witches'. Likewise, the sentence 'Are there any witches?' expresses nothing, and so a person who sincerely utters it asks nothing that she is wondering about. Therefore, the attitude ascriptions 'Some people wonder whether there are witches' and 'Some people think that there are no witches' say nothing, and so are untrue. But surely these attitude ascriptions are meaningful and true, even if there are no witches.

In this paper, I discuss certain semantic problems raised by 'witch', 'unicorn', and other general terms that seem to apply to nothing. I also discuss issues about belief and other attitudes raised by speakers who use such terms. I first recast arguments like those above into a series of more precise objections to a rather well-known semantic theory, the *Naïve Theory*. This theory says (roughly) that the meaning of any general term is a property. 'Witch' and 'unicorn' raise problems for this theory because they are general terms that (arguably) do not express properties. After presenting the objections, I describe and critically evaluate two theories of these terms that are consistent with the Naïve Theory (or modest revisions of it). I argue that each theory correctly describes the semantics of some terms in some speakers' languages. However, there is some indeterminacy about which theory is correct for other speakers' languages. I explore the consequences of these views for belief.

I concentrate on issues that such general terms raise for the Naïve Theory, and so ignore how other theories (e.g., neo-Fregean theories) would deal with such terms. Some of the issues that I discuss are similar to those that empty proper names raise for the Naïve Theory. But general terms that apply to nothing raise more complicated issues than empty proper names.[1]

1. The Naïve Theory
1.1 Some Terminology

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[1] I discussed empty proper names in Braun 1993 and Braun 2005.

Philosophers typically use the expression 'general term' for common nouns, such as 'dog' and 'table', and adjectives, such as 'hot' and 'financial'. Some also include intransitive verbs, such as 'run', among the general terms. By their standards, the expressions 'witch' and 'unicorn' count as general terms. I discuss general terms in this paper, but I will also occasionally mention other sorts of expression, including common noun *phrases* (such as 'brown dog' and 'woman with supernatural powers'), transitive verbs ('kiss'), verb phrases ('kisses John'), and adjectival phrases ('very hot'). There is no generally agreed-upon term for this range of words and phrases. Some philosophers would hesitate to say that all verbs are general terms, particularly transitive verbs and other verbs that take more than one argument. Some would be willing to say that verbs and verb phrases are predicates, but would deny that common nouns and adjectives are predicates. (Salmon [2003, 2012] and Soames [2007] deny that common nouns are predicates.) Nonetheless, nearly all philosophers would agree that all of the previous expressions can be used alone, or in copular constructions of the form "is *A*" or "is an *N*", to predicate attributes to objects. (I use double-quotes here in place of corner quotes.) For instance, the verbs 'run' and 'kiss', and the verb phrases 'runs in a park' and 'kisses Dick Cheney', can be used to predicate attributes to objects, as can the copular phrases 'is hot', 'is very hot', 'is a dog' and 'is a woman with supernatural powers'. So I shall say that all of these types of expressions are *predicative expressions*. I do not intend to imply by this that common nouns or adjectives are predicates, only that appropriate constructions containing them can be used for predication.

Empty general terms (as I shall use that term) are general terms that correctly apply to nothing, when they appear in appropriate predicative constructions. 'Witch' and 'unicorn' are plausible examples of empty general terms, for 'is a witch' and 'is a unicorn' correctly apply to nothing (it seems). Similarly, the adjective 'psychic' is also a plausible example, for 'is psychic' apparently applies to nothing. As I use the term, an empty general term may or may not be empty of *meaning* (or semantic content). If you think that the sentences 'There are witches' and 'There are unicorns' are untrue, then you should hold that 'witch' and 'unicorn' are empty general terms, whether or not you think that 'witch' and 'unicorn' have meanings, contents, senses, and so on.

More generally, *empty* predicative expressions are predicative expressions that correctly apply to nothing. Some plausible examples of empty predicative expressions that are not general terms are the transitive verb 'exorcise', the verb phrases 'exorcised Linda Blair' and 'walked ten billion miles in one day', the adjectival phrases 'ancient magical' and 'colorless green', and the common noun phrases 'purple cow', 'colorless green idea', and 'white unicorn'. Some of these empty predicative expressions, such as 'walked ten billion miles in one day' and 'purple cow', are obviously fully meaningful.

1.2 The Basics of the Naïve Theory

Advocates of the Naïve Theory disagree among themselves about the semantics of general terms and predicative expressions. I will first lay out some assumptions common to all Naïve theorists. I will then develop a version of the Naïve Theory in a direction that I prefer. I will later compare it with one other version of the Naïve Theory. My preferred version might reasonably be labeled 'a version of the Naïve Theory oriented towards attributes'.

According to (all versions of) the Naïve Theory, (nearly) all meaningful words, phrases, and sentences have *semantic contents* (which are meanings, of a certain sort).[2] The semantic content of a declarative sentence, if it has one, is a *proposition*. Declarative sentences *semantically express* their semantic contents, if any. Words and phrases also have semantic contents. The semantic content of a complex expression, if it has one, is determined by its grammatical structure and the semantic contents, if any, of its semantically significant parts, such as the words that appear in it.

Propositions have *constituent structures*. If sentence *S* expresses proposition *P*, then *P* has a constituent structure that (often, roughly) resembles the constituent structure of *S*. The ultimate constituents of *P* are (roughly, perhaps with some exceptions) the semantic contents of the words that appear in *S*.

The Naïve Theory includes a *Millian* theory of proper names, which says that the semantic content of a proper name (if it has one) is the individual (if any) to which it refers. So according to the Naïve Theory, a declarative sentence that contains a referring proper name semantically expresses a proposition that has the referent of the proper name as a constituent. For instance, 'George W. Bush sits' semantically expresses a proposition that has George W. Bush himself as a constituent. A proposition that has an individual as a constituent is a *singular proposition*. (Many criticisms of the Naive Theory target its Millianism, but these criticisms will not be my focus here.)

The Naïve Theory says that the semantic content (if any) of a simple verb is an *attribute* (a property or relation). For instance, the semantic content of the one-place verb 'sit' is the property of sitting and the semantic content of the binary verb 'kiss' is the binary relation of kissing, and similarly for verbs of other adicities. A verb's semantic content is also what it semantically expresses.[3]

An *atomic proposition* is one whose sole ultimate constituents are (at most) an *n*-place attribute and *n* semantically simple entities, arranged so that the attribute is attributed to

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[2]I will ignore meanings and semantic values other than semantic contents and extensions. I will, for instance, ignore Kaplanian characters and possible-worlds intensions. I will also ignore context-sensitivity.

[3]Some naive theorists might hold that the semantic content of a verb or verb phrase, in a context, includes a time, or some sort of temporal operation (the semantic content of a temporal operator), as a constituent. But I ignore all matters of time and tense here.

the entities. 'George W. Bush sits' semantically expresses an atomic proposition whose sole constituents are George W. Bush and the property of sitting. 'George W. Bush kisses Dick Cheney' semantically expresses an atomic proposition whose sole constituents are Bush, Cheney, and the relation of kissing.

Sentential connectives also have semantic contents. For instance, the semantic content of 'not' is a certain property of propositions, *NEG*, that (necessarily) a proposition has if and only if it is false. The semantic content of 'and' is a certain binary relation, *CONJ*, that holds between two propositions iff both are true.

Some (perhaps all) semantic contents have *extensions*. The extension of an attribute is the class of objects or *n*-tuples that exemplify the attribute. The extension of an individual is itself. The extension of a proposition is its truth-value. An atomic proposition is true (and its extension is truth) iff its constituent objects exemplify the proposition's constituent attribute. Words and sentences also have extensions. The extensions of words and sentences (if any) are the same as the extensions of their semantic contents (if any). Thus the extension of a proper name (if it has one) is an individual, the extension of a verb (if any) is the extension of the attribute it expresses (if any), and so its extension is a class (if anything). The extension of a declarative sentence (if it has one) is a truth-value, namely that of the proposition it semantically expresses (if any).

The Naive Theory says that agents can stand in various linguistic and cognitive relations to propositions. An agent can (for instance) assert, deny, believe, or doubt the proposition that George W. Bush sits. Generally, an agent who assertively (and literally) utters a declarative sentence that semantically expresses proposition *P* asserts *P*. If the agent is sincere, then she believes *P*. The 'that'-clauses and 'whether'-clauses that appear as complements in sentences ascribing belief, doubt, assertion, wonder, and so on, refer to the semantic contents (if any) of the embedded sentences, which are propositions (if anything).[4] These propositions are the extensions of the complement clauses (if those complement clauses have extensions at all).[5]

1.3 An Attribute-Oriented Naïve Theory of General Terms

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[4] In fact, 'whether'-clauses refer to the semantic contents of *interrogative sentences*, and these *interrogative semantic contents* are not propositions. For instance, 'whether there are unicorns' refers to the semantic content of 'Are there unicorns?'. This semantic content is the question of whether there are unicorns, not the proposition expressed by 'There are unicorns'. But this complication will not make affect the issues I discuss here, so I shall ignore it.

[5] The extension of a 'that'-clause is determined by the semantic contents of its constituent expressions, and not by the extensions of those constituent expressions. The semantic content of 'that' assures that 'that'-clauses are non-extensional.

The above basic version of the Naïve Theory included a theory of the semantic contents of simple verbs. We now need a theory of the semantic contents of other predicative expressions. Different Naïve Theorists have different views on these other expressions. I will proceed with my view, and describe an alternative later. I begin with common nouns and adjectives.

Common nouns, such as 'tiger' and 'table', and adjectives, such as 'brown' and 'round', often appear in predicative positions in sentences, as in the sentences 'Tony is a tiger' and 'Fido is brown'. The former sentence predicates the property of being a tiger to Tony, and the latter predicates the property of being brown to Fido. So the present version of the Naive Theory counts both 'tiger' and 'brown' as predicates, in much the same way that it counts 'sits' as a predicate. It thus says that the semantic contents of 'tiger' and 'brown' are the properties of being a tiger and being brown. These properties are also what these common nouns semantically express. The same goes for all other common nouns and adjectives, if they have any semantic contents at all. On this view, the occurrences of the copula 'is' and the article 'a' in sentences such as 'Tony is a tiger' and 'Fido is brown' are merely syntactic devices used to indicate predication. They appear in such sentences because full declarative sentences must always have verb phrases, but they contribute no semantic contents to the propositions expressed.[6] So the ultimate constituents of the proposition that Tony is a tiger are Tony himself and the property of being a tiger, and the ultimate constituents of the proposition that Fido is brown are just Fido and the property of being brown.

The extension of an adjective or common noun (if any) is the extension of its semantic content (if any). Since the semantic contents of adjectives and common nouns (if any) are attributes, and the extensions of attributes are sets, the extensions (if any) of adjectives and common nouns are sets. Similarly, the extension of a simple copular verb phrase, such as 'is a dog' or 'is brown' (if it has one) is the extension (if any) of its semantic content. Since the semantic content (if any) of a simple copular verb phrase is the same as that of its constituent common noun or adjective, the extension (if any) of a simple copular verb phrase is a set.

Complex predicative phrases, such as 'red, round ball', also have semantic contents. I shall assume that the semantic contents of such complex predicative phrases have complex constituent structures, and I shall assume that the ultimate constituents of these complex contents include the semantic contents of the words in the phrase. For instance, the

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[6] I assume here that the 'is' that occurs in 'Tony is a tiger' is the 'is' of predication. But a theorist could continue to hold that the semantic content of 'tiger' is a property, and yet hold that the occurrence of 'is' here is the 'is' of identity, and so say that the sentence expresses a proposition that is equivalent to '$\exists x(\text{Tiger}(x) \,\&\, x=\text{Tony})$' or '$(\exists x : \text{Tiger}(x))\, x=\text{Tony}$'. This would make no substantive difference to the issues I wish to discuss here, so I ignore it in what follows.

ultimate constituents of the semantic content of 'red, round ball' are the properties of being red, being round, and being a ball. I shall assume the same about quantifier phrases, such as 'some ball' and 'every brown dog', and complex verb phrases, such as 'runs quickly' and 'walks to Minneapolis'. I will not go into details about this semantic constituency, for various theories have been proposed that are consistent with the spirit of what I have said here.[7]

This completes my description of my preferred version of the Naïve Theory. I will often call it 'the Naïve Theory', but when the differences between it and other versions of the Naïve Theory matter, I will call it 'the Attribute-Oriented Version of the Naïve Theory'

1.4. A Variant on the Naïve Theory: The Extended Millian Theory
There is an important version of the Naïve Theory that differs with mine over the semantic contents of general terms. I shall call this alternative the *Extended Millian Theory.* (The name comes from Soames 2002. For discussion, see Linsky 1984, 2006; Salmon 2003, 2005b, 2012; and Soames 2002, 2006, 2007.) The Extended Millian Theory says that common nouns and adjectives *designate* (or refer to) *kinds*. For instance, 'tiger' designates the biological kind *Tiger*, and 'red' designates the color red. [8] More importantly, the view says that if a common noun or adjective designates a kind, then its semantic content is that very kind. So the semantic content of 'tiger' is not the property of being a tiger, but rather the biological kind *Tiger*, and the semantic content of 'red' is not the property of being red, but rather the color red. [9] (I assume that *Tiger* is not identical with the property of being a tiger, and the color red is not identical with the property of being red. If kinds are properties, then the differences between my preferred version of the Naïve Theory and Extended Millianism are minor.) The copula and determiner that appear in 'Tony is a tiger' and 'Rex is red' contribute substantial semantic content to the sentence's semantic content, namely something like the membership relation.

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[7] Some detailed versions are presented by Mark Crimmins (1992), Mark Richard (1993, 2001), and Jeffrey King (1995, 1996, 1998, 2007).

