Facts, properties, and the nature of the proposition

Jeff Speaks

May 2, 2011

Abstract. I argue that the best way to solve the problem of the relationship between propositions and their constituents is to think of propositions as properties. I argue that this view preserves the strengths and avoids some of the weaknesses of the views of the proposition as a kind of fact defended by Jeff King in his *The Nature and Structure of Content.* I conclude by discussing an unresolved puzzle about how a proponent of this view should handle the semantics of attitude ascriptions.

1. PROPOSITIONS AND THEIR CONSTITUENTS

Much contemporary work in semantics aims to assign propositions as the semantic contents of sentences, relative to contexts of utterance. But, of course, sentences aren't alone in having semantic contents; words and phrases, as well as sentences, have semantic contents relative to contexts of utterance, and these contents bear an intimate relation to the propositions expressed by sentences containing these expressions.

Some features of this 'intimate relation' may be brought out by example. Consider the proposition that predicates blueness of a certain pen cap. Call this proposition PROP. Then the following seem to be true:

> Necessarily, anyone who entertains a thought with content PROP entertains a thought about that particular pen cap.

> Necessarily, anyone who entertains a thought with content PROP entertains the thought of some object that it has the property of being blue.

As I will use the term, the truth of the above claims is sufficient for the particular pen cap and the property of being blue to be *constituents* of PROP. And, in general, an object o will be a constituent of p if a formula relevantly like the first one above is a necessary truth; the property F will be a constituent of p if a formula relevantly like the second one above is a necessary truth. Similar remarks are in order for relations and other potential constituents of propositions.[1]

This way of putting things presupposes a particular (Russellian) view about what sorts of thing the constituents of propositions are. But the foregoing could be restated to accommodate other views; for example, a Fregean will want to replace talk about objects as constituents of propositions with talk about individual concepts, and will want to replace talk about properties and relations with talk about modes of presentation of those properties and relations. Nothing in what follows will depend upon one choice or another here, though I will stick with the Russellian view for simplicity of exposition.

It is worth emphasizing that the way in which we have introduced the term 'constituent' does not imply anything very substantial about the relationship between propositions and these constituents — not, for example, that the relationship between propositions and their constituents is the same as or even analogous to the relationship between material things and their parts. It should, I think, be fairly uncontroversial that propositions have constituents, in the above sense, even if it is far from uncontroversial what those constituents are.

Much of the disagreement in contemporary semantics can be understood as disagreement about what sort of things the constituents of propositions are. But, as is well known, a resolution of these debates would still leave unanswered some difficult questions about the nature of propositions. In particular, it would leave unanswered the question of what propositions are, and how they are related to their constituents.

2. WHY WE NEED A THEORY OF PROPOSITIONS

There are a couple of reasons why one might think that this question does not have or need an answer. One is based on the thought that, once we've enumerated the constituents of a proposition, there simply is nothing more to say about what that proposition is: propositions are nothing over and above their constituents.

But this can't be quite right, for a few reasons. First and most obviously, there are distinct propositions with the same constituents — like the propositions that John loves Jane and that Jane loves John.

Second, the idea that propositions are nothing over and above their constituents fails to make sense of something noticed by Russell in the *Principles of Mathematics*: substitution of one expression for another with the same content can transform a sentence

---

[1] There are some complications here. One is that the above entails that any propositions too complex to be entertained in thought will, vacuously, have every object and property as a constituent; another is explaining what "relevantly like" means in a way sufficiently general to handle not just simple predications but also, for example, negations. It will be enough for my purposes here if the foregoing provides a reasonably clear gloss on "constituent" for simple propositions for which these sorts of worries don't arise.

— which expresses a proposition relative to a context — into a string of words which does not express a proposition. As Russell says, "By transforming the verb, as it occurs in a proposition, into a verbal noun, the whole proposition can be turned into a single logical subject, no longer asserted, and no longer containing in itself truth or falsehood." (§ 52) To use one of his examples,

> A differs from B

expresses a proposition and has a truth-value, whereas

> A difference B

does not express a proposition. But, intuitively, this is puzzling; for surely 'differs' and 'difference' have the same content, each being terms for the relation *difference*. But then how can the former string of words express a proposition, and the latter not?[2]

This might seem to be in the first instance a problem about *sentences*: it is the problem of explaining what it takes for one string of words to be proposition-expressing, while another is not. But it is plausible (though not uncontroversial[3]) that there is a correlative puzzle here about propositions: it is the problem of saying what propositions could be, such that one is expressed by the first string of words above but not the second. On this way of viewing Russell's remarks, they are not especially concerned with the *unity* of the proposition, but just are a particularly vivid way of bringing out a challenge to friends of propositions: the challenge of saying what propositions could be, such that they are both intimately related to and also something over and above their constituents.

One might accept these arguments that propositions must be something something over and above their constituents without thinking that we can say very much that it is informative about the relationship between propositions and their constituents. One might think this if one thought, for example, that propositions are *sui generis* simple abstract objects.

This view of propositions as primitive is a difficult view to refute; but I think that it does come with some costs. One obvious such cost involves ontological parsimony. Any view which takes propositions as a *sui generis* type of abstract object will be committed to the existence of one more category of abstract object than a view which assimilates propositions to entities of some other category, like sets, facts, or properties.[4]

---

[2] We can generate the same effect any time we substitute terms with the same content, but which belong to different grammatical categories. Accordingly, one can resolve the problem exemplified by 'differs from' and 'difference' by, following Frege, denying that it is possible for terms of different grammatical categories ever to share a content. (See his discussion of the concept *horse* in Frege (1892).) Discussion of Frege's theory of propositions is beyond the scope of this paper; for criticism, see ch. 2 of Soames (2010).

[3] See Davidson (2005) for a dissenting view.

[4] Unless, of course, the proponent of that sort of view explains one of these categories in terms of propositions, as with views that take facts to be true propositions.

A further problem is that a view of propositions as primitive is unable to offer any explanation of necessary truths about the truth conditions of propositions, like (to use the example above) the necessary truth that PROP is true if and only if a particular object — the pen cap in question — instantiates the property of being blue.[5] If propositions have no internal structure, and there is nothing to be said about their nature beyond negative claims to the effect that they are not to be assimilated to entities of any other category, then the connections between propositions, their constituents, and their truth conditions must be accepted as brute necessities. But one might reasonably think that a theory of propositions should explain why, for instance, some propositions but not others are such that their truth entails of some object that it instantiates the property of being blue.

Even if convincing, these are the sorts of arguments which should count against a view only in the presence of otherwise plausible alternatives. In the remainder of this paper, I will focus only on theories of the proposition which do not take propositions as primitive, and instead try to tell us something about the relationship between propositions and their constituents.

In evaluating these theories, it will be useful to list the data about propositions which our discussion so far has brought to light:

> *Nonextensionality*: distinct propositions can have the same constituents.

> *Russell's datum*: two strings of words can differ only in the substitution of expressions with the same content while one expresses a proposition, and the other does not.

> *Truth*: for any proposition p, there is a necessary connections between the truth of p and which objects instantiate which properties and stand in which relations.

These are facts with which our theory of propositions must be consistent; ideally, they are facts which we should want our theory of propositions to explain.

3. PROPOSITIONS AS FACTS

In the sections of the *Principles* in which he discusses the problem of the relationship between propositions and their constituents, Russell also tried to solve this problem. Russell's idea was that we can explain the difference between strings of words such as

> *A* differs from *B*

> *A* difference *B*

---

[5] This sort of problem is pressed in King (2007), 6.

in terms of the mode of combination of the constituents of the proposition expressed by the first. As he put it,

> "The twofold nature of the verb, as actual verb and as verbal noun, may be expressed, if all verbs are held to be relations, as the difference between a relation in itself and a relation actually relating. Consider, for example, the proposition 'A differs from B'. The constituents of this proposition, if we analyze it, appear to be only A, difference, B. Yet these constituents, thus placed side by side, do not reconstitute the proposition. The difference which occurs in the proposition actually relates A and B ..." (§54)

While Russell's distinction between relations in themselves and relations actually relating can sound a bit obscure, his point is clear enough: the proposition expressed by 'A differs from B' is not simply a list of two objects and a relation, but rather two objects connected by, or standing in, that relation. In the case of a monadic predication, the analogous move would be to say that the proposition is not simply a list of an object and the property, but rather the object's instantiating that property. Because every proposition includes a property or relation, this strategy will always be available.

An analogy might help. Consider the distinction between facts, thought of as an object or objects having a property or standing in a relation. Facts, so understood, have constituents — objects, properties, and relations — but are something over and above their constituents. The fact that Bob is tall involves something more than the mere existence of Bob and the property of being tall; it is a matter of Bob's *being* tall. Of course, if this makes the proposed solution to the problem of the nature of the proposition clearer, it also makes clear why the solution fails. By assimilating the proposition expressed by 'A differs from B' to the fact of A's differing from B, Russell's reliance on 'relations actually relating' makes the existence of false propositions impossible; there can be no such thing as A's differing from B unless it is true — unless it is a fact — that A does differ from B.[6]

But one might think that, despite its flaws, there is a plausible thought behind Russell's view of propositions here, which is just that a proposition must consist in some relation holding between its constituents. If the relevant relation were non-symmetric, this would have the advantage that it would offer an immediate explanation of *Nonextensionality*. Views in this family — which identify propositions with their constituents' standing in a certain relation — identify propositions with facts. Russell's idea that the relevant relation could be a relation which is itself a constituent of the proposition was a mistake — but this is no general objection to views of this sort.

One might think, moreover, that *Russell's datum* gives us a clue about where we should look. Because instances of the datum are all cases in which we move from a proposition-expressing string of words to a non-proposition-expressing string by substituting expressions of different syntactic categories for one another, it would not be

---

[6] As is well known, this is the problem which eventually led Russell to abandon belief in propositions. See the discussion of 'false objectives' in Russell (1910).

surprising if such substitutions failed precisely because the syntax of the sentence makes some contribution to the proposition it expresses. This suggests that the wanted relation, which holds between constituents of the proposition, should have something to do with the syntactic structure of sentences which express the proposition.

4. KING'S THEORY OF PROPOSITIONS

A version of this strategy has been defended by Jeff King, in his important recent book *The Nature and Structure of Content.* On King's view, the relation which binds the constituents of the proposition is determined in part by the syntactic relation which holds between the expressions of a sentence which expresses the proposition. Consider a simple sentence, 'Amelia talks.'[7] In giving the semantics of this sentence, we take as input three facts about the sentence: that it contains the name 'Amelia', that it contains the predicate 'talks', and that the sentence is formed by concatenating the latter with the former. King's view is that the relation which obtains here between the name and the predicate is, along with the object Amelia and the property of talking, a constituent of the fact which is the proposition expressed by the sentence. We can, to a first approximation, describe the proposition expressed by this sentence as follows, letting 'R' be a name for the syntactic relation which holds between the name and predicate in this sentence: it is the fact of there being words x and y of some language such that x has Amelia as its content, y has the property of talking as its content, and $R(x,y)$.[8] King's view is thus Wittgensteinian in two ways: in its view of propositions as a kind of fact, and in its view that these facts are partly about the relations between representations and items in the world.[9]

This gloss on King's theory of propositions is only a first approximation because it leaves out the semantic contribution of the syntactic relation R. King brings out this point nicely via the example of a possible language, Nenglish, which is like English but for the fact that concatenation of a name and a predicate expresses a proposition which is true iff the referent of the name does *not* instantiate the property expressed by the predicate.[10] The problem is that the account of propositions sketched above would seem to assign the same proposition to the string 'Amelia talks' in Nenglish as in English, despite this divergence in truth conditions. This seems clearly incorrect; so our theory of propositions will have to take account of the divergence in the semantic significance of concatenation of a name and simple predicate between the two languages.

---

[7] My exposition here follows King's discussion of 'Rebecca swims.'

[8] Here I'm glossing over King's distinction (p. 62) between the constituents of a proposition and the components of the fact which is that proposition. R is, in King's terms, a component of the fact but not a constituent of the proposition. Though the distinction is genuine, I don't think anything is lost by setting it aside in what follows.

[9] As Wittgenstein put it: "a proposition is a propositional sign in its projective relation to the world" (*Tractatus* §3.12).

[10] King (2007), 35-8.