[8] At this point, we must (unfortunately) distinguish between two versions of the Extended Millian Theory. The *Liberal* Extended Millian Theory says that *all* general terms, including *non-natural* general terms, designate kinds. The kind that such an expression designates is also its semantic content. For example, the common noun 'table' designates the kind *Table* and the adjective 'fiduciary' designates the kind *Fiduciary*, and the semantic contents of these terms are those kinds. *Conservative* Extended Millian Theories restrict kind designation to *natural* kind terms. On this view, the term 'table' designates nothing (or it designates the set of tables) and its semantic content is the property of being a table, not the kind *Table*. Some advocates of the Conservative view might even deny that there is such a thing as the kind *Table*. In my opinion, Liberal Extended Millianism is far more plausible than Conservative Extended Millianism. In any case, I will consider below only Liberal Extended Millianism, because some empty general terms with which I shall be concerned, such as 'witch', do not purport to be natural kind terms.

[9] The biological kind *Tiger* may or may not be identical with the biological species *Panthera Tigris* (which in the past was called '*Felis Tigris*'). The kinds of animals designated by ordinary common nouns may fail to coincide with the taxa of scientific biology. Nevertheless, the kind *Tiger* may be a natural kind.

The differences between Attribute theories and Extended Millian theories make little difference to issues about empty general terms, for empty general terms raise issues for the Extended Millianism that parallel those they raise for the Attribute Theory. For example, if Extended Millianism is true, then which kind, if any, does 'witch' designate? Does 'witch' fail to designate? If so, does the sentence 'There are no witches' fail to express a proposition? In what follows, I will concentrate on the problems that empty predicative expressions raise for the Attribute Version of the Naïve Theory. From here on, when I use the term 'Naïve Theory', I will mean the Attribute-Oriented Version of the Naïve Theory. I will occasionally mention parallel problems with the Extendend Millian Theory.

2. Empty General Terms and the Naïve Theory

Finally, I turn to the problems that some empty predicative phrases raise for the Attribute-Oriented Version of the Naïve Theory (which I call simply 'the Naïve Theory' from here on).

Not all empty predicative expressions raise problems for the Naïve Theory. Complex empty predicative expressions do not, as long as the words that appear in them have semantic contents. Consider, for example, 'purple cow'. Assume that 'purple' and 'cow' have semantic contents, namely the properties of being purple and being a cow, respectively. Then the semantic content of 'purple cow' is a structured entity that has these properties as constituents. This semantic content has an empty extension, because there is nothing that is both purple and a cow. So 'purple cow' correctly applies to nothing, and so it is an empty predicative expression. But the Naïve Theory entails that it has a semantic content, and that sentences containing it semantically express propositions that can be asserted, believed, and so on. So such phrases raise no problem for the Naïve Theory. [10]

If there are *simple* empty predicative expressions that have no semantic content, then they do raise at least *prima facie* problems for the Naïve Theory. But are there any such expressions? Consider, for example, the nouns 'witch' and 'unicorn'. They are empty, but the Naïve Theory does not entail that simple empty common nouns lack semantic content. (The Naïve Theory does entail that non-referring *proper names* have no semantic content. But it does not, by itself, entail that empty common nouns lack semantic content.) A Naïve Theorist could claim, consistently with her theory, that the semantic content of 'witch' is the property of being a witch and the semantic content of 'unicorn' is the property of being a unicorn. She could say that these are perfectly good properties that happen to be exemplified by nothing. They are *empty attributes*, she might claim.

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[10] The Naïve Theory also entails that the phrases 'square root of Julius Caesar', 'colorless green idea', and 'sleeps furiously' have semantic contents. Some may find this strange, but I think the result is correct. We understand these phrases well enough to recognize that there is no square root of Julius Caesar and that there is nothing that sleeps furiously.

One might reasonably wonder whether there is such a thing as the property of being a witch if there are no witches. Relatedly, one might suspect that the noun 'witch' could not semantically express a property if there are no witches. Let's consider this last thought a bit more closely. We can motivate it with plausible claims about how simple expressions *acquire* their semantic contents (that is, how their semantic contents are *fixed* or *determined*). Consider the non-empty term 'tiger'. How did it come to have the property of being a tiger as its semantic content? Plausibly, the term's acquisition of that content had something to do with someone, at some time, pointing at a tiger and saying 'That is a tiger'. More precisely, someone applied 'tiger' (or 'is a tiger') to one or more tigers. Generalizing, the following principle seems rather plausible: The semantic content of a common noun or adjective is identical with property *P* only if that expression has been applied by at least one speaker to at least one object that exemplifies *P*.

This principle can be used to formulate an argument for the (conditional) conclusion that if the Naïve Theory is true, then 'witch' has no semantic content. Assume, for the sake of conditional proof, that the Naïve Theory is true. Now if the Naïve Theory is true, then: if 'witch' has any semantic content, then its semantic content is the property of being a witch. So if 'witch' has any semantic content, then its semantic content is the property of being a witch. But the semantic content of 'witch' is the property of being a witch only if 'witch' has been applied to some objects that exemplify the property of being a witch. (This is an instance of our previous general principle.) But there are no witches. So it is not the case that 'witch' has been applied to some objects that exemplify the property of being a witch. So it is not the case that the semantic content of 'witch' is the property of being a witch. So 'witch' has no semantic content. So (by conditional proof) if the Naïve Theory is true, then 'witch' has no semantic content. Call this the *No Content Acquisition Argument*.[11] Parallel arguments apply to 'unicorn' and other simple empty general terms. [12]

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[11] Naïve Theorists should find this argument problematic, for its premises use the term 'witch', and if 'witch' has no semantic content, then the premises may fail to express propositions, and so fail to be true. Hence a Naïve Theorist who is attracted to the argument should reformulate it so that its premises merely mention the term 'witch', rather than use it. To do so, we first need to reformulate the general principle about content acquisition for common nouns. Here is a reformulation: The semantic content of a common noun or adjective *E* is a property only if *E* has been applied to some objects that fall in the extension of *E*. And here is the reformulated argument: Suppose, for conditional proof, that the Naïve Theory is true. If the Naïve Theory is true, then: if 'witch' has a semantic content, then its semantic content is a property. But if the semantic content of 'witch' is a property, then 'witch' has been applied to some objects that fall in the extension of 'witch'. (This is an instance of our reformulated general principle.) But nothing falls in the extension of 'witch'. Therefore, it is not the case that the semantic content of 'witch' is a property. Therefore, 'witch' has no semantic content. Therefore, by conditional proof, if the Naïve Theory is true, then 'witch' has no semantic content.

[12] A parallel argument concerning (Liberal) Extended Millianism goes as follows. If Extended Millianism is true, then: if 'witch' has a semantic content, then the semantic content of 'witch' is the kind *Witch*. The semantic content of 'witch' is the kind *Witch* only if 'witch' has been applied to members of the kind *Witch*. But there are no witches. So it is not the case that 'witch' has been applied to members of *Witch*. So it is not the case

Let us now suppose that the conclusion of the No Content Acquisition Argument is true, and consider a series of objections to the Naïve Theory based on that conclusion. I will focus on 'witch'.

First, the *Objection from Meaningful Empty General Terms*: If the Naive Theory is correct, then 'witch' has no semantic content. But if 'witch' has no semantic content, then it is meaningless. Yet clearly it is meaningful. (At any rate, it is not meaningless in the way that the sequence of sounds 'lubnak' is.) So the Naïve Theory is incorrect.[13]

Many of the remaining objections build on the previous one. The *Objection from Meaningful Sentences* begins by pointing out that, if the Naïve Theory is true, then the semantic content of a complex expression is a complex entity whose constituents are the contents of the expressions within the phrase. So on this view (it is claimed), a complex phrase that contains an expression with no semantic content has no semantic content. But if the Naïve Theory is true, then 'witch' has no semantic content. So, if the Naïve Theory is true, then no complex expression containing 'witch' has a semantic content. So sentences (1) and (2) have no semantic content.

> (1)   There are witches.
> (2)   All witches are women.

If (1) and (2) have no semantic content, then they are meaningless. But they are not meaningless, for competent speakers of English clearly understand them and some might utter them in order to say things that they believe. So the Naive Theory is not true. (A similar objection could be built on the claim that non-sentential phrases containing 'witch', such as 'blue-eyed witch who lives in Salem', are meaningful.)

The *Objection from True Negative Existentials* extends the preceding objection. If the Naive Theory is true, then 'witch' has no semantic content, and so sentences (3)-(5) have no semantic content.

> (3)   There are no witches.
> (4)   Witches do not exist.
> (5)   It is not the case that someone is a witch.

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that the semantic content of 'witch' is the kind *Witch*. So if Extended Millianism is true, then 'witch' has no semantic content. This argument can be reformulated so that it merely mentions the term 'witch', rather than uses it.

[13] We can formulate a similar objection to the Extended Millian Theory as follows. The term 'unicorn' does not designate a kind. Therefore, on the Extended Millian Theory, 'unicorn' has no semantic content. Otherwise, the objection proceeds as above.

If these sentences have no semantic content, then the Naive Theory entails they have no truth-value. But these sentences are true.

Next is the *Objection from True Attitude Ascriptions*. If the Naïve Theory is true, then (1)-(5) have no semantic contents and so the complement clauses in (6)-(10) fail to refer.

> (6)   Some people have believed that there are witches.
> (7)   Some people have said that all witches are women.
> (8)   Some people have asserted that there are no witches.
> (9)   Some people believe that witches do not exist.
> (10)   Some people have wondered whether there are witches.

If the 'that'-clauses and 'whether'-clauses of (6)-(10) fail to refer, then none of them are true. But surely all of them are true. Even worse perhaps, if (1)-(5) have no semantic content, then (6)-(10) also lack semantic content. That is, they fail to express propositions. Yet surely they do, for some people have asserted and believed these propositions. So the Naïve Theory is incorrect.

Finally, if the Naïve Theory is true, then (3) is untrue and has no semantic content. So (11) is untrue and has no semantic content.

> (11)   Some people have asserted that there are no witches because they believed that there are no witches.

But surely it is true that some people have said that there are no witches because they believed it. So (11) is meaningful and true, and the Naïve Theory is incorrect. Call this the *Objection from Belief and Assertive Utterance*.[14]

There are various ways in which Naïve Theorists, and other semantic theorists, might respond to these objections. Unfortunately, I cannot take the space to describe all such replies in satisfying detail here. I will briefly mention two responses that I will set aside.

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[14]A parallel problem arises with interrogative sentences. There are other objections to the Naïve Theory from simple empty general terms that I shall not address here. One concerns seemingly non-propositional attitude verbs, such as 'seeks': If the Naive Theory is true, then 'John seeks a unicorn' has no semantic content, and so cannot be true. But it can be true, so the theory is false. Objections parallel to those in the main text can be given to a (liberal) Extended Millian Theory. Suppose that 'witch' fails to designate a kind. Then, on the Extended Millian Theory, it has no semantic content. Thus it is meaningless. Complex expressions that contain the term have no semantic content, and no attitude ascription containing the term is true, and so on.

A Naïve Theorist might claim that the semantic content of 'witch' is simply the property of being a witch, which is an empty property that nothing exemplifies. Such a theorist would have to reject one of the premises of the No Content Acquisition Argument. More than likely, she would reject the general principle that a general term has a property as its semantic content only if it has been correctly applied to something that exemplifies that property. She might maintain that a general term could have its semantic content fixed by descriptive stipulation. Or she might describe some other way in which a general term could acquire an empty attribute as its semantic content.

Alternatively, a theorist could respond by (more or less) embracing the conclusion of the previous objections and abandoning the Naive Theory in favor of a descriptivist theory of empty general terms. She might claim that the semantic content of 'witch' is the same as that of 'supernaturally powerful woman', or something like that. This content would be a complex, structured semantic entity. Such a theorist would reject the Naïve Theory, but replace it with a relatively modest revision of that theory.

I believe that the two previous theories of empty general terms are, at the very least, problematic. But the semantic and metaphysical issues they raise are complicated, perhaps more complicated than is generally realized. Merely describing the differences between these two responses in a reasonably clear way would take a good deal of space. Furthermore, refuting descriptivism about empty general terms is more difficult than refuting descriptivism about non-empty terms, such as 'tiger'. Refuting the empty attribute theory is even trickier. Since I do not have the space to go into these detailed critiques of these theories, I shall set them aside here.

3. The Gappy Proposition Theory

I shall instead turn to a version of the Naïve Theory that I think is more defensible. This theory says that simple empty general terms have *no* semantic content. I call it the *Gappy Proposition Theory*. [15] It is consistent with the Naive Theory, and is easily motivated by reflection on that theory. It can provide replies to the previous objections to the Naïve Theory.

According to the Naïve Theory, the proposition expressed by sentence (12a) has the referent of 'Tony' and the property of being a tiger as constituents. This proposition can be represented by the ordered pair in (12b).
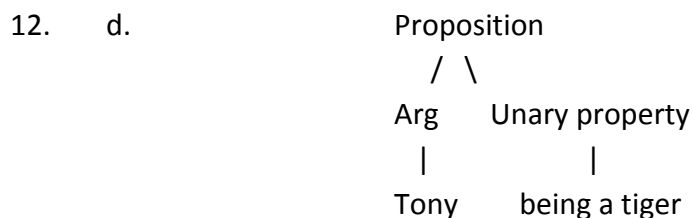
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[15] David Kaplan introduced the notion of a gappy proposition in a comment on a lecture given by Kripke in 1973. (Kripke's lecture was later published as Kripke 2011. Kaplan's comment remains unpublished.) Kaplan mentions gappy propositions in footnote 23 of Kaplan 1989. I have defended a gappy proposition theory in Braun 1993 and 2005.

12.   a.   Tony is a tiger.
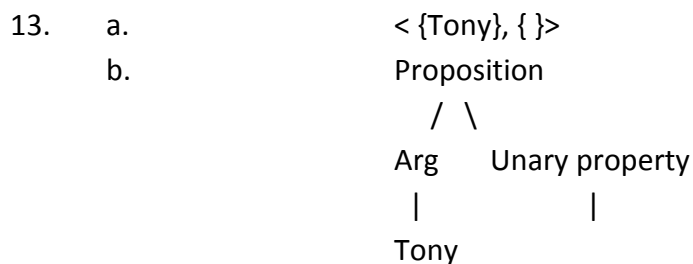
           b.   <Tony, being a tiger >

The proposition that (12a) expresses is *not* identical with the ordered pair in (12b). But the proposition is similar to the ordered pair in something like constituent structure, which makes the latter useful for modeling the former. An alternative representation of this proposition that is, again, somewhat similar to the proposition in structure is the ordered pair in (12c).

12.   c.   < {Tony}, {being a tiger}>

The proposition represented by (12c) here is *not* the proposition that Tony's singleton set is a tiger, but rather the proposition that Tony is a tiger. The proposition expressed by (12a) might better be represented by a tree that really does have constituents, as in (12d).

12.   d.
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                    Proposition
                      /  \
                   Arg      Unary property
                    |            |
                   Tony      being a tiger
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The Naive Theory can easily admit the existence of semantic contents and propositional structures with "gaps" or unfilled positions. We can represent such propositional structures with trees or certain sorts of n-tuples, as in (13a) and (13b).

13.   a.   < {Tony}, { }>

           b.   Proposition
```
                      /  \
                   Arg      Unary property
                    |            |
                   Tony
```

An alternative notation for propositional structures that contain gaps or unfilled positions (from Salmon 1998) is given in (13c).

13.   c.   <Tony, __ >

Now consider sentence (14).

14.   Tony is a unicorn.

We have been assuming that 'unicorn' has an empty extension or no extension. Now also assume that 'unicorn' has no semantic content. Sentence (14) has a structure much like that of sentence (12a), so on the Naive Theory one would expect the semantic content of (14) , if any, to have a structure similar to the structure of the semantic content of (12a). The semantic content of (14), if any, should also have the semantic content of 'Tony' as a constituent, namely Tony himself. But the common noun 'unicorn' has no semantic content (we are assuming), so the semantic content of (14), if any, should have no property corresponding to the occurrence of 'tiger' in sentence (14). Thus on the Naive Theory, if (14) has any semantic content at all, it should be the propositional structure represented by (13a-c). Therefore, a plausible extension of the Naive Theory can say that the propositional structure, variously represented by (13a-c), is the semantic content of (14), if 'unicorn' has no semantic content. And similarly for other sentences containing simple empty general terms that have no semantic content. This is the central claim of the Gappy Proposition Theory.

Similar points apply to sentences containing proper names that fail to refer. Assume that 'Pegasus' fails to refer, and consider (15a).

> 15.   a.   Pegasus is a horse.

Its semantic content is a structured entity whose structure parallels that of (12a). But since 'Pegasus' does not refer, it has no semantic content, so (15a) expresses a gappy semantic content, which we can represent with (15b).

> 15.   b.   < __ , being a horse >

The semantic content of 'Pegasus is a unicorn' is doubly-gappy, assuming that both 'Pegasus' and 'unicorn' lack semantic content.

The extension of a linguistic expression, if any, is the extension of its semantic content, if any. Therefore, on the Gappy Proposition Theory, if 'unicorn' has no semantic content, then it has no extension (not even an empty extension). Similarly, 'Pegasus' has no extension.

The Gappy Proposition Theory also claims that agents can bear the same cognitive and linguistic relations to gappy propositional structures that they bear to regular propositions. Gappy propositional structures can be asserted, believed, doubted and so on. Thus the Gappy Proposition Theory says that such structures are propositions.

The Gappy Proposition Theory can provide replies to the Objections to the Naive Theory. The Objection from Meaningful Sentences assumes that if 'witch' has no semantic content, then sentences containing it, such as 'All witches are women', also have no semantic

content. This assumption is false on the Gappy Proposition Theory. Even assuming that 'witch' has no semantic content, the sentences 'Tony is a witch' and 'All witches are women' express gappy propositions and so have semantic contents. An agent can believe the latter proposition, and another agent can believe the gappy proposition expressed by 'There are witches', and their believing these propositions can cause them to utter these sentences. Thus the Objection from Belief and Sincere, Assertive Utterance is taken care of. 'That'-clauses and 'whether'-clauses in attitude ascriptions can refer to the gappy propositions expressed by the sentences embedded in them. Therefore, the attitude ascriptions in (6)-(11) can be true.

The Objection from Meaningful Empty General Terms says that the Naive Theory entails that 'witch' has no semantic content. It claims that if 'witch' has no semantic content, then it is meaningless, yet 'witch' is meaningful, in a way that 'lubnak' is not. In reply, the Gappy Proposition theorist should admit that (on his view) 'witch' does not have a semantic content, but he should question whether this entails that 'unicorn' is meaningless in the same way that 'lubnak' is. Utterances of sentences containing 'witch' cause agents to entertain (gappy) propositions, and to believe (gappy) propositions that they did not previously believe. Their believing these (gappy) propositions can, in turn, cause them to have new beliefs with non-gappy propositional contents, and can cause them to utter sentences containing 'witch', which may cause other speakers to consider and believe gappy propositions. None of this is the case for (quasi-)sentences containing the term 'lubnak'. Thus 'witch' is, in a certain non-technical sense, meaningful in a way that 'lubnak' is not.[16]

I shall postpone a reply to the Objection from True Negative Existentials till section 5. Meanwhile, I wish to respond to a few objections to the Gappy Proposition Theory.

4. Objections to the Gappy Proposition Theory
The first objection to the Gappy Proposition Theory claims that no rational agent could believe a gappy proposition. When an agent entertains a proposition P, he knows that he is entertaining P. If an agent knows he is entertaining P, and P is a gappy proposition, then he knows that P is a gappy proposition. But if he knows that P is gappy, then he knows that it is not true (and cannot be true). Thus if he is rational, he refrains from believing it. But clearly some rational agents believe that there are witches. Hence the proposition that there are witches is not gappy.

The first premise ("any agent who entertains P knows that he is entertaining P") is very strong, but I will grant it for the sake of argument. So I grant that if (for instance) Alice is entertaining the proposition that there are unicorns, then she knows that she is entertaining

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[16] We could, of course, cause 'lubnak' to be meaningful in the same way as 'unicorn', by introducing it into our language in the same way that other new terms are introduced into the language. We could even introduce it so that it lacks semantic content. But it is not currently a meaningful term in English.

the proposition that there are unicorns. But I deny the claim that if she knows that she is entertaining the proposition that there are unicorns is gappy, and that proposition is gappy, then Alice knows that it is gappy. Usually, entertaining a gappy proposition is, "from the inside," just like entertaining a standard proposition with no gaps. The phenomenology is the same. Thus an agent may be unable to discover through reflection that she is entertaining a gappy proposition. Moreover, *a priori* reasoning may also be incapable of revealing that the proposition that she is entertaining is gappy.

Suppose, for example, that Alice believes that some wildebeests have horns. Suppose that she has never observed wildebeests, but has merely heard them mentioned casually a few times, described as horned animals. Now suppose that many speakers on Twin Earth also use the term 'wildebeest' (or a phonetically and syntactically identical term), though there are no wildebeests or any similar animals on Twin Earth. That term has an empty extension (if any) on Twin Earth, because it was first introduced there by scientists who mistakenly thought they glimpsed a novel ungulate animal at a distance, which they tried to name 'wildebeest'. Let us use 'twildebeest' to translate the Twin Earthian term into Earthian English. Also on Twin Earth, there is a perfect intrinsic duplicate of Alice, whom we will call 'Twalice'. Just like Alice, Twalice is inclined to sincerely and assertively utter 'Some wildebeests have horns'. However, Twalice does not believe that some wildebeests have horns. She instead believes that some twildebeests have horns. When Twalice entertains the proposition that some twildebeests have horns, she knows that she is entertaining the proposition that some twildebeests have horns. (Of course, she would express this knowledge by uttering 'I am entertaining the proposition that some wildebeests have horns, and I know that I am'.) Twalice is, in fact, entertaining a gappy proposition. But she does not believe that she is entertaining a gappy proposition, any more than Alice does. Twalice cannot discover that she is entertaining a gappy proposition by mere reflection, any more than Alice can, for the phenomenology of entertaining the proposition that some twildebeests have horns for Twalice is the same as the phenomenology of entertaining the proposition that some wildebeests have horns for Alice. Furthermore, Twalice cannot justifiably conclude that the proposition is gappy by *a priori* reasoning from propositions that she knows *a priori*, any more than Alice can, for Twalice needs empirical evidence to be justified in believing that there are no twildebeests. So it is not the case that anyone who entertains a gappy proposition knows that the proposition is gappy. Thus an agent can rationally believe a gappy proposition.

For the next objection, assume that 'unicorn' is an empty general term and consider the sentences in (16).

16.   a.   All unicorns are unicorns.
      b.   All unicorns are witches.

According to the Gappy Proposition Theory, (16a) and (16b) express the same proposition. Yet a rational agent could understand both, believe that there are both witches and unicorns, and believe that (16a) is true, while either being unsure whether (16b) is true or believing that (16b) is false. Such a person believes the proposition expressed by (16a), while failing to believe the proposition expressed by (16b), or while believing the negation of the proposition expressed by (16b). So (16a) and (16b) do not express the same proposition.

Further reflection on Alice and Twalice will defuse this objection. Suppose that Alice understands (17a) and (17b), and believes that (17a) is true and (17b) is false.

> 17.   a.   All wildebeests are wildebeests.
>   b.   All wildebeests are zebras.

So Alice believes that all wildebeests are wildebeests and that it is not the case that all wildebeests are zebras. She does so rationally, we can suppose. Now suppose that Twalice on Twin Earth also thinks that (17a) is true, though that sentence expresses a doubly gappy proposition in her language. Furthermore, the term 'zebra' in her language also fails to express a property, for 'zebra' was introduced on Twin Earth by explorers who mistakenly thought that they saw some striped, horse-like animals. Thus (17b) in Twalice's language semantically expresses the very same doubly gappy proposition that (17a) does in her language. Since Twalice thinks that (17b) is false, she believes the negation of that proposition. Therefore, Twalice believes both a gappy proposition and its negation. Yet she believes these gappy propositions just as rationally as Alice believes the propositions expressed by (17a) and the negation of (17b) in Alice's language. No amount of introspection will help Twalice to discover her mistake. *A priori* reasoning will not help.

The similarities between Alice and Twalice with respect to rationality are due to their similarities in internal mental respects. Their internal mental similarities entail that there is something similar in the *ways* they believe their respective propositions, and this accounts for why they are alike in rationality. Twalice believes the gappy proposition expressed by (17a) in her language *in a certain way*, a 'wildebeest'/'wildebeest' way. Alice believes the proposition that all wildebeests are wildebeests in the same way. Alice is rational, therefore so is Twalice. Similarly, Alice believes the negation of the proposition that all wildebeests are zebras in a certain way, and she is rational in so doing. Twalice believes the negation of the gappy proposition expressed by (17b) in her language in the same way that Alice believes the preceding proposition, so Twalice is also rational.[17]

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[17] For more on ways of grasping and believing propositions, see Salmon 1986 and Braun 1993, 1998, 2005, 2006.

Now return to (16a) and (16b) and suppose they express the same doubly gappy proposition. Still, a rational agent, such as Alice, could believe the gappy proposition expressed by (16a) in one way, a 'unicorn'/'unicorn' way, while disbelieving that same proposition in a 'unicorn'/'witch' way. To make this vivid, suppose that on Twin Earth the terms 'unicorn' and 'witch' were introduced as terms for real white, single-horned, horse-like animals and real supernaturally powerful women, respectively. And suppose Twalice on Twin Earth thinks that (16a) is true and (16b) is false. She is rational. Her duplicate Alice on Earth is just as rational as Twalice, because the ways in which she believes and disbelieves the gappy propositions that (17a) and (17b) express on Earth are just as different as the ways in which Twalice believes the full, non-gappy propositions that those sentences express on Twin Earth. So Alice rationally believes a gappy proposition and its negation.

The third objection concerns attitude ascriptions. On the Gappy Proposition Theory, (18a) and (18b) semantically express the same gappy proposition.

18. a. Alice believes that all unicorns are unicorns.
    b. Alice believes that all unicorns are witches.

Thus these sentences are necessarily equivalent, and cannot differ in truth-value. But (the objection says) these attitude ascriptions can differ in truth-value: just consider a world in which Alice understands (16a) and (16b), and assents to (16a) but vigorously dissents from (16b). Therefore, the Gappy Proposition Theory is false.

This objection raises a host of issues about attitude ascriptions. But in reply, a Gappy Proposition theorist can reasonably deny that (18a) and (18b) can differ in truth-value. If Alice believes that all unicorns are unicorns, then she believes that all unicorns are witches, no matter how vigorously she claims that she does not, and no matter how vigorously she dissents from 'All unicorns are witches'. She dissents from 'All unicorns are witches', though she believes the proposition that it expresses, because of the way in which she grasps the proposition that it expresses when she hears the sentence. She also assents to belief sentence (18a) and dissents from (18b) because she grasps the single proposition that both express in different ways. Moreover (and relatedly), she and others mistakenly take her dissent from (16b) to be nearly conclusive evidence for the claim that she does not believe that all unicorns are witches. Similar points go for us. We grasp the gappy proposition that all unicorns are witches in two distinct ways. We can therefore mistakenly think that the proposition expressed by belief sentence (18a) is distinct from that expressed by belief sentence (18b), and also think that they can differ in truth-value.[18]

5. Truth-Values and the Gappy Proposition Theory

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[18] See Salmon 1986, and Braun 1998 and 2006, for discussions of attitude ascriptions and ways of believing.