As King suggests, we can think of the semantic significance of R in English as the following *instantiation function* from objects, properties, and worlds to truth values: the function which, given as argument an object o and property F, determines the truth value true at w iff o instantiates F at w. We can then describe the proposition expressed by 'Amelia talks' as follows: it is the fact of there being words x and y of some language such that x has Amelia as its content, y has the property of talking as its content, $R(x,y)$, and R encodes the instantiation function.[11]

King's view has some clear virtues. It assimilates propositions to facts, and so shares the the virtue of parsimony with all views which assimilate propositions to members of some other ontological category. A related virtue is that, as King says, it makes it plausible that propositions exist — after all, no one (at least, no one who believes in facts) doubts that it is a fact that there are words x and x of some language such that x has Amelia as its content, x has the property of talking as its content, $R(x,y)$, and R encodes the instantiation function.

King's view also offers to explain at least some of the data with which we began. Since it identifies propositions with facts bound together by a non-symmetric relation, it explains *Nonextensionality*. It explains *Russell's datum* in terms of the fact that, in English, the syntactic form obtained by concatenating a a name, "difference", and another name has no semantic significance, and hence encodes neither the instantiation function nor anything else. And it may offer a kind of explanation of *Truth*; as King says, we can see on this view why propositions are the sorts of things that can be true or false, because the instantiation function has a kind of built-in connection to truth at a world.[12]

But the view also has some vices, the most serious of which result from the meta-linguistic nature of the facts with which King identifies propositions. The immediate objection to the view is that it makes propositions metaphysically dependent on the existence of a sentence which expresses them, so that, for example, no propositions existed, and hence were true, before there were humans. King, rightly, emphasizes in reply that his view entails neither that no propositions are *now* true of those times, nor that there were no facts at those times. But even if we set aside the extensional worry — Are there times at which propositions exist but languages do not? — one might still be worried about the idea that propositions depend for their existence on languages which express them. Consider, for example, cases of term introduction. Isn't it possible that you have a thought at a time, and at a later time introduce some new expression into the language to express that thought? If you think that thoughts have propositions as their objects, and that having a thought with some proposition p as content does not entail

---

[11] See, e.g., King (2007), 37.

[12] Though it is important not to overstate this last virtue. Strictly, the instantiation function supplies a built-in connection between *sentences* and their truth conditions; if the fact as well is supposed to have truth conditions, these would presumably be inherited from the truth conditions of the sentences in question. But one might reasonably wonder why facts should automatically inherit truth conditions from the sentences which they are about. For criticisms of King's view along these lines, along with other criticisms, see Soames (forthcoming). King discusses this sort of objection in King (2009).

having a sentence in an inner language which has p as its content, this sort of case looks puzzling on King's view.

A more fundamental problem, I think, comes from consideration of the roles that propositions can play that are furthest removed from language use. Consider, for example, perceptual representation. If, as many think, it makes sense to think of perceptual experiences having propositional content, is it plausible to think that those contents are language-involving in the way that King's candidates for propositions are? The view is, on the face of it, unnatural.[13]

These problems may not be disqualifying. But I think that, all things being equal, it would be better to have a theory of propositions which avoided them. One idea about how to construct such a theory begins by noting that the explanatory power of King's view comes, in large part, from his assimilation of propositions to facts and his use of syntactic relations as the relations which genuinely hold between the constituents of the proposition. One wonders whether it would be possible to keep these aspects of the view without making propositions language-dependent. And, in fact, there's something odd about the role played by syntactic relations in King's theory which suggests that this should be possible.

As King points out (recall the example of English and Nenglish), we can, as in the case of linguistic expressions, distinguish between syntactic relations and their semantic contribution in a given language. This suggests that, just as we can have a pair of sentences

Montreal is pretty.

Montreal est jolie.

which contain different linguistic expressions but nonetheless express the same proposition, it should be possible to have a pair of sentences which differ with respect to the syntactic relations they involve, but nonetheless express just the same proposition. This should be possible for just the same reason that it is possible that sentences like the pair above can express the same proposition: just as two different linguistic expressions can have the same semantic content, so, it seems, two distinct syntactic relations can make the same semantic contribution.[14]

---

[13] And if perceptual experience is genuinely propositional, and it is, as it seems, possible to perceptually represent the world as being a way which no existing sentence says that it is, then perceptual representation also seems to be a source of counterexamples to King's view. The proponent of King's view could reply that the contents of perceptual experiences of this sort are mere 'proto-propositions' or that perceptual experience itself requires an inner language which is such that, if an agent's perceptual experience of the world represents it as being the case that p, there is some sentences of that inner language which has the content that p. See, for discussion, King (2007), 65-7.

[14] King might, of course, resist these intuitions about sameness of content. This is related to the objection that his account individuates contents too finely; see King (2007), 95 ff.

For example, consider a language, Reverse-English, which is like English but for the fact that the order of singular terms in simple relational sentences is reversed, so that the sentence

John loves Jane.

is true in English if and only if

Jane loves John.

is true in Reverse-English. Intuitively, both sentences express the proposition that John loves Jane: they express the same proposition as surely as do 'Montreal is pretty' and 'Montreal est jolie.'

But, on King's theory of propositions, this is impossible. Although particular subsentential expressions are replaced in the fact which is the proposition expressed by a sentence by existential quantification over subsentential expressions, *both* the syntactic relation and its semantic contribution are constituents of the fact. The foregoing example brings out the oddness of this aspect of King's view. Why not think, instead, that the syntax of a sentence, like the words of the sentence, contribute only something other than themselves to the proposition expressed by the sentence?

King could respond to this problem by treating syntactic relations in the same way he treats subsentential expressions, and replacing each occurrence of a syntactic relation in a proposition with existential quantification over syntactic relations. On such a view, the proposition expressed by 'Amelia talks' would be, roughly, the fact that there are expressions x and y such that x has Amelia as its content, y has the property of talking as its content, and there is some syntactic relation of some language such that x and y stand in that relation, and the relation encodes the instantiation function.

In my view, this move decreases the plausibility of the the theory. There is something attractive about the idea that propositions are bound together by the very relation which binds together the expressions in the sentences that express them; but if King's view is modified in the way suggested, that aspect of his view is lost. It makes King's candidates for propositions seem less like what is expressed by sentences than like facts about those sentences expressing what they do.

Further, it makes it clear that it is the semantic contributions of subsentential expressions and the syntactic relations in which they stand, rather than the expressions and syntactic relations themselves, which are doing all the work. Since the inclusion of existential quantification over these expressions and relations as constituents of the relevant facts is what leads to the problems with King's view discussed above, why not identify propositions with facts whose only constituents are the semantic contributions of subsentential expressions and the syntactic relations in which they stand?