I earlier postponed giving a description of how an advocate of the Gappy Proposition Theory should reply to the Objection from True Negative Existentials. I turn to this task now. The Objection says that, if the Naive Theory is correct, then 'There are no witches' lacks semantic content. If 'There are no witches' has no semantic content, then it is not true. But (the objection continues), the negative existential is true, and so the Naive Theory is incorrect. The Gappy Proposition Theory has an easy initial reply: the Naïve Theory is true, but the negative existential does have a semantic content, namely a gappy proposition, so the first premise of the objection is false. Of course, this is not the end of the matter, for if negative existentials are not true on the Gappy Proposition Theory, then the theory is vulnerable to an abbreviated version of the Objection from *True* Negative Existentials: If the Naïve theory, and the Gappy Proposition Theory, are correct, then 'There are no witches' is not true. But 'There are no witches' is true, therefore the Naïve Theory, and the Gappy Proposition Theory, are incorrect.

It is not altogether clear how an advocate for the Gappy Proposition Theory should reply to the abbreviated objection, for the theory is consistent with two reasonable views about the truth value of the gappy proposition that there are no witches. On one version of the Gappy Proposition Theory, the gappy proposition that there are no witches is true, while on another it is neither true nor false and so has no truth-value. To understand the options for the Gappy Proposition Theory, we should start with atomic sentences and the propositions that they express.

Assume that 'Wanda' refers to a real person, and consider sentence (19a).

     19.   a.   Wanda is a witch.

On the Gappy Proposition Theory, (19a) semantically expresses a gappy proposition that we can represent with (19b).

     19.   b.   <Wanda, __ >

Gappy proposition (19b) is obviously not true. But is it false? Or does it lack a truth-value altogether? On one version of the Gappy Proposition Theory, proposition (19b) is false.[19] Therefore, so is sentence (19a), and the various negations of (19a) in (20) are all true.

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[19] The following truth-conditions for atomic propositions entail that (19b) is false: If *P* is an atomic proposition with *n* subject positions and a main attribute position, then *P* is true iff every subject position has an occupant, and the main attribute position has an *n*-place relation as its occupant, and the *n*-tuple of subject-position occupants exemplifies the occupant of the attribute position. Otherwise, *P* is false. Everett (2003) criticizes a similar view of truth-conditions for gappy propositions. I indirectly address these criticisms below, in part by conceding that the truth-conditions for gappy propositions are less clear than I said in Braun 1993.

20. a. Wanda is not a witch.
    b. It is not the case that Wanda is a witch.

Further, the sentences in (21) are false, and those in (22) are true.

21. a. Something is a witch.
    b. There is a witch.
22. a. Nothing is a witch.
    b. It is not the case that something is a witch.
    c. There are no witches.
    d. It is not the case that there are witches.

So on this version of the Gappy Proposition Theory, the relevant negative existentials are true, and there is an easy reply to the abbreviated Objection from True Negative Existentials.

Matters are more complicated on the version of the Gappy Proposition Theory that says that proposition (19b), and therefore sentence (19a), is neither true nor false. If (19a) is neither true nor false, then (one might reasonably suppose) its negation, or at least some of its negations, are also neither true nor false. Perhaps, for instance, (20a) is neither true nor false. But if (19a) is neither true nor false, then surely (23a) is true.

23. a. The proposition that Wanda is a witch is not true.

And if (23a) is true, then it is plausible to suppose that the other sentences in (23) are also true, for they seem to be necessarily and logically equivalent to (23a).

23. b. That Wanda is a witch is not true.
    c. It is not true that Wanda is a witch.
    d. It is not the case that Wanda is a witch.

(23d) is, of course, just (20b) again. If at least some of the sentences in (23) are negations of (19a), then one might hold that some negations of (19a) are true, while others are neither true nor false. Further, one might wonder again about (20a). Is it clear that it should be neither true nor false? Perhaps it is ambiguous between a true disambiguation and a neither-true-nor-false disambiguation. One might think that this alleged ambiguity is either lexical or structural in origin.

Similar questions can be raised about sentential connectives other than negation, such as disjunction and conjunction. One might wonder whether the weak Kleene table or the strong Kleene table is correct, if atomic sentences containing empty general terms are

neither true nor false. Further questions arise about quantified sentences, and quantified sentences that also contain devices of negation. Perhaps some of the negations in (23) are true and some are neither-true-nor-false, and perhaps some are ambiguous between true and neither-true-nor-false readings.

So there are many possible views about the truth-values of complex sentences containing simple empty general terms, given the view that atomic sentences with simple empty general terms are neither true nor false. Outlining the possible combinations, and arguing for one over the others, would take considerable space. Rather than do this, I will simply consider the worst-case scenario for the Gappy Proposition Theorist.

Suppose that all of the negative existential sentences in (22) are neither true nor false on the most plausible version of the Gappy Proposition Theory.[20] The abbreviated Objection from True Negative Existentials claims that these sentences, and the propositions they semantically express, are true. So, it says, the Gappy Proposition Theory is false. On the version of the Gappy Proposition Theory we are now considering, we must deny the premise that 'There are no witches' is true. Ordinary intuition agrees with the claim that the sentence is true. How serious a problem is this for this version of the Gappy Proposition Theory?

Not very serious, I believe. As we saw earlier, entertaining a gappy proposition does not differ phenomenologically from entertaining a standard proposition with no gaps. Reflection alone will not tell one that one is considering a gappy proposition. Even those who believe that 'witch' correctly applies to nothing, and who believe that 'witch' has an empty extension (or no extension), will not be able to tell, by reflection alone, that they are entertaining a gappy proposition as they mentally rehearse the sentence 'There are no witches'. Extended *a priori* reflection may lead them to the conclusion that, if 'witch' has an empty extension or no extension, then the proposition they are entertaining is neither true nor false. But we have already had a taste of just how abstruse and difficult this *a priori* reasoning would be. We certainly should not expect an ordinary thinker, or even a sophisticated philosopher, to engage in such reasoning, no matter how rational she may be.

Moreover, an agent who thinks that 'witch' applies to nothing is certainly reasonable in thinking (correctly) that it is *not true* that there are witches. She will not notice anything phenomenologically unusual as she considers the proposition that it is not true that there are witches. She will believe that all, or nearly all, propositions are either true or false. (She may think that some problems arise with the propositions expressed by vague sentences and paradoxical sentences, but she may reasonably think that 'There are witches' is not one of these. So she will have very little, or no, *a priori* evidence for thinking that the proposition

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[20] I will not consider a view on which (23a) is neither true nor false. (23a) is clearly true on any version of the Gappy Proposition Theory.

there are witches fails to have a truth-value.) And so it will be reasonable for her to think that, since it is not true that there are witches, it is false that there are witches, and so (the proposition) that there are no witches is true. Thus she will rationally believe that there are no witches, though that proposition is neither true nor false. I conclude that the Objection from True Negative Existentials does not pose a serious problem for a Naïve Theory that includes gappy propositions.

I have now considered all of the previous objections to the Naïve Theory, and described how an advocate of the Gappy Proposition Theory could give reasonable replies to all of them, in ways that are consistent with the Naïve Theory. So have I solved all of the problems that the Naive Theory has with simple empty general terms? No. Contrary to the Gappy Proposition Theory, some simple empty general terms, in some speakers' languages, *do* have semantic contents. The semantic contents of these terms are *fictional* or *mythical attributes*. And in other cases, there is some indeterminacy about whether an empty general term in a speaker's language has no semantic content or has a mythical attribute as its content. So a Naïve Theorist cannot settle for the Gappy Proposition Theory alone. She needs a more complex theory of empty general terms. I explain all of this below, beginning with an explanation of fictional and mythical objects and attributes.

6. Fictional Objects

Fictional and mythical attributes have a role to play in the semantics of *some* simple empty general terms in the languages of *some* speakers. To explain this claim, I begin with a review of the metaphysics of fictional characters and the semantics of proper names from fiction. I then turn to mythical objects, and then to an extended discussion of fictional and mythical attributes.

Kripke (2011, 2013), Peter van Inwagen (1977), Nathan Salmon (1998, 2002), and Amie Thomasson (1999) argue that fictional characters are actually existing objects. As evidence for their view, they point out that some sentences that entail that there are fictional characters, such as those in (24), are seemingly true and difficult to "paraphrase away".

> 24.　　a.　　There are fictional characters that appear in more than one of J.R.R. Tolkien's novels.
>
> 　　　　b.　　Some fictional characters are frequently discussed by literary critics.[21]
>
> 　　　　c.　　Charles Dickens created many fictional characters as he wrote his novels.

On their view, authors create fictional characters as they write their fictions. These fictional characters are artifacts, of roughly the same ontological category as such mentally-

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[21] Read this sentence as follows: Some fictional characters are such that frequently some literary theorists discuss them.

dependent artifacts as nations, clubs, insurance policies, academic degrees, and checking accounts, and other entities whose existence most non-philosophers take for granted. Fictional characters are artifacts because their existence supervenes on the activities of intelligent agents. Salmon and Kripke say that they are *abstract* artifacts, mainly (it seems) because they think that fictional characters do not have physical locations.

Though the above advocates of fictional characters agree on most metaphysical matters, they disagree on semantic matters. Consider the fictional names 'Sherlock Holmes' and 'Frodo Baggins'. All of the advocates agree that the sentences in (25) are true, on at least some uses.

25.   a.   Sherlock Holmes is a famous fictional character.
       b.   Frodo Baggins was created by J.R.R. Tolkien.

All of them take this to be some evidence that the names 'Sherlock Holmes' and 'Frodo Baggins' refer to the fictional characters, at least on some uses. After that, they disagree on semantic issues. I shall concentrate here on the semantic views of Kripke (2011, 2013) and Salmon (1998, 2002).

Kripke holds that as long as Conan Doyle used the name 'Holmes' strictly within fiction, and no one else used the name, then it failed to refer. However, once the name entered serious discourse about fiction, as when speakers began uttering sentences like those in (24), the name 'Holmes' became ambiguous. On one disambiguation, it failed to refer, while on another, it referred to the fictional character. We can disambiguate by adding subscripts to the name: 'Holmes$_1$' fails to refer, while 'Holmes$_2$' refers to the fictional character. The same ambiguity prevails in contemporary English. (Kripke does not use subscripted names, but he does speak of disambiguations of names from fiction, such as 'Hamlet'. See Kripke 2011, 68; 2013, 149.)

Salmon holds that a name refers only relative to a kind-of-use, and may refer to different things relative to different kinds-of-use. For example, the name 'David' refers to David Kaplan relative to one kind-of-use, and to David Lewis relative to another. Conan Doyle's acts of inscribing 'Holmes' while writing his fiction (and pretending to assert propositions) failed to establish a kind-of-use of the name on which it could refer. Once speakers uttered 'Holmes' in serious discourse about a fictional character, as in utterances of the sentences in (24), they established a genuine new kind-of-use on which it refers to the fictional character. So there has never been a kind-of-use on which 'Holmes' fails to refer. In that sense, 'Holmes' has never been non-referring or ambiguous.

On Salmon's view, 'Holmes' refers (on the relevant kind-of-use) to an abstract object, which is not a detective. Speaking as Salmon would have us speak, Holmes is not a human being,

and does not smoke a pipe or pursue criminals. However, *according to certain stories by Conan Doyle*, Holmes is a human being, a detective, a pipe smoker, and a pursuer of criminals. Therefore, Holmes is a *fictional* detective, a fictional human being, a fictional pipe-smoker, and so on. (More generally, say that *x* is a fictional *F* iff *x* is an object that is created by story-telling, in the way described roughly above, and some fiction says that *x* is *F*. [22])

Kripke holds that, according to Conan Doyle's stories, $Holmes_2$ is a detective. Matters become more complicated with sentences containing '$Holmes_1$'. '$Holmes_1$ is a detective' and '$Holmes_1$ is a fictional detective' fail to express propositions on Kripke's view, because '$Holmes_1$' fails to refer and so fails to have a semantic content. So it would seemingly follow that 'Conan Doyle's stories say that $Holmes_1$ is a detective' should be false or truth-valueless. Nevertheless, Kripke seemingly holds that this last sentence is true, and that this is why 'Conan Doyle's stories say that $Holmes_2$ is a detective' is true.

7. Mythical Objects

Authors of fiction do not attempt to assert truths when they create fiction. They merely pretend to assert propositions, and they knowingly use proper names that do not refer to ordinary objects (such as people). By contrast, speakers who believe myths, such as the myth of Pegasus and the myth of unicorns, or false scientific theories, such as the theory of phlogiston, try to use the terms to assert truths about real objects. Their intentions differ from those of storytellers. One might therefore worry about whether the preceding metaphysics and semantics of fiction should be extended to myth and false scientific theory. (From here on, I follow Salmon [1998] in using 'myth' to include false scientific theories.) Kripke and Salmon recognize the differences, but do propose such extensions. I outline their extensions below. (But see notes 23 and 24 for important qualifications regarding Kripke's view.)

Nineteenth-century astronomers had difficulties using Newtonian physics to predict the planet Mercury's orbit. U.J.J. Le Verrier hypothesized that there was a single planet between Mercury and the Sun that caused certain perturbations in Mercury's orbit. He attempted to name the planet between Mercury and the Sun 'Vulcan'. However, there was no such planet: Mercury was (and is) the closest planet to the Sun. The strange orbit of Mercury was

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[22] I should clarify my use (and Salmon's use) of the term 'fictional'. I say that $Holmes_2$ (or Holmes) is a fictional *detective* because some fiction says that $Holmes_2$ is a detective. However, I say that $Holmes_2$ is a fictional *character* (or *object* or *entity*) *not* because $Holmes_2$ is said by some fiction to be a character (or object or entity), but rather because $Holmes_2$ is created by acts of story-telling. $Holmes_2$ is both created by acts of story-telling *and* said to be a character (or entity or object) by some fiction, so $Holmes_2$ is a fictional object by both criteria. But there is a potential for conflict: Bill Clinton was not created by acts of story-telling, but some fiction that mentions him may say that he is an object. I could introduce a distinction between "types of fictionality" and introduce two terms, such as '$fictional_1$' and '$fictional_2$'. But I have instead chosen to avoid further proliferation of subscriptions and terminology. (Thanks to Pamela Corcoran for discussion.)

later explained by general relativity. According to the joint metaphysics of Kripke and Salmon, as Le Verrier theorized about Mercury, he (unintentionally) created a mythical object. This object is much like a fictional object, except that it is created by serious theorizing rather than story-telling. It is an abstract artifact, of roughly the same ontological category as the fictional character Sherlock Holmes. [23]

Though Kripke and Salmon agree about the metaphysics, they disagree about the semantics of 'Vulcan'. According to Kripke, the name 'Vulcan', as Le Verrier used it, was non-referring. Once it became known that there is no planet between Mercury and the Sun, the name 'Vulcan' became ambiguous. On one disambiguation, which we can indicate with 'Vulcan$_1$', the name fails to refer, whereas on another, 'Vulcan$_2$', it refers to the mythical planet that Le Verrier created. 'Vulcan$_1$ is a planet' fails to express a proposition, whereas 'Vulcan$_2$ is a mythical planet' expresses a true proposition. [24]

On Salmon's semantic theory, Le Verrier's initial utterances of 'Vulcan' did not establish a genuine kind-of-use for the name. But soon Le Verrier used the name to *speaker-refer* to the mythical planet. After using 'Vulcan' one or more times to speaker-refer to the mythical planet, he unwittingly established a genuine kind-of-use for 'Vulcan' on which it semantically referred to the mythical planet. [25] On that kind-of-use, the semantic content of the name is the mythical planet. We speakers of contemporary English continue to use the name 'Vulcan' on the kind-of-use that Le Verrier established, on which it refers to the mythical planet. Speaking as Salmon would have us, Vulcan is not a planet, and it does not have any mass and it does not perturb Mercury's orbit. However, Salmon says that, *according to Le Verrier's theory*, Vulcan has all of these properties. So on Salmon's view, the sentences in (26) are true, but the sentences in (27) are false.

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[23] The previous paragraph and the next two accurately describe Salmon's view of mythical objects, but somewhat distort Kripke's view. Kripke does say that people can unintentionally create mythical characters. For example, he holds that the mythical god Zeus was an abstract object created by the activities of the ancient Greeks, and that 'Zeus' refers to that entity, on one use of that name (Kripke 2011, 63-64; 2013, 69-72, 76-77). Furthermore, Kripke does discuss Le Verrier and 'Vulcan', and he does claim that the latter has a use on which it is non-referring. But Kripke (2013, preface p. *x*) says that he does not intend to apply his theory of mythical characters to mistaken *scientific* theorizing, such as Le Verrier's theorizing involving 'Vulcan'. Indeed, Kripke [2011, 2013] nowhere says that there is a mythical planet Vulcan or that 'Vulcan' refers to it. In this paper, however, I follow Salmon (1998) in extending Kripke's metaphysical and semantical views of mythical objects to certain failed scientific theories. Like Salmon, I think this extension of Kripke's intended view is natural and well worth considering.

[24] More accurately, the Kripkean semantic view given in the main text is an extension of Kripke's semantic theory for names of mythical characters to 'Vulcan'; see the previous note. Kripke (2011, 71; 2013, lecture 6) presents a theory of the negative existential 'Vulcan$_1$ does not exist' according to which it expresses a true proposition. See Braun 1993 and Salmon 1998 for discussion and criticism.

[25] See note 40 of Braun 2005. Salmon (1998) says that there can be proper names that fail to refer on a given kind-of-use of the name, but he thinks that these are very rare.

26. a.   Vulcan is a mythical planet.

b.   Le Verrier said, and believed, that Vulcan orbits between Mercury and the Sun.

c.   According to Le Verrier's theory of Mercury's orbit, Vulcan causes perturbations in Mercury's orbit.

d.   Vulcan exists.

e.   There is a mythical planet such that Le Verrier said, and believed, that it orbits between Mercury and the Sun.

27. a.   Vulcan is a planet.

b.   Vulcan causes perturbations in Mercury's orbit.

c.   Vulcan does not exist.

8. Fictional Attributes

There are various ways to extend the preceding metaphysical and semantical theories of fictional and mythical objects to theories of fictional *attributes*. I shall concentrate on one such theory, which I shall call the *Fictional Attribute Theory*. This theory comes in various versions, which I shall call 'Kripkean' and 'Salmonian'. These versions agree on metaphysical matters but disagree on semantic matters (just as with the theories of fictional characters and names above). The Fictional Attribute Theory, and its two versions, are inspired by the works of Kripke (2011, 2013) and Salmon (1998, 2002), which is why I call them 'Kripkean' and 'Salmonian'. But Kripke and Salmon do not endorse these theories, though they may endorse kind-theoretic theories that resemble them. [26]

As J.R.R. Tolkien wrote *The Hobbit* and *The Lord of the Rings*, he inscribed many sentences containing the common noun 'hobbit', and pretended to assert propositions as he did so. He thereby created a *fictional attribute*, specifically, a fictional property. This fictional property was not a (genuine) property, for fictional properties are no more properties than fictional detectives are detectives. Rather, fictional properties are artifacts of a certain sort, of the same general ontological kind as fictional characters. We cannot refer to the fictional property using any phrase of the form "the property of being . . .", such as 'the property of being a hobbit', for the fictional property is not a *property*. But we can introduce a name to refer to it: call it 'Hobart'. Since Hobart is not a property, it is not, and *cannot* be, exemplified. Similar remarks go for other novel common nouns that Tolkien introduced, such as 'orc'.[27]

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[26] Kripke (2011, 67-68, 71; 2013, 81-82) says that bandersnatches and hobbits are fictional kinds. So he seems to hold a kind-theoretic version of the attribute-theoretic theory that I give below. Salmon briefly presents a kind-theoretic view of general terms from fiction and myth in his 1998, note 50. I have transformed the view presented there into an attribute-theoretic view. I present the kind-theoretic versions of both views at the end of this section.

[27] Similar points also hold for certain verbs and adjectives that appear in fiction, such as 'grok', as it was originally used by Robert Heinlein. (Thanks to Joshua Spencer for the example.)

This metaphysical theory of fictional properties is compatible with various semantic theories. On the Kripkean semantic theory that we shall consider here (which is inspired by Kripke, but which should not be attributed to Kripke himself), the term 'hobbit' had no semantic content as long as it was used entirely within story-telling. But once the term was used in serious discourse (about fiction), as in the sentences in (28), the term 'hobbit' became ambiguous.

28. a. Hobbits are fictional creatures.
    b. According to Tolkien's stories, Frodo Baggins is a hobbit, and hobbits are short human-like creatures with slightly pointy ears and hairy feet.

On one disambiguation of 'hobbit', it had no semantic content. On the other disambiguation, its semantic content was the fictional property that was created by Tolkien's story-telling activities, namely Hobart. We can disambiguate the term 'hobbit' by using subscripts: 'hobbit$_1$' has no semantic content, whereas 'hobbit$_2$' has the fictional property Hobart as its semantic content. The term 'hobbit' continues to be ambiguous in this way today, in our own mouths. Both 'hobbit$_1$' and 'hobbit$_2$' have empty extensions. So on the Kripkean theory, some simple empty general terms have semantic contents while others do not.[28]

There is a third possible semantic content for 'hobbit' "in the neighborhood" that a Kripkean theory might want to note: the genuine property of being a fictional hobbit$_2$. An object has this genuine property iff it is an object created by story-telling and some fiction says that it is a hobbit$_2$ (roughly, says that it exemplifies Hobart). We could use 'hobbit$_3$' to express this genuine property unambiguously.[29]

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[28] Kripke (2011, 67-68, 71; 2013, 81-82) says, or at least implies, that 'bandersnatch' and 'hobbit', on some uses, refer to fictional kinds. Kripke (2011, 64; 2014, 71, 99) claims or implies that the common noun 'god' is ambiguous between *real god* and *mythical god*; the above ambiguity theory of general terms from fiction is an extenson of his ambiguity view of general terms from myth. I said above that no phrase of the form "the property of being *N*" can refer to Hobart, because Hobart is not a property. But can a gerund phrase of the form "being an *N*" refer to Hobart? Could 'being a hobbit$_2$' refer to Hobart, if the semantic content of 'hobbit$_2$' is Hobart? This depends on the semantics of such gerund constructions. Does "being an *N*" refer to the semantic content of *N*, regardless of whether its content is a property? Or is such a phrase constrained to refer to a property, in much the same way that "the property of being an *N*" is? Similar questions arise for "*N*-hood" (e.g., 'hobbit-hood') and '*N*-ness' (e.g., 'hobbit-ness').

[29] It is doubtful that any ordinary use of 'hobbit' has the same content as 'hobbit$_3$': see note 30. 'Fictional hobbit$_2$' has a structured content whose ultimate constituents are Hobart and the semantic content of 'fictional'. The content of the latter (on one reasonable hypothesis) is a function-in-intension (a kind of relation). Call it 'Fitch'. The value of Fitch, given Hobart as argument, is a property that fictional objects of the right sort can exemplify. Entirely parallel points holds for 'fictional orc$_2$'. Let us say that *Orka* is the fictional property that Tolkien created when he used 'orc'. The phrases 'fictional hobbit$_2$' and 'fictional orc$_2$' have distinct semantic contents, since the content of the first has Hobart as a constituent, whereas the content of

Speaking as the Kripkean theory would have us speak, we can say that there are no hobbits$_2$. So Frodo$_2$ (that fictional character) is not a hobbit$_2$. But perhaps *according to Tolkien's stories*, Frodo$_2$ is a hobbit$_2$. If so, then Frodo$_2$ is a *fictional* hobbit$_2$, and so Frodo$_2$ is a hobbit$_3$, and 'There are hobbits$_3$' is true. [30] Matters become more complicated with sentences containing 'hobbit$_1$' and 'Frodo$_1$', because the Kripkean theory says these have no semantic content, and furthermore says that sentences containing them do not express propositions.

On the Salmonian semantic theory, a common noun has a semantic content only relative to a kind-of-use, which can be established only by serious uses of the term. [31] As long as Tolkien used 'hobbit' entirely within fiction (entirely within a story-telling pretense), he did not establish a genuine kind-of-use for 'hobbit'. So there is no such thing as a kind-of-use of 'hobbit' represented by the Kripkean 'hobbit$_1$'. But once 'hobbit' entered serious discourse, it acquired a genuine kind-of-use, and its semantic content on that kind-of-use became the fictional property that Tolkien created, namely Hobart. Nothing can exemplify the fictional property Hobart, not even a fictional character. Therefore, speaking as the Salmonian theory would have us, there are no hobbits. In fact, it is impossible for there to be hobbits. So Frodo Baggins (that fictional character) is not a hobbit. Nevertheless, *according to Tolkien's stories*, Frodo is a hobbit. Furthermore, Frodo is a *fictional* hobbit, just as Sherlock Holmes is a fictional detective. The semantic content of 'hobbit' is not a property, so 'There is no such thing as the property of being a hobbit' is true. However, the semantic content of

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the second has Orka as a constituent. The semantic content of 'hobbit$_3$', as introduced in the main text, is *not* the same as the semantic content of 'fictional hobbit$_2$'. The former has the semantically structure-less attribute of being a fictional hobbit$_2$ as its semantic content, whereas the latter has a structured semantic content. The semantic content of 'fictional hobbit$_1$' is also structured. It contains Fitch and a gap. Since it contains no entity for Fitch to operate on, so as to yield a property, the extension of 'fictional hobbit$_1$' is empty. Moreover, it is doubtful that there is any such property as the property of being a fictional hobbit$_1$. The phrase 'fictional orc$_1$' has exactly the same semantic content as 'fictional hobbit$_1$'. Thus the sentences 'All fictional hobbits$_1$ are fictional hobbits$_1$' and 'All fictional hobbits$_1$ are fictional orcs$_1$' have the same doubly gappy semantic content. A confused theorist speaking a disambiguated Kripkean language might think that the first sentence is true while the second is false. If so, then he can do so rationally because he grasps the sentences' shared semantic content in two distinct ways. See section 4.

[30] Two remarks: (1) If Tolkien's uses of 'hobbit' as he writes his stories have no semantic content (and so mean the same as 'hobbit$_1$'), then one might wonder how the stories he tells can say that Frodo$_2$ is a hobbit$_2$. Nevertheless, Kripke's view seems to be that given above. (2) Suppose that Frodo$_2$ is a fictional hobbit$_2$ and so there are hobbits$_3$. Then one might wonder whether any ordinary use of plain old 'hobbit' can really have the same content as 'hobbits$_3$', since it is doubtful that 'There are hobbits' is true under any disambiguation.

[31] I am here extending Salmon's (1998) views about kinds-of-use of proper names to a similar view of general terms. Salmon says nothing about such an extension.

'fictional hobbit' is a genuine property that an object can exemplify. So there are fictional hobbits, because Frodo is one, but there are no (genuine, real) hobbits. [32]

Both semantic theories require that the Naive Theory and the Gappy Proposition Theory be revised, for the latter theories say that the semantic content of a simple (empty) general term (if any) is an attribute. But Hobart is not a genuine attribute, and yet the Salmonian theory says that it is the semantic content of 'hobbit', and the Kripkean theory says that it is the semantic content of 'hobbit$_2$'.