On this sort of view, the semantic contribution of the syntactic form of a sentence would play the role of the unifying relation which genuinely holds between the constituents of the proposition. But this raises an immediate question: how, exactly,

9

should we think about the semantic contributions of syntactic relations, on this sort of view? Or, what comes to the same thing, exactly which fact, on this sort of view, would be the proposition expressed by 'Amelia talks'?

And here, it seems, we run into a genuine difficulty. Whereas King is able to explain quite clearly which relation holds between the constituents of the facts with which he identifies propositions, it is very hard to describe a relation which is contributed by the syntax of a sentence, and genuinely holds between the constituents of the proposition. Consider again the proposition that Amelia talks. One is tempted to express the relation which is supposed to hold between Amelia and the property of talking with an open sentence like

There is a proposition which represents x as instantiating F.

but this is clearly incoherent; we're supposed to be identifying the proposition expressed by 'Amelia talks' with a fact; this fact can't be one which predicates a property of that very proposition. Maybe instead we could try

x is represented as instantiating F.

or

F is predicated of x.

but on the only obvious interpretations of these sentences, they make the existence of the fact dependent on someone's having predicated the property of talking of Amelia, which is the kind of thing we were trying to avoid. And of course we can't think of the relevant relation contributed by syntax as

x instantiates F.

without repeating Russell's mistake of identifying propositions with facts whose existence entails their truth.

So, one the one hand, it is very plausible that syntactic relations make semantic contributions, and it would be extremely convenient if we could think of those semantic contributions as relations which held between the constituents of the proposition expressed by the relevant sentence; but, on the other hand, our inability to express these relations gives rise to the worry that this is just wishful thinking. In a way, this line of thought seems to lead us back to a view like King's. After all, what sort of fact involving Amelia and the property of talking can be guaranteed to exist whether or not Amelia talks other than the fact that (in effect) some language represents it as being the case that Amelia talks?

The problem here seems to result from the assimilation of propositions to facts. The problem, as Russell himself came to think, seems to be that propositions can exist

whether true or false, whereas acts can only exist 'in one way.' The result is that we have to identify propositions with facts which (1) exist whenever the relevant propositions should exist, and hence are the case whether or not those propositions are true, and yet (2) are such as to make possible an explanation for why the relevant proposition is true in some conditions but not in others. Given these constraints, the catalogue of failed alternatives canvassed above makes it hard to see how they could be facts very different from the ones King identifies. I think that this line of thought makes it very plausible that, if propositions are a kind of fact, they must be facts which are at least closely related to King's candidates for the role.[15]

5. PROPOSITIONS AS PROPERTIES

However, this line of thought might also suggest that the assimilation of propositions to facts is a mistake, and that, if we are to explain propositions in terms of some other sort of entity, we ought to assimilate them to some kind of thing which, unlike a fact, can't just exist 'in one way.' Here properties naturally suggest themselves; if properties can exist uninstantiated, then properties, unlike facts, have two modes of existence to correspond to the distinction between true and false propositions. I suggest that, by thinking of propositions as properties rather than facts, we can keep the virtues of King's view identified above — its use of syntactic relations to unify the proposition, and its assimilation of propositions to another metaphysical category in which we have independent reason to believe — without any of its objectionable features.

The suggestion that propositions are properties is not original. The view was defended by Roderick Chisholm in *The First Person*, who expressed the theory like this:

> "Believing must be construed as a relation between a believer and *some* other thing ... What kind of thing, then? ... The simplest conception, I suggest, is one which construes believing as a relation between a believer and a property — a property which he may be said to attribute to himself."[16]

This ties the view that propositions are properties to a particular view about what the relevant properties are properties of. And it is understandable why the view was introduced in this way, since its principal initial motivation was the explanation of the distinction between first-personal beliefs and third-personal beliefs about oneself — or, as Chisholm put it, between the emphatic and non-emphatic reflexive.

But we can detach the view that propositions are properties from the view that they are always properties ascribed to oneself; and, as Daniel Nolan has argued, there's good reason why we should. Nolan points out that while in many cases we can think of a propositional attitude with the content p as a belief that I am such that p is the case, but

---

[15] With the qualification that King should existentially generalize over the syntactic properties as well as the words of a sentence, as discussed above.

[16] Chisholm (1981), 27. A similar theory is defended in Lewis (1979). For another view which takes propositions to be at least very closely related to properties and relations, see van Inwagen (2006).

that, in other cases, understanding the content of the belief requires that we consider worlds where p is the case, but in which I am not such that p is the case, because I do not exist.[17] The most striking case is perhaps the example of the desire that I not exist. This is not the desire that I have the property of nonexistence, and still less that I be such that I do not exist; the desire is that I not exist, and hence that I not be any way — not have *any* property — at all. Similar worries arise even in cases where my belief is not, intuitively, a 'first-personal' belief; it seems as though I can desire that such-and-such be the case without desiring that I be around when it does. And, on a more intuitive level, there is something unnatural about the view that all of my mental states are attributions of properties to myself; it should be possible for my thinking to be less self-involving than that.

Fortunately, there is no reason why the view that propositions are properties should be tied to the view that all thought is self-ascription. Consider again the example of 'Amelia talks.' If we think of the assertion of this sentence as the ascription of a property, one natural view is that the property ascribed is the property of being such that Amelia talks. On this kind of view, what is contributed by the syntax of a simple predication — the semantic significance of this bit of syntax, in King's terms — is something like the three-place relation corresponding to the open sentence '__ is such that __ instantiates __'. In the case of the sentence 'Amelia talks', the contents of the name and predicate fill in the second two slots to deliver the monadic property expressed by '__ is such that Amelia instantiates the property of talking.'

This view can be further elucidated by returning to *Russell's datum*. What is the explanation of the fact that

> A differs from B

expresses a proposition and has a truth-value, whereas

> A difference B

does not? The explanation, like King's, is given in terms of the syntax of English. 'differs from' is a two place predicate, 'difference' is a singular term; let 'A' and 'B' be stand-ins for names. Then we can give a (no doubt over-simple) explanation of the fact that the first expresses a proposition as follows: in English, concatenating a name with a two-place predicate and another name has the semantic significance that it encodes the four-place relation expressed by 'z is such that x stands in relation R to y'. So, once we fill in the semantic contents of the relevant terms, we get the property of being such that A stands in the difference relation to B. However, in English concatenating a name with an abstract singular term and another name encodes nothing; it has no semantic significance. So we are left with, effectively, a list of items, which is not the sort of thing which could be instantiated, and hence is not the sort of thing which could be true of anything.

_____

[17] Nolan (2006). For criticism of Nolan's argument, see Turner (2010).

Supposing that propositions are monadic properties of this sort, what is this monadic property a property *of*? It is a property of every thing. After all, given that Amelia does instantiate the property of talking, every thing instantiates the property of being such that Amelia talks. Hence the proposition that Amelia talks — i.e., the property of being such that Amelia talks — is true iff it is instantiated.[18]

There are several different ways in which this view of propositional truth can be generalized to an account of truth with respect to a world (or arbitrary circumstance of evaluation), but the simplest is as follows. Propositions are properties which are true iff they are instantiated. Propositions are true with respect to a world w iff, were w actual, that property would be instantiated.[19]

Given this view of truth at a world, thinking of propositions as properties does not seem to require any serious revision in the way that we think about entailment relations between propositions, or semantics more generally. Propositions are necessary iff they are true with respect to every possible world; just so, on the present account, the propositions are necessary iff the properties which they are are instantiated in every possible world. Entailment relations between propositions would be recast as relations between worlds: one property F would entail another property G iff any world in which F is instantiated is also a world in which G is instantiated. And debates over the contents of various sorts of sub-sentential expressions seem as though they'd be more or less unaffected by the answer to the question of whether we should think of propositions as properties, facts, or as a *sui generis* sort of abstract object.

Even if this view of propositions does make available clear explanations of truth and truth at a world, there is one aspect of the traditional theory of propositions which it does not capture. This is the view that, as Scott Soames puts it, propositional attitudes are representational "because of their relations to inherently representational

---

[18] It might seem that the fact that propositions are truth-apt would give rise to a problem for the present view, which might be put as follows:

> On this view, the proposition that Amelia talks is identical to the property of being such that Amelia talks. But the property of being such that Amelia talks is simply not the kind of thing that can be true or false, whereas a proposition clearly is. So, propositions must not be properties.

Any view which assimilates propositions to entities of another metaphysical category will run into some version of the this problem. King's theory, for example, faces much the same objection. ('Propositions are true or false but facts are not, so propositions can't be facts.') Though this objection is a fundamental one, I think that the proponent of the view that propositions are properties has a fairly natural reply: we already have the notion of a property being *true of* something, so it is not as though there is no precedent for properties being closely connected to truth and falsity.

[19] There are, however, reasons not to go for this simple generalization, especially if one thinks that (a) propositions can't be true without existing, (b) singular propositions can't exist unless their constituents do, and (c) some singular propositions have contingently existing objects as constituents. I discuss these issues in Speaks (ms.).

13

propositions."[20] Properties like the property of being such that Amelia talks are not inherently representational things; hence if propositions are properties of this sort, this aspect of the view of propositions common to Frege and (the early) Russell must be rejected.

This may seem like a cost; but there is also a benefit here. The idea that an entity can be intrinsically representational has seemed to many to be a puzzling one. If we can give an account of truth, and propositional attitudes (about which more below) without making use of entities of this sort, this is a good thing.[21]

...

How does this view of propositions fare with respect to the data with which we began? We've already seen that this view inherits King's explanation of *Russell's datum*. It also offers a sort of explanation of *Nonextensionality*. The proposition that Jane loves John is distinct from the proposition that John loves Jane because the property of being such that Jane loves John is distinct from the property of being such that John loves Jane.

Now, one might object that this is not much of an explanation; isn't this just a relabelling of the fact which was supposed to need explanation? I don't think so. Anyone who believes in the existence of complex properties, like the property of being such that John loves Jane, must already accept the fact that the property of being such that John loves Jane is distinct from the property of being such that Jane loves John. It's an explanatory gain if we can show that the fact of *Nonextensionality* is nothing over and above this fact about properties. Maybe this fact about the identity conditions of properties is itself deeply mysterious, and in need of explanation; but even if this is so, it is so whether or not we identify propositions with properties — and it is better to have one mystery than two.

Truth is also explained by the theory of propositions as properties, along with the view of truth as instantiation just sketched. We can (to return to the example above) explain why there is a necessary connection between the truth of PROP and a certain pen cap's instantiating blueness in terms of the necessary connection between the instantiation of the property of being such that that pen cap is blue and that pen cap's instantiating the property of being blue.

One might object, in a way parallel to the objection to the proposed explanation of *Nonextensionality*, that we're here just explaining one necessary connection — between the truth of a certain proposition and a pen cap's instantiating a certain property — in

---

[20] Soames (forthcoming).

[21] In this respect, this makes the present view similar to the view of propositions defended in Soames, *What is Meaning?* Soames, like me, denies that propositions are inherently representational, and, like me, thinks that the representational properties of beliefs are are traceable to representational mental acts rather than to inherently representational entities to which the thinker is related. However, Soames — who identifies propositions with cognitive event-types — thinks of propositions as inheriting their representational properties from the relevant mental acts. This is one difference between his view and mine.

terms of another necessary connection — between the instantiation of two properties. As in that case, I think that the right reply is to concede the truth of the objection while doubting its force. Anyone who accepts the existence of complex properties of this sort will have to recognize necessary connections between the instantiations of distinct properties of the sort exemplified by the property of being such that a certain pen cap is blue. It is a good thing if we can explain the necessary connections involving the truth of propositions in terms of necessities internal to the theory of properties which anyone with a suitably permissive theory of properties must accept.

Independently of our three pieces of data about propositions, this view of propositions also has, as compared to the view that propositions are a *sui generis* category of abstract objects, the advantage of parsimony, because it assimilates propositions to members of an ontological category — properties — in which we have independent reason to believe. This virtue, though, comes with a string attached. In assimilating propositions to members of another ontological category, we also commit ourselves to certain views about that category. In particular, if the view is to be plausible, it seems clear that we must think that there are uninstantiated properties, and indeed properties which could not be instantiated. Otherwise, there would be no account of the propositions expressed by necessarily false sentences.[22]

...