Salmon rather explicitly endorses a kind-theoretic version of the above Salmonian attribute-theoretic view (Salmon 1998, note 50). On the kind-theoretic version, Tolkien's story-telling activities create a fictional kind, which we can call 'Kobart'. As long as the use of 'hobbit' is restricted to fiction, it does not have a kind-of-use on which it designates Kobart; but it does acquire such a kind-of-use when it is used in serious discourse, and at that point its semantic content, on that kind-of-use, is also Kobart. Fictional kinds are not kinds, so Kobart is not a kind, and it is impossible for anything to be a member of Kobart. The phrase 'is a hobbit' expresses a genuine property, being a member of Kobart, but this property is impossible to instantiate. 'Fictional hobbit' designates a genuine kind, and objects can be members of it. A Kripkean kind-theoretic view would say that Tolkien creates Kobart, that 'hobbit$_1$' designates nothing and has no semantic content, that 'hobbit$_2$' designates Kobart, and that 'is a hobbit$_2$' expresses the necessarily uninstantiated property of being a member of Kobart. [33]

9. Mythical Attributes

The above theory of fictional attributes can be extended to a theory of mythical attributes, which I shall call the *Mythical Attribute Theory*. As above, I shall present two versions of the Mythical Attribute Theory, a Kripkean version and a Salmonian version, which agree on metaphysics, but disagree over semantics. They are inspired by Kripke's and Salmon's metaphysical and semantic theories, but Kripke and Salmon do not endorse them; perhaps they would accept kind-theoretic versions of these theories. (See also all of the qualifications given in notes in sections 6-8.) Up till now my only examples of simple empty

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[32] Lewis Carroll's poem "The Jabberwocky", uses the term 'bandersnatch' as a common noun, but does not purport to mention any individual bandersnatch by name or pronoun. Carroll creates a fictional property, but does he create any particular fictional bandersnatches? I am unsure. Nevertheless, it is clear that, according to the poem, there are bandersnatches, and I think this is sufficient for 'There are fictional bandersnatches' (or 'There are fictional bandersnatches$_2$') to be genuinely true. See Kripke (2011, 2013) for related discussion of 'bandersnatch'.

[33] The kind-theoretic versions of Salmon's and Kripke's semantic require modification in the Extended Millian Theory. The latter says that the semantic content of any simple kind term is a kind. But on the kind-theoretic version of Salmon's theory, the non-kind Kobart is the semantic content of 'hobbit' and on the kind-theoretic version of Kripke's theory, it is the semantic content of 'hobbit$_2$'.

general terms from myth have been 'witch' and 'unicorn'. But it will be convenient to begin by considering another general term, about whose introduction we know more.

In 1903, a prominent French physicist, René Blondlot, thought he had discovered a new type of radiation, which he thought caused his laboratory apparatus to emit sparks that were brighter than they would be in the absence of the alleged radiation. At some point, he tried to name the radiation that he thought he had discovered. He uttered (or thought) something like the French translation of 'I hereby name the new type of radiation responsible for the bright sparks "N rays"'. He then proceeded to use the term in his subsequent theorizing, in sentences such as the French translation of 'N rays caused bright sparks in my laboratory'. More than one-hundred other scientists pursued Blondlot's line of research and claimed to have detected N rays. But there was no such radiation. Blondlot's reports were the result of experimental errors and erroneous observations that were unconsciously influenced by his expectations and biases. (See Lageman 1977 for details.) According to the Mythical Attribute Theory, Blondlot's theorizing created a *mythical attribute*, specifically a mythical property. Let us call this mythical property *Nancy*. [34] Nancy is not a genuine property. Rather, Nancy is an abstract artifact unintentionally created by Blondlot. Thus Nancy is an entity of the same ontological type as Hobart (the fictional property that 'hobbit' or 'hobbit$_2$' expresses). Since Nancy is not a genuine property, nothing can exemplify it. If Blondlot tried to refer to a particular N ray using a term like 'that N ray' (or its French translation), then he also created also a mythical object, a (particular) mythical N ray.

It is reasonable to suppose that medieval Europeans introduced and used the term 'unicorn' and 'witch' just as seriously as Blondlot introduced and used 'N ray'. So the medieval Europeans also created certain mythical attributes, which we can call 'Eunice' and 'Wilma', respectively. These are not genuine properties, so it is impossible for an object to exemplify them.

On the Kripkean semantic theory, the term 'N ray' initially had no semantic content. [35] But after scientists discovered that there was no radiation of the sort that Blondlot hypothesized, the term became ambiguous, between a use on which it had no semantic content, and a use on which Nancy is its semantic content. We can disambiguate using subscripts: 'N ray$_1$' has no semantic content, whereas 'N ray$_2$' has Nancy as its semantic

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[34] Blondlot introduced the term 'N ray' in honor of his university, the University of Nancy, located in the city of Nancy in France.

[35] I shall assume that 'N ray' is syntactically simple. The most obvious alternative hypothesis is that 'N' is an adjective modifying the common noun 'ray', so that 'N ray' is syntactically similar to 'energetic ray'. But 'N ray' seems similar in structure to 'X ray', and the dictionaries I have consulted say that 'X ray' is a noun, and none have entries for an adjectival 'X'. Notice also that "ray that is *A*" is acceptable when *A* is an adjective, such as 'energetic'. But 'ray that is N' is dubious, and 'ray that is X' is unacceptable.

content. Both have empty extensions (or no extensions). The term continues to be ambiguous today. The sentence 'There are N rays$_2$' is false, but the sentence 'According to Blondlot's theory, there are N rays$_2$' is true. The sentences 'There are N rays$_1$' and 'According to Blondlot's theory, there are N rays$_1$' fail to express propositions. [36]

There is a third possible semantic content for 'N ray', on the Kripkean theory: the genuine property of being a mythical N ray$_2$. An object has this genuine property iff it is an object created by myth-making (in the way described roughly above) and some myth says that it is an N ray$_2$, that is, that it exemplifies Nancy. We could use 'N ray$_3$' to express this property unambiguously. [37]

The Kripkean semantic theory makes analogous claims about 'unicorn' and 'witch'. As used by the medieval Europeans, these terms have no semantic content. In the languages of those who reject the myths, such as the language spoken by enlightened modern Americans, the terms are ambiguous. We can use subscripts to indicate the ambiguity: 'unicorn$_1$' has no semantic content, whereas 'unicorn$_2$' has Eunice as its semantic content. 'There are unicorns$_1$' fails to express a proposition. Parallel points hold for 'witch'.

On the Salmonian semantic theory, Blondlot's very first use of the term 'N ray' did not establish a genuine kind-of-use for the term. However, he soon began to use the term to *speaker-express* the mythical property Nancy, and this soon resulted in there being a genuine kind-of-use on which the semantic content of 'N ray' is Nancy. [38] Nancy is also the semantic content of 'N ray' in the mouths of contemporary English speakers. 'There are N rays' is false, since nothing can exemplify Nancy, but 'According to Blondlot's theory, there are N rays' is true. Further, the semantic content of 'mythical N ray' is a genuine property, which a mythical object has iff it is a mythical object said to be an N ray in some myth. Thus

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[36] Kripke does not discuss 'N ray', but as I mentioned above, he does claim that 'god' is ambiguous between (roughly) *real god* and *mythical god* (2011, 64; 2013, 71, 99).

[37] Notice that 'There are mythical N rays$_2$' is true, whereas it is dubious that 'There are N rays' is true under any (alleged) disambiguation. Thus it is rather doubtful that there is a disambiguation of 'N ray' on which it expresses the property of being a mythical N ray$_2$. 'Mythical N ray$_2$' has a semantics that is entirely parallel to the semantics of 'fictional hobbit$_2$' that I described in note 29: its structured content has Nancy and the semantic content of 'mythical' as constituents, where (we can reasonably hypothesize) the content of the latter is a function-in-intension, which we can call 'Mitch'. The remarks I made in note 29 about Fitch and the semantics of 'fictional hobbit$_2$', 'fictional orc$_2$', 'fictional hobbit$_1$', 'fictional hobbit$_1$', and so on, have complete parallels with Mitch and the semantic contents of 'mythical N ray$_2$', 'mythical unicorn$_2$', 'mythical N ray$_1$', 'mythical unicorn$_1$', and so on.

[38] A Salmonian might allow that there can be simple general terms that have no semantic content, not even a mythical attribute. But a true Salmonian would hold that these are extremely rare (just as Salmon holds that genuinely empty names are extremely rare).

the sentence 'There are mythical N rays' is true. [39] The Salmonian semantics has similar consequences for 'unicorn' and 'witch'.

A kind-theoretic version of the metaphysical theory says that Blondlot unintentionally created a mythical kind. Call it 'Kancy'. Kancy is not a kind, so nothing can be a member of it. On the Salmonian semantics for the kind-theoretic version, there was initially no kind-of-use of 'N ray' on which it designated Kancy, but soon there was. 'Is an N ray', on this kind-of-use, semantically expressed the property of being a member of Kancy when Blondlot used it (or its French translation), and it continues to express that property in contemporary English. It is impossible for an object to have this property. 'Mythical N ray' designates a genuine kind, and 'is a mythical N ray' expresses a property that it is possible for some object to have. The Kripkean semantic theory can also be given a kind-theoretic version. [40]

10. Reflections on the Metaphysics of Fictional and Mythical Objects and Attributes

The preceding theories agree on metaphysical matters, but disagree over semantic matters. Before I discuss their semantic disagreements, I want to comment on their metaphysical agreements.

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[39] The existence of particular individual mythical N rays may not be necessary for the truth of 'According to Blondlot's theory, there are N rays'. Therefore, perhaps the existence of particular individual mythical N rays is not necessary for the truth of 'There are mythical N rays'. See note 32 for a parallel issue about fictional characters and fictional attributes.

[40] There is an alternative view of the metaphysics of fictional and mythical attributes, and the semantics of general terms from fiction and myth, such as 'hobbit' and 'N ray', that seems (to me) almost as well motivated as the preceding Kripkean and Salmonian views. On this alternative view, Hobart is a genuine property, which is expressed by 'hobbit'. An object exemplifies this property iff (roughly) some fiction says that it is a hobbit. (A little less roughly: that object bears the right relations to Tolkien's acts of writing, especially his pretend acts of predication using the term 'hobbit'.) Tolkien's acts of writing either created the property or created the conditions that determine that the fictional objects that he created (such as Frodo and Bilbo) exemplify the (independently existing) property. (Compare this with the property of being a table. Humans who first created a table either simultaneously created the property of being a table, or created the conditions that determine that the concrete object they created exemplified this [independently existing] property. Similarly for abstract artifacts, such as checking accounts, and certain properties they have, such as being a checking account: humans either created the property of being a checking account or created conditions that determine that certain created abstract objects [checking accounts] exemplify this independently existing property.) Objects created by story-telling can be hobbits, but it is impossible for any non-fictional object to be a hobbit. So hobbits exist. However, Frodo Baggins does not exemplify most of the other (non-fictional) attributes attributed to him in the story, such as living, breathing, walking, and wearing a ring. Similar points hold for mythical attributes (such as Nancy) and general terms from myth (such as 'N ray'). Unfortunately, I do not have space to criticize this alternative theory in detail, but I believe that this sort of mythical attribute theory has many of the same problems as the Salmonian version of the Mythical Attribute Theory given in the text: speakers who seriously accept the relevant myths have thoughts and intentions that prevent their terms from having such attributes as their semantic contents.

In my opinion, Kripke, van Inwagen, Salmon, and Thomasson have provided strong *prima facie* evidence for the existence of fictional characters, for sentences like (24)-(25) (and the propositions that they express) appear to be true, and are extremely difficult to paraphrase away in a satisfactory manner. Moreover, we have little reason to resist the *prima facie* evidence. We have a reasonably good grip on the sort of entities fictional characters are. We know that they (are supposed to) supervene on the thoughts, intentions, and intelligent activities of agents. We can say with reasonable certainty, for a large range of conditions, whether the mental activities of the people in those conditions create one or more fictional objects. In these respects, fictional characters are much like nations, contracts, insurance policies, academic degrees, clubs, and various other mind-dependent entities whose existence non-philosophers take for granted. Admittedly, fictional characters do not have clear intrinsic physical properties or definite locations. But in this respect, they are no different from insurance policies. We can imagine cases that make us wonder whether a fictional character has been created, or make us wonder how many fictional characters have been created. But we can also imagine cases in which we are unsure whether a checking account, or more than one checking account, has been created. On the whole, fictional characters seem no more mysterious than checking accounts.[41]

Our evidence for the existence of mythical characters (objects) is much the same, and about as good, as our evidence for fictional characters. The metaphysical issues surrounding mythical objects are no more troubling than those for insurance policies.

The evidence in favor of the existence of fictional and mythical attributes is similar. We do not often use terms that refer to fictional and mythical attributes, and so we do not often find such phrases in discussions of fiction and myth. But we are inclined to say 'There are no (real) hobbits, but there are fictional hobbits, such as Frodo Baggins', and sentences such as these seem true and are difficult to paraphrase away. Further, it is easy to see how fictional and mythical attributes could be abstract artifacts of roughly the same ontological type as fictional and mythical objects. We have some grip on the conditions under which fictional and mythical properties exist.

Therefore, I shall assume, without further argument, that there are such things as fictional and mythical attributes. Those who are unconvinced may take me to be discussing the

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[41] Anthony Everett (2005) argues against the existence of fictional characters. His argument assumes (roughly speaking) that fictional characters are individuated by the stories in which they appear. I reject his theory of individuation for fictional characters, but I cannot go into detail here. Stuart Brock (2010) formulates several theories about when and how authors create characters, and argues against each such theory. I suspect that there are alternative theories that he overlooks. But in any case, it may be that the existence of fictional characters supervenes on the activities of authors and others, but in ways that cannot be finitely described. More generally, stating (finite) existence and identity conditions for any sort of entity, whether artificial or natural, is extremely difficult. I suspect that the identity and existence conditions of fictional characters are no more problematic than those for insurance policies.

following issue: If there were fictional and mythical characters and attributes, how would they figure in the semantics of discourse in and about fiction and myth?