Let's turn to some objections to the view. Above I raised some objections to the view that propositions are properties ascribed to oneself; one might naturally wonder whether these same objections might be raised against the view that propositions are properties like the property of being such that Amelia talks which, if they are instantiated, are instantiated by everything. One might try to reformulate these objections against the present view as follows:

(1)   If it is odd to say that every belief is something that one believes about *oneself*, isn't it equally odd to say that every belief is something that one believes about *everything*?

(2)   Nolan objected to Chisholm's theory that propositions can't be properties ascribed to oneself, since one can entertain propositions that are true in worlds in which one does not exist — and, indeed, can entertain propositions that are true only if one does not exist. But can't we also entertain propositions that are true even in worlds in which nothing exists — and, indeed, which entail that nothing exists?

To answer these objections, we'll have to see how the present account of propositions can be expanded to give an account of propositional attitudes, and the semantics of attitude ascriptions. After this, I'll briefly discuss an unresolved problem about the treatment of attitude ascriptions.

---

[22] A view of properties which I think would suit my purposes is outlined in van Inwagen (2004).

6. Propositional attitudes & the semantics of attitude ascriptions

For every propositional attitude, there is a corresponding attitude towards a pair of a property and a thing. For believing, there is believing of something that it is a certain way; for supposing, there is supposing that something is a certain way; for guessing, there is guessing that something is a certain way; and so on.

Our question is: if this "something" is not oneself (as in Chisholm's and Lewis' views), what is it that is being believed, supposed, and guessed to be a certain way?

I am inclined to think that the best answer to this question is that it does not matter. To believe that Amelia talks, there is no special object which one must believe to be such that Amelia talks; it is enough if there is some object such that one believes of it that it is such that Amelia talks. However, in the standard case, a good candidate for the object which is believed (or supposed, etc.) to be such that Amelia talks is: the world, or the universe. This fits nicely with the intuitive idea that in, for example, the case of belief, one "believes the world to be a certain way."[23]

This view of propositional attitudes raises the question of how we should think about the semantics of attitude ascriptions. I think that the foregoing is consistent with various views on this topic, and I'm not sure which of these is in the end best — but it may still be worth sketching one natural way of proceeding.

If having a belief (or other propositional attitude) is not just a matter of standing in a binary relation to a thing, the proposition which is the content of that belief, but rather it is a matter of standing in a ternary relation to a property and the thing the subject believes the property to hold of, this leads us to expect that ordinary belief ascriptions of the form

> A believes that S

should not express binary relations between subjects and propositions, but rather ternary relations.

One might object to this first point that this sort of analysis runs counter to the surface form of attitude ascriptions, which seem to predicate binary relations of a subject and a proposition. But, in reply, sometimes sentences which seem to predicate binary

---

[23] One might think that there is a special problem here involving philosophers who are skeptical that there is such a thing as 'the world.' Could they really be so confused as to deny the existence of a kind of thing despite the fact that they are constantly attributing properties to an instance of that kind? There are two responses to this. First, we can think of such philosophers as attributing the relevant properties to something else they do believe in — the theory does not require that everyone be attributing properties to the world. Second, the consequence that these philosophers are confused in this way is not as bad as it at first sounds. Many sorts of philosophical views have the consequence that certain sorts of philosopher are confused in this way. A believer in universals will have this attitude toward certain nominalists, and substance dualists will have this attitude toward certain materialists.

relations of a pair of objects really attribute ternary relations to a trio of things; for example, sentences of the form

> A is to the left of B

 seem to attribute binary relations, but are best understood as expressing a proposition involving the ternary relation corresponding to the open sentence

> x is to the left of y relative to z

And there are other examples of this phenomenon.[24]

But even if this makes room for the view that attitude verbs express ternary relations, it does not show exactly how we should think of the logical form of attitude ascriptions. A natural first thought is that a belief ascription of the form

> A believes that S

expresses a proposition like that which would be expressed by a sentence of the form

> A believes of o that it is F.

where 'F' is the property expressed by 'S' in the context. However, there is no plausible candidate for the value of 'o', for two reasons. First, there is nothing to stop two different subjects from each believing that Amelia talks, but to do so by believing the property of being such that Amelia talks to hold of distinct things. Second, we would get into trouble with the modal profiles of attitude ascriptions if we supplied as value for 'o' anything whose nonexistence was consistent with the truth of the ascription.

Better, I think, to view attitude ascriptions as existential generalizations of the form

> $\exists x\, A$ believes of x that it is F.

which are true with respect to a world w iff the referent of 'A' in w believes of some object in w that it is F (where F is the proposition expressed by the complement of the ascription).

This sort of view also stays a bit closer to the standard semantics for belief ascriptions, in that it does not take them to predicate a ternary relation of a subject, a world, and a proposition, but rather a binary relation between a subject and a

---

[24] For another example, consider the plausible view that all propositions have their truth-values eternally. (For a defense, see Richard (1981) and King (2003).) On one natural interpretation of this view, propositions will in the standard case contain a reference to the time with respect to which the property or relation in question is being predicated of the relevant object or objects; but then every sentence which appears to be a predication of a binary relation of pair of objects but contains no explicit mention of a time will in fact be a predication of a ternary relation of the pair of objects and the relevant time.

proposition — albeit a binary relation defined by existential generalization on a ternary relation.[25]

The view generalizes to ascriptions of attitudes other than beliefs; in hoping that such-and-such, we are hoping that something will be a certain way; in supposing that such-and-such, we are supposing that something is a certain way; and so on.

One advantage of this view of the semantics of attitude ascriptions is that it, unlike other alternatives to the admittedly natural view that such ascriptions predicate binary relations of subjects and *sui generis* propositions, it can accommodate at least some of the linguistic data which seem to support the standard view. Consider, for example, the fact that an attitude ascription of the form

> A believes that S

entails the existentially quantified sentence

> There is something that A believes.

This is accommodated by the standard semantics, but it is also accommodated by the sort of view just sketched. On the present view, the existentially quantified claim would involve quantification over properties, and would have the same content as something like the following:

> $\exists x \, \exists F \, A$ believes of x that it is F.

On this view, the content of the foregoing — like the content of any proposition-expressing sentence — will be a property. In this case, it is, informally, the property of being such that there is some object and some property such that A believes that the former instantiates the latter.[26]

With this view of attitudes and their ascription in mind, let's now return to the above objections to Chisholm's theory. Consider first the intuitive objection (1) that this view is too "self-involving," on the grounds that it is odd to think of all thought and belief to be ascription of properties to oneself, and the corresponding objection that it is odd to think of all thought and belief as ascriptions of properties to everything.