There is another question one might raise about fictional and mythical attributes, which I would classify as both metaphysical and semantic. The preceding theories say that sometimes the semantic content of a simple empty general term is a fictional or mythical attribute. But fictional and mythical attributes are not attributes. They are not the sorts of things that can be exemplified or instantiated. Thus, no proposition of the form <*o*, Hobart>, where *o* is an object, is possibly true. A critic might claim that, if this is so, then it is impossible for fictional and mythical attributes to be the semantic contents of general terms (assuming these are predicates). So the preceding theories must be false.

I deny the claim that if fictional and mythical attributes are non-instantiable, then they cannot be the semantic contents of general terms (or predicates). I suspect that the appeal of the claim is due to the following seeming fact: A reasonable speaker (and thinker) who became aware that the semantic content of a general term (or predicate) is a non-instantiable entity would cease using that term for predication. For example, if the semantic content of 'hobbit' were Hobart, and a speaker were to learn that Hobart is not an attribute, then she would cease using 'hobbit' predicatively, as in sentences of the form "*N* is a hobbit". Of course, if enough speakers did this, then the semantic content of 'hobbit' would no longer be Hobart. But that hardly suffices to show that the semantic content of 'hobbit' is not (in fact) Hobart, for hardly any speakers believe that the semantic content of 'hobbit' is a non-instantiable non-attribute. [42]

11. Critique of the Salmonian Semantic Theory

I turn now to criticizing the Kripkean and Salmonian semantic theories of empty general terms. I begin with the Salmonian theory.

The Salmonian theory says that the semantic contents of all (or nearly all) mythical proper names and mythical general terms are mythical objects and attributes. I shall argue, to the contrary, that mythical proper names and mythical general terms, when introduced by those who *genuinely accept* the theories that they are trying to express (for instance, Le Verrier, Blondlot, and many medieval Europeans) do *not* have mythical objects and mythical attributes as their semantic contents. Rather, these terms have no semantic contents in those theorists' languages. The serious theorists' thoughts and intentions do not allow their names and general terms to have mythical entities as their semantic contents, and also force their terms to have no semantic content. These same terms also lack semantic content when used by subsequent speakers who deferentially borrow these terms from the serious

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[42] Perhaps reasons for thinking that fictional and mythical attributes cannot be the semantic contents of predicates can be found in Frege's remarks about predicates' being unsaturated, or in theories about the unity of propositions. I will not pursue these avenues here.

theorizers who introduced the terms. Thus the Salmonian semantic theory does not correctly describe the semantic contents of mythical terms in their languages. So I shall argue below.

I begin with a serious theorizer who introduces a proper name. Imagine that Sue hears sounds coming from the walls of her house. She strongly suspects that there is a single mouse in her house and she wishes to discuss how to trap it with her housemate. Sue wants to name the mouse that she thinks she hears so as to make their conversation easier, but since she is not entirely sure that there is just one such mouse, she cautiously introduces a name as follows: 'I shall use the name 'Mickey' to refer to the one and only mouse that I have heard running around our house. If there is no such mouse, then 'Mickey' shall refer to nothing'. Now imagine that there is no mouse in her house: the sounds she heard were caused by tree branches brushing up against her house. Sue unwittingly creates a mythical object. A semantic theorist who is observing the situation, and knows that there is no mouse, could introduce a name for this mythical object. I will use 'Minnie' to refer to it. But the name 'Mickey' in Sue's idiolect does not refer to the mythical object Minnie, or to any other mythical object, for Sue stipulated that the name would fail to refer if there were no mouse in her house. (Moreover, if she were apprised of the situation, she would judge that 'Mickey' fails to refer, just as she intended.) [43] Given Sue's thoughts, intentions, and stipulations, claiming that 'Mickey' refers to the mythical entity would be no more plausible than claiming that 'Mickey' refers to the tree branches.

Now modify the example a bit: suppose that Sue did not explicitly say that 'Mickey' would fail to refer if there were no mouse. Nevertheless, if Sue is a typical speaker, she would intend the name to refer either to a mouse or to nothing. Perhaps her intention would be unconscious or tacit. But it would still be real. An indication that she had this intention is this: If she were informed that there is no mouse in the house she would think that the name refers to nothing, and that 'Mickey exists' is false. Therefore, the name 'Mickey' in Sue's language is non-referring, in this second scenario. It does not refer to the mythical object Minnie.

Le Verrier was in a position similar to Sue's. He introduced the name 'Vulcan' as a name for a planet perturbing Mercury's orbit. He may or may not have given much thought to what 'Vulcan' would name if there were no such planet, but even if he did not, he intended that

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[43] I have used 'mythical' in two different ways, and this may be relevant to Sue and Minnie. I have said that x is a mythical *object* (or *entity*) when x is created by acts of theorizing (myth-making). When F is a substantive sortal (such as 'planet'), I have said that x is a mythical F when x is an F according to some myth. There is a conflict between these two ways of speaking in Sue's case. Minnie is created by Sue's theorizing, and so is a mythical object in the first sense, but there is no myth according to which Minnie is an object, or at least there is no myth *that Sue believes* that says that Minnie is an object. To avoid potential for conflict, I could introduce two types of mythicality, and two terms ('mythical$_1$' and 'mythical$_2$'), but I have chosen instead to avoid yet more subscripts and terminology.

the name be non-referring if his theory were radically wrong (as it was). If he were to become convinced that there is no planet between Mercury and the Sun, then he would react by thinking that Vulcan does not exist and that the name he introduced refers to nothing. So the name 'Vulcan' in Le Verrier's idiolect fails to refer. The name 'Vulcan' also fails to refer and to have a semantic content in the mouths of people who (directly or indirectly) receive the name 'Vulcan' from Le Verrier, and attempt to borrow its reference.

Let us now turn to simple empty general terms in the mouths of serious theorizers who introduce those terms. Imagine that Stacy has recently moved from the United States to Australia. She hears various sounds coming from the walls of her Australian house. She thinks that there are at least two animals causing the sounds. But she is not sure whether there are any mice in Australia, and she thinks the sounds might be caused by a reptile. She resolves to introduce a term for the kind of animal causing sounds in her house. She says 'I shall use "noisile" for the kind of animal that is causing scratching noises in my house. If there is no such kind of animal, then "noisile" will not name any kind of animal'. She thereby introduces a new general term. Suppose that there are no animals causing noises in her house. Then Stacy creates a mythical property, which we theorists can call 'Ned'. But the general term in her mouth does not name the mythical property Ned, or have that mythical property as its semantic content. Stacy wished to speak about a real kind of animal; she did not wish to say anything about a mythical entity. She made that clear in her stipulation. So 'noisile' in her mouth has no semantic content. Nothing interesting would be different if she did not explicitly think about what the term would mean if there were no animals causing sounds in her house. Even in that sort of case, she would clearly not intend to be speaking of a mythical animal, and the term would not have such a mythical property as its semantic content.

Blondlot was in much the same situation as Stacy. He may not have been as explicit about what the term 'N ray' would mean (or name, or express) if there were no radiation causing bright sparks in his laboratory, but he had intentions much like Stacy's: he wished to be speaking of a real kind of radiation, and not a mythical kind of radiation. The subsequent scientists who borrowed the term 'N ray' intended to use it as Blondlot did. So the term also had no semantic content in their languages. We know less about how the terms 'unicorn' and 'witch' were introduced and passed on, but it seems very likely that medieval Europeans who were serious users of the terms similarly intended them to express real properties of real objects (or to "name" real kinds).

I conclude that 'Vulcan', 'N ray', 'unicorn' and 'witch' do not have mythical entities as their semantic contents in the languages of those who introduced them and took them to refer to real objects or express real properties. Their thoughts and intentions prevented those terms from acquiring mythical entities as their semantic contents. Those terms instead had no semantic contents in the languages of those serious theorizers. When these serious

theorists sincerely and assertively uttered sentences containing these terms they asserted and believed gappy propositions. The same holds for subsequent believers and speakers who accepted those theories and intended to defer to their predecessors in their uses of those terms.

12. A Salmonian Objection and a Reply

I have laid heavy emphasis on the intentions and thoughts of seriously mistaken theorizers when they introduce proper names and general terms. An advocate of the Salmonian theory might reply that an introducer's intentions do not always fully determine what a name refers to or what a general term expresses. For example, suppose that Scott goes to a zoo with a group of children. They see a striped animal in a pen labeled 'zebra', and Scott says to the children 'Let's call the zebra in front of us "Zeke"'. Scott and the children repeatedly use the name 'Zeke' while pointing at the animal, saying things like 'Zeke is eating hay' and 'Zeke likes to kick up dust'. But, of course, the zoo keepers are evil epistemologists, and the animal in front of Scott and the children is a mule painted to look like a zebra. Nevertheless, the name 'Zeke' seems, in the end, to refer to the mule in front of them, contrary to their intention when they introduced the name to refer to a zebra. An advocate of the Salmonian view might claim that something similar happens with 'Mickey' in Sue's language. [44] Sue's theorizing and utterances cause Minnie to exist, and her theorizing and utterances are also among the causes of the subsequent theorizing that she expresses using the name 'Mickey'. So the mythical object Minnie is also among the causes of Sue's theorizing. [45] The advocate might claim that the name 'Mickey' in her mouth may thus end up referring to a mythical object, despite Sue's intention that it refer either to a real mouse or nothing. The Salmonian could hold that the same goes for Le Verrier: despite his intentions, the name 'Vulcan' in his mouth ends up referring to a mythical planet. And similarly for Stacy, Blondlot, the medieval Europeans, and others who introduce general terms: they end up having mythical properties as their semantic contents.

I reply that there are important differences between Scott and Sue. Zeke is not a zebra, but he is an animal, and has stripes, and has many of the other properties that Scott might have been inclined to ascribe to the animal before him when he introduced the name. Scott can perceive Zeke, and Scott clearly has perceptually-based, demonstrative thoughts about Zeke. Analogous points do not hold for Sue and the mythical object Minnie. Minnie has none of the properties that Sue would be inclined to ascribe using the name 'Mickey', save that of existence. Minnie is not a mouse, is not an animal, and does not make noise in her

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[44] Salmon himself (1998) would say this only about the second case involving Sue, in which she makes no explicit stipulation about the reference of the name 'Mickey' if there is no mouse in her house.

[45] Abstract artifacts, like checking accounts, can cause events. For instance, my checking account can cause me to be unhappy when its balance becomes very low. Minnie may similarly be able to cause thoughts in Sue, despite being an abstract artifact. I regret that I did not recognize this when I wrote Braun 2005.

house. Sue does not perceive Minnie. Minnie may be among the causes of Sue's thoughts, but so are many events to which the name 'Mickey' clearly does not refer, including (for instance) the tree branches and the sounds that those tree branches caused. Sue did not focus on the tree branches and sounds in ways appropriate to establish them as referents for the name 'Mickey'. One reason she did not is that those causes had very few of the properties that she was inclined to ascribe to a mouse. Similarly, she did not focus on the mythical entity Minnie in a way sufficient to establish it as a referent of the name 'Mickey'. So the claim that 'Mickey' referred in Sue's language to the abstract object, because that mythical entity caused some of her thoughts, is no more plausible than the claim that the name referred to the sounds that she heard.

A Salmonian might reply that 'Mickey' in Sue's language refers to the mythical mouse Minnie because Sue's activities caused Minnie to exist. But Sue's activities also caused various vibrations in the air and subsequent neural firings in her own brain. Yet the name 'Mickey' in her language clearly does not refer to any of those vibrations or neural firings, as long as she had nothing like them in mind when she introduced the name. But she did not, and neither did she have anything like a mythical object in mind as the target of her name introduction.

 Analogous points hold for Le Verrier and Blondlot. The mythical planet had virtually none of the properties that Le Verrier was inclined to ascribe to the perturber of Mercury. The mythical attribute Nancy has none of the properties that Blondlot (implicitly) thought that N rays had, such as being exemplified by bursts of radiation in his laboratory. The mythical planet might have been among the causes of Le Verrier's thoughts, but not in a way that allowed Le Verrier's to think about it, or in a way that allowed his term 'Vulcan' to refer to it. The mythical attribute Nancy might have been among the causes of some of Blondlot's thoughts and utterances, but so were many other objects and events that he did not think or speak about.[46] The mythical planet and the mythical attributes may have been among the effects of Le Verrier's and Blondlot's thoughts and activities, but that is not sufficient to make those mythical entities the referents or semantic contents of the expressions they introduced.

I conclude (once again) that simple empty general terms have no semantic contents in the idiolects of the serious theorizers who introduce them. Sentences containing those terms semantically express gappy propositions in their idiolects, and those speakers assert those gappy propositions when they assertively utter those sentences, and they entertain and believe those gappy propositions when they do so. The same holds for those who

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[46] For similar reasons, Le Verrier did not *speaker-refer* to the mythical planet Vulcan$_2$ and Blondlot did not *speaker-express* the mythical property Nancy, contrary to the Salmonian view given above.

subsequently acquire the terms (perhaps via a chain), and who defer to their predecessors, and think that the terms are non-empty.

The same *may* hold of some authors who introduce fictional proper names (such as 'Frodo') and fictional general terms (such as 'hobbit') in their stories. But whether these terms have no semantic contents, or have fictional objects and attributes as their contents, in authors' idiolects, depends largely on their thoughts and intentions. Those thoughts and intentions may be quite complicated, for authors are aware that they are not speaking of real objects and attributes. Perhaps their terms do end up having fictional objects and attributes as their semantic contents. I shall not try to settle the matter here. I shall from here on set aside the semantics of fictional terms, and concentrate entirely on mythical terms. (I discuss reference in fiction a bit further in Braun 2005.)

13. Critique of the Kripkean Semantic Theory

The Kripkean semantic theory is closer to being correct about mythical terms than the Salmonian theory. But it has two major defects. It fails to recognize gappy propositions. And it hypothesizes more ambiguities in empty general terms than it should.