---

[25] In this respect, the view of belief is similar to that defended in Salmon (1986).

[26] One important question which this leaves unanswered is the question of how this sort of view should handle apparent reference to propositions, especially involving "that"-clauses, which don't occur in propositional attitude ascriptions. To see the problems which arise here, consider "meaning ascriptions" of the form 'S means that p'. We could also treat these as existential quantifications, and saying, roughly, that there is something such that S means of it that it is F. The problem, though, is that "means of x that it is F" is a locution of dubious coherence — especially if we keep in focus the fact that we're talking about expression meaning here rather than speaker meaning. This is a way in which "means that" differs from "believes that", "supposes that", etc. I'm not sure what the best thing is to say about this at present — this is one respect in which this view of attitude ascriptions is incomplete.

The answer to this objection, as the above should make clear, is that even if propositions are properties which, if instantiated, are instantiated by everything, this needn't imply that when we have a belief, we ascribe the relevant property to everything; it is enough if we ascribe it to something. In many cases this "something" will be the world, or the universe. And, as noted above, it is natural, for example, to say that believing is *taking the world to be a certain way* — and this informal gloss certainly sounds like the view that belief is an ascription of a property to the world. So the view has a certain intuitive plausibility which Chisholm's view lacks.

Let's consider now objection (2): the worry that the move from properties of believers to properties of the world fails to avoid Nolan's problem. Just as one can coherently desire that one never have existed, can't one desire that the world never have existed, or that there should have been nothing rather than something? This seems to be a coherent desire; but on the present interpretation, this would be the desire that the property of there being nothing be instantiated — which, given that if a property is instantiated only if it is instantiated by something, is impossible.

However, I think that this objection can be defused by noting that the desire that there be nothing rather than something has two interpretations. On the first, the present view does not entail that the desire is incoherent. On the second, the present view does entail that the desire is incoherent — but, on this interpretation, this implication is not objectionable.

On the first interpretation, the desire that there be nothing rather than something is something like the desire that there be no concrete things, or that there be no material things. But (presuming that it is possible that there be no concrete things, or no material things) the properties assigned as contents to this desire are possibly instantiated. After all, in a world in which there are no concrete things, there will be things — necessarily existing abstract objects, for example — which instantiate the property of being such that there are no concrete things.

On the second interpretation, the desire that there be nothing rather than something really is the desire that there be *nothing* — no concrete things, no abstract things, no things of any sort. It is true that, on the present view, the content of this desire turns out to be a necessary falsehood (if we assume, as I do, that a property cannot be instantiated unless something instantiates it). But this consequence does not seem to be objectionable, since it seems independently plausible that some things — like at least some abstract objects — exist necessarily. So on neither interpretation of Nolan's problematic desire does it pose a problem for the view that propositions are properties which, if instantiated, are instantiated by everything.

Now, it should be noted that the fact that my view avoids these puzzles for Chisholm's view comes at a cost. Chisholm's theory was explicitly developed to explain the distinction between first-personal and third-personal beliefs; and, as it stands, my view offers no explanation of this distinction. There is of course no reason why a proponent of the sort of view I have been defending cannot adapt to his purposes any of

the various other treatments of indexical belief which have been offered in the literature; but, for all I've said, it gives no special explanatory advantages on this score.[27]

7. A PUZZLING SUBSTITUTION FAILURE

However, the view developed so far faces a puzzle. If "that"-clauses refer to propositions, and if propositions are properties, then it seems as though the following inference should be valid:

> Bob believes that Amelia talks.
> ──────────────────────────────
> Bob believes the property of being such that Amelia talks.

But the conclusion hardly seems coherent, let alone entailed by the premise.

One might think that this is a place in which this view can come to its own rescue. After all, given that difference is the relation denoted by 'differs from', one might have thought that the following should be valid:

> *A* differs from *B*.
> ──────────────────
> *A* difference *B*.

But this is not valid, since the conclusion fails to express a proposition — and this fact (part of *Russell's datum*) is a fact which the view that propositions are properties promises to explain. Might we offer a similar explanation of the invalidity of the first argument in terms of the fact that 'Bob believes the property of being such that Amelia talks' fails to express a proposition?

Perhaps, but it is not quite this easy. We can't simply say that

> Bob believes the property of being such that Amelia talks.

fails to express a proposition because sentences of the form

> *A* believes the *F*.

─────────────────────

[27] Though I do think that the view could be developed in ways which might help solve the problems associated with indexical belief. If we think of mental states as always involving a property and something of which the property is predicated — rather than as relations to *sui generis* propositions — we can distinguish the following two mental states: (a) predicating of myself the property of being *F*, and (b) predicating of the world the property of being such that Jeff Speaks is *F*. Perhaps assertions of "I am *F*" pragmatically convey that the speaker is in mental state (a), whereas assertions of "Jeff Speaks is *F*" (by me) do not. To be sure, this is a view of the difference between 'I' and names which anyone who recognizes the distinction between (a) and (b) can adopt. However, it is not obvious that Millians who analyze believing of *o* that it is *F* as a matter to standing in the belief relation to the singular proposition that *o* is *F* — like, among others, Salmon (1998) — can recognize this distinction.

are ungrammatical since, in general, they aren't — we might truly say

> Bob believes the proposition expressed by 'Amelia talks.'

This suggests that the conclusion of the problematic argument above is not ungrammatical, but simply false.

This places a constraint on the sort of semantics for attitude ascriptions which the defender of the present view — who will have a hard time denying that 'that Amelia talks' and 'the property of being such that Amelia talks' — refer to the same thing — can accept. In particular, it looks like the proponent of the view of propositions that I have been sketching will have to deny the following principle:

> If an attitude ascription ⌜A V's x⌝ is true -- where A is the name of the subject of the ascription, V is the attitude verb, and x is some term for a proposition — then any other ascription which differs from this only by the replacement of x with another term for the same proposition must also be true.

It can't be denied that this principle has a great deal of initial plausibility. However, there is some independent reason to deny it. (For a much more in-depth discussion of these issues, see King (2007), chapter 5.) Consider, for example, the pair of sentences

> Joe hopes that the Reds will win the World Series this year.

> Joe hopes the proposition that the Reds will win the World Series this year.