The Kripkean theory says that the name 'Vulcan' fails to refer in Le Verrier's language. It also says that the general term 'N ray' fails to have a semantic content in Blondlot's language, and that 'unicorn' fails to have a semantic content in the language of a typical Medieval speaker. All of that is correct. But the Kripkean theory also says that sentences containing 'Vulcan' fail to express propositions in Le Verrier's language, and that sentences containing 'N ray' fail to express propositions in Blondlot's language. On these points the Kripkean theory is incorrect. Sentences containing that name express gappy propositions in Le Verrier's idiolect. When Le Verrier sincerely utters 'Vulcan is a planet' he asserts a gappy proposition, and he believes the gappy proposition that he asserts. Similar points hold for Blondlot, and for those agents who borrow the terms 'Vulcan' and 'N ray' from serious, deferential users whose uses trace back to Le Verrier and Blondlot.

The Kripkean semantic theory also says that mythical names and general terms, such as 'Vulcan' and 'N ray', are ambiguous in the languages of modern speakers of English who, like us, believe that the relevant theories are not true. But there are strong reasons to be skeptical about this ambiguity claim.

Consider a clear case of ambiguity. The sound sequence spelled 'b'-'a'-'n'-'k' in English is ambiguous. Most competent speakers of English are aware that this sound-sequence is used both to speak of financial institutions and to speak of strips of ground near rivers, and when they utter the sound-sequence spelled 'b'-'a'-'n'-'k', they consciously choose to use it in one way or the other. Some theorists might say that there is a single word that has several kinds-of-use; others might instead say that there are two words (or lexical items) that sound the

same. Either sort of theorist could introduce 'bank$_1$' and 'bank$_2$' to distinguish between these kinds-of-use or words. But however theorists think of ambiguity, with 'bank' we have here a clear case of ambiguity. Something similar happens with proper names such as 'John'. Most of us know several people who are called by the sound-sequence 'J'-'o'-'h'-'n'. When we utter the sound-sequence, we consciously use it to refer to one person or another. We could say that the name has several kinds-of-use (as Salmon 1998 does) or that there are several names that sound the same (as Kaplan 1990 does). We can introduce 'John$_1$', 'John$_2$', 'John$_3$', and so on to indicate these different kinds-of-use or names. However we deal with this in semantic theory, it is reasonable to say that the name (or sound-sequence) is ambiguous in the languages of many speakers.

Semantic theorists who are aware that there is no planet between Mercury and the Sun, and who are aware that there are mythical planets, *are in a position* to choose to use the proper name 'Vulcan' ambiguously. They can consciously choose to use it sometimes as Le Verrier did, so that it refers to nothing and has no semantic content, and they can sometimes consciously choose to use it to refer to a mythical planet. In the language of such self-conscious semantic theorists, there would be two kinds-of-use of 'Vulcan', or two different names that are pronounced the same way. The name (or sound-sequence) 'Vulcan' would clearly be ambiguous in such sophisticated speakers' languages. Such self-conscious semantic theorists might want to introduce subscripts into their written language, using 'Vulcan$_1$' and 'Vulcan$_2$'. They may even want to pronounce the subscripts. Similarly, semantic theorists who know about the mistakes that Blondlot made, can consciously choose to use the general term 'N ray' ambiguously. They can choose to use it occasionally as Blondlot did, so that it has no semantic content; or they can consciously choose to use it so that its semantic content is Nancy; or they can consciously choose to use it so that its semantic content is the genuine property of being a mythical N ray (a mythical N ray$_2$, to be exact). In this semantically sophisticated language, the term would clearly have three distinct kinds-of-use, or perhaps instead three different general terms that are pronounced the same. This would be genuine ambiguity. If the semantic theorists wanted to do systematic semantic theorizing, they would find it convenient to introduce subscripted terms into their written language ('N ray$_1$', 'N ray$_2$', 'N ray$_3$') and perhaps begin pronouncing the subscripts. Such semantic theorists could similarly use 'unicorn' and 'witch' so that they are ambiguous in their languages, and they could similarly introduce subscripts into their language: 'witch$_1$' with no semantic content, 'witch$_2$' as a term whose content is the mythical property Wilma, 'witch$_3$' as a term expressing the genuine property of being a mythical witch$_2$.

The semantic theorists we have imagined above consciously choose to use terms such as 'Vulcan', 'N ray', and 'witch' in several ways. They are aware of ambiguity in their languages. The same cannot be said of more ordinary contemporary users of these terms, for instance, speakers who are aware of the relevant history of science, but who are not self-conscious

semantic theorizers. These speakers do not consciously choose to use (e.g.) 'Vulcan' in first one way, and then in another. They are not aware of the need to do so. They may utter 'Vulcan does not exist' and 'Vulcan is a mythical planet' in the same breath, though no single kind-of-use of the name can make both of the sentences they utter true. They are not sufficiently conscious of the conflict in their desires and intentions to realize that they need to "ambiguate" the name in their language. Thus the term 'Vulcan', in the languages of such users has (at best) a *single* use that is *indeterminate* in its reference: it is indeterminate whether 'Vulcan' in such speakers' mouths fails to refer or whether it instead refers to the mythical planet. [47] The name is consequently indeterminate in its semantic content in such speakers' languages. It is indeterminate whether it has no semantic content or whether it instead has the mythical planet as its semantic content. More than likely, the reference and content of 'Vulcan' in ordinary English as a whole is also indeterminate. Similar remarks go for the term 'N ray' in the mouths of those who are aware of the term's history but are not semantically sophisticated. For them, 'N ray' has at most a single sort of use under which its semantic content is indeterminate: it is indeterminate whether it has no semantic content, or whether its semantic content is Nancy, or whether its semantic content is the property of being a mythical N ray$_2$.[48] And similarly for 'unicorn' and 'witch' in the mouths of virtually all ordinary speakers of English.

If the terms 'Vulcan' and 'witch' are indeterminate in their semantic contents in ordinary modern English, then so are the sentences 'Vulcan exists' and 'There are witches'. There are two propositions, the gappy proposition <__, existing> and the ungappy proposition <Vulcan$_2$, existing>, where Vulcan$_2$ is the mythical planet that Le Verrier created. It is indeterminate whether the sentence 'Vulcan exists' expresses the first or the second, in ordinary English. Parallel points hold for 'There are witches': it is indeterminate whether it expresses, in ordinary English, a gappy proposition or a proposition concerning the mythical attribute Wilma or a proposition concerning the genuine property of being a mythical witch$_2$.

This indeterminacy raises issues about the truth-values of the sentences in ordinary modern English. On what we might call 'the supervaluation view' of truth-value in the face of indeterminacy, a sentence is true if all of the propositions that it indeterminately expresses are true, false if all of the propositions it indeterminately expresses are false, and otherwise truth-valueless. On what we might call 'the strong indeterminacy view', a sentence with indeterminate content is truth-valueless no matter what the truth-values of the relevant indeterminately expressed propositions are. Deciding between these theories would take us

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[47] I here ignore other irrelevant uses of 'Vulcan', such as those for a mythical Roman god and for the mythical home planet of *Star Trek*'s Spock.

[48] There is some reason to doubt that the property of being a mythical N ray$_2$ is among the properties that 'N ray' indeterminately expresses: see note 37 above. Nevertheless, I shall from here on assume that this property is among the properties that 'N ray' indeterminately expresses.

far afield. [49] But both theories entail that both 'There are witches' and 'Vulcan exists' are neither true nor false in ordinary contemporary English.

All of this is consistent with ordinary speakers' sometimes using 'Vulcan' and 'witch' to *speaker-refer* to mythical entities or to *speaker-express* mythical attributes or genuine attributes (such as being a mythical witch$_2$). The sentence 'Vulcan is a mythical planet' is unambiguous but indeterminate in semantic content in ordinary English, yet an ordinary speaker who utters it may sometimes focus on the mythical planet Vulcan$_2$, and wish to speak of it, and thereby assert the proposition that Vulcan$_2$ is a mythical planet, even though this proposition is not the semantic content of the sentence in his language. Similarly, an ordinary speaker who focuses on mythical witches$_2$ may utter 'Witches are mythical entities', and thereby assert the proposition that all mythical witches$_2$ are mythical entities, or that all witches$_3$ are mythical entities, though this is not the semantic content of the sentence he utters. If ordinary speakers were to use 'Vulcan' and 'witch' in a sufficiently systematic manner, so that on each occasion they determinately speaker-expressed either no entity or a mythical entity or a related genuine attribute, then these terms would perhaps be merely ambiguous in their language, rather than indeterminate in content. But it is unlikely that ordinary speakers are actually sufficiently careful for this to be the case.

14. Belief and Hypotheses

Le Verrier sincerely uttered (the French translation of) of 'Vulcan orbits between Mercury and the Sun'. So he asserted something that he believed. But 'Vulcan' failed to refer in his idiolect (I have argued). Therefore, the belief ascription 'Le Verrier believed that Vulcan$_1$ orbited between Mercury and the Sun' is true in the precisified and disambiguated language I described above. It is unlikely that Le Verrier had any beliefs about the mythical planet that he created. So the belief ascription 'Le Verrier believed that Vulcan$_2$ orbited between Mercury and the Sun' is false in the above precisified and disambiguated language. Moreover, it is unlikely that there is any other mythical planet that Le Verrier believed to be orbiting between Mercury and the Sun. So, the belief ascription 'There is a mythical planet such that Le Verrier believed that it orbited between Mercury and the Sun' is also false.

Salmon (2002, 105), however, argues for his metaphysical and semantic views on myth by appealing to claims about the beliefs and hypotheses of Le Verrier and other scientists. He uses sentences (29) and (30) for this purpose. [50]

> 29.   A hypothetical intra-Mercurial planet, Vulcan, was believed by Le Verrier to affect Mercury's perihelion, but there has never been a hypothetical planet whose orbit was believed to lie between Mercury and Venus.

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[49] I prefer the second view. For discussion, see Braun and Sider 2007.

[50] Salmon's version of (29) does not contain the first occurrence of the word 'hypothetical'. I assume that this is a misprint.

30. Some hypothetical species have been hypothesized as linking the evolution of birds from dinosaurs, but no hypothetical species have been postulated to link the evolution of mammals from birds.

Salmon holds that both sentences are true, and that their truth supports the view that 'Vulcan' in contemporary ordinary English (unambiguously) refers to a mythical planet. (Salmon seemingly assumes that the hypothetical planet Vulcan is identical with the mythical planet Vulcan.) But as we saw above, it is unlikely that Le Verrier had any beliefs about the mythical/hypothetical Vulcan$_2$. Thus, I reply that the first conjunct of (29) is false. (Or it is truth-valueless, depending on how the appositive occurrence of 'Vulcan' affects the content of the first conjunct. That name is indeterminate in content in ordinary modern English, and its occurrence in the first conjunct of (29) might render that conjunct truth-valueless.) One might be misled into thinking that the first conjunct of (29) is true because it is easy to confuse with (31). [51]

31. Le Verrier hypothesized that there was an intra-Mercurial planet affecting Mercury's perihelion.

(31) is true, and furthermore, if it is true, then Le Verrier created a hypothetical/mythical planet in the process of formulating his hypothesis. Someone who (unconsciously) realizes this might mistakenly think that (29) is true.

Similar issues arise for (30). There are *real* species, such as *Archaeopteryx lithographica*, that biologists have hypothesized to link dinosaurs to birds. These species are not *merely* hypothetical or mythical entities in Salmon's sense, so the biologists' hypothesis that *Archaeopteryx* exists does not make the first conjunct of (30) true. Biologists may also have made *mistakes* in their hypotheses concerning the existence of species linking dinosaurs and birds. Perhaps when they made these mistakes they tried to introduce names for non-existent linking species. But if so, then those names failed to refer and failed to express genuine properties. Thus their hypotheses did not concern the hypothetical/mythical species that they created, and their activities did not make the first conjunct of (30) true. So the first conjunct of (30) is false.

15. Conclusion
Let's review, so as to present a complete picture of empty general terms.

Some simple empty general terms have no semantic content, in the languages of serious speakers who introduce those terms and who (roughly speaking) think that those terms are

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[51] Here I am indebted to Richard (1998).

non-empty. Plausible examples include 'N ray' in the language of Blondlot, and 'witch' in the languages of some medieval Europeans. Those terms are similarly empty for speakers who deferentially acquire those terms (perhaps via a chain) from the serious introducers, if they take those terms to be non-empty. Sentences containing such terms express gappy propositions in the languages of such serious speakers. Speakers who use these terms believe and assert gappy propositions. All of this is consistent with the Naive Theory, as I presented it.

Some simple empty general terms have mythical or fictional attributes as their semantic contents, in the languages of some semantically sophisticated speakers. For example, a sophisticated speaker may have two terms in her language that are spelled and pronounced in the same way, one of which has no semantic content (for instance, 'witch$_1$') and the other of which has a mythical attribute as its semantic content (for instance, 'witch$_2$', whose content is Wilma). Both sorts of terms are empty in my technical sense, for both have either an empty extension or no extension.

Some simple empty general terms are indeterminate in semantic content, in the languages of some speakers. For instance, the term 'N ray' is indeterminate in its semantic content, in the languages of contemporary speakers of English who know the historical facts about Blondlot and 'N ray', but who do not consciously use the term ambiguously. It is indeterminate in such a language whether the term has no semantic content or instead has the mythical attribute Nancy as its semantic content. Similarly, the term is indeterminate in content in the languages of those who acquired the term from speakers in whose languages the term is also indeterminate in semantic content.

Thus, a single empty general term may have no semantic content in one language, and may have a mythical attribute as its semantic content in another language, and may be indeterminate between having no content and having a mythical attribute as its content in yet another language. The Naive Theory must be revised so as to allow mythical attributes to serve as the semantic contents of empty general terms, in the languages of some speakers. It must also be revised so as to allow simple empty general terms to be indeterminate in semantic content. [52]

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