Presuming that that-clauses designate propositions, this is a pair of sentences of the sort mentioned in the principle above; but the first of these is true, and the second is ungrammatical. It might be argued that this is not analogous to the example involving 'the property of being such that Amelia talks', since that example, as discussed above, is a pair of *grammatical* sentences which nonetheless differ in truth-value. But there are also examples of this sort. Consider

> Joe fears that the Mets will win the World Series this year.

> Joe fears the proposition that the Mets will win the World Series this year.

These are both grammatical, but the first is true, and the second is false — Joe may be afraid of many things, but propositions are not among them.

The proponent of the view of propositions as properties might seize on examples like this, and say that whatever explains the fact that these sentences about Joe's fears differ in truth-value can also explain the fact that our initial pair of sentences,

Bob believes that Amelia talks.

Bob believes the property of being such that Amelia talks.

can differ in truth-value, despite the fact that 'that Amelia talks' and 'the property of being such that Amelia talks' both designate the same thing. To be sure, it is not obvious that this line of response is satisfactory, since it is not obvious that the explanation of the 'fears' substitution failures will carry over to the example we are interested in; but the two sorts of examples do seem similar, so it is perhaps not unreasonable to hold that the right treatment of the 'fears' examples will solve our own problem.[28]

8. Back to Russell

Given that our discussion began with Russell's way of raising the problem of the nature of the proposition, it is perhaps not surprising that the view we've ended up with is a close relative of the view to which this problem led Russell: his multiple relation theory of

------

[28] One plausible explanation of the examples involving 'fears', which is defended in King (2007) (153-163) is that some attitude verbs, including 'fears,' are ambiguous. This will only help with our 'believes' example if 'believes' is also ambiguous; but it may not be implausible to say that it is. Consider, for example:

> Joe believes that the Reds will win the World Series this year.
> Joe believes Dusty.

If we take these sentences at face value, then it looks like 'believes' expresses different (though obviously related) relations in these two sentences. Perhaps the problem with our troublesome pair of 'belief' sentences is that

> Bob believes the property of being such that Amelia talks.

forces the interpretation of 'believes' exemplified by 'Joe believes Dusty.'
    This is, obviously, a view on which 'believes' is ambiguous (though the two meanings are of course related). But it is nowhere near a systematic account of this ambiguity. A systematic account would have to explain why the first interpretation of 'believes' — on which it expresses a ternary relation — is triggered not just by belief ascriptions involving that-clauses, but also by sentences like the following:

> Bob believes what Amelia said.
> Bob believes the proposition expressed by what Amelia said.
> Bob believes the first thing he hears every day.

and so on. For a useful discussion of some alternatives to this view that 'believes' is ambiguous in the way I have suggested, see King (2007), p. 157, note 39.

judgement.[29] On Russell's theory, judging and believing are not relations between thinkers and propositions, but rather multigrade relations between the thinker and the items that we would regard as the constituents of the relevant proposition. On both Russell's view and the property view, propositional attitudes are never just a relation to a single entity, the proposition, but always predicate a property of a thing (or a relation of several things).

But the present view seems superior to Russell's. For one thing, as noted above, the present view has no trouble making sense of apparent quantification over propositions, as in 'There's at least one proposition that Hilary and Obama both believe'; that sentence says that there's at least one property that Hilary and Obama both believe the world to have. After all, unlike Russell's multiple relation theory, the present view is not a form of eliminativism about propositions, but is rather a claim about what sorts of things propositions are. And the present view takes propositional attitude ascriptions more or less at face value, as asserting a relation between the subject of the ascription and the content of the sentence in the complement clause; it's just that the present view identifies that content as a kind of complex property, rather than as either a fact or a *sui generis* sort of abstract object.[30]

Despite these differences, though, the present identification of propositions with properties might shares an intuitive sort of motivation with Russell's multiple relation theory. In 'On the Nature of Truth and Falsehood,' Russell raised an important worry about the existence of false propositions. Russell asked us to consider some false sentence, like 'Gore won in 2000' and asked whether, given that there is no such thing as Gore's having won in 2000, there could be such a thing as *that Gore won in 2000*.[31] Russell's idea seems to have been that when we ascribe a property to an object, there is the object, the property ascribed, the act of property ascription, and, if the object instantiates the property, the fact of the thing's having the property; but there is no room for some other thing, the proposition that the object has that property. But even from this skeptical perspective, we should have no problem believing that, while the world is not such that Gore won in 2000, it could have been such that Gore won in 2000. And, if we believe this, we should have no problem believing in the existence of the property of being such that Gore won in 2000. So, if this is what propositions are, we should have no problem believing in propositions.[32]

Chisholm, Roderick. 1981. *The First Person: An Essay on Reference and Intentionality*. University of Minnesota Press.

Davidson, Donald. 2005. *Truth and Predication*. Cambridge, MA: Harvard University Press.

Frege, Gottlob. 1892. "On Concept and Object". *The Frege Reader*. Oxford: Basil Blackwell.

Johnston, Mark. 2004. "The Obscure Object of Hallucination," *Philosophical Studies*, 120: 113-83.

King, Jeffrey C. 2007. *The Nature and Structure of Content*. New York: Oxford University Press.

———. 2009. "Questions of Unity," *Proceedings of the Aristotelian Society*, 109: 257-77.

———. 2003. "Tense, Modality, and Semantic Values," *Philosophical Perspectives*, 17: 195-245.

Lewis, David. 1979. "Attitudes De Dicto and De Se," *Philosophical Review*, 88: 513-43.

Moltmann, Freiderike. 2003. "Propositional Attitudes without Propositions," *Synthese*, 135: 77-118.

Nolan, Daniel. 2006. "Selfless Desires," *Philosophy and Phenomenological Research*, 73: 665-79.

Richard, Mark. 1981. "Temporalism and Eternalism," *Philosophical Studies*, 39: 1-13.

Russell, Bertrand. 1910. "On the Nature of Truth and Falsehood". *Philosophical Essays*: Longmans, Green & co.

———. 1912. *The Problems of Philosophy*. London: Clarendon Press.

Salmon, Nathan. 1986. *Frege's Puzzle*. Atascadero, CA: Ridgeview Publishing Company.

———. 1998. "Is Belief De Re Reducible to Belief De Dicto?," *Canadian Journal of Philosophy*, Supplementary volume 23: 85-110.

Soames, Scott. forthcoming. "Propositions". New York: Routledge.

———. 2010. *What Is Meaning?* Princeton, NJ: Princeton University Press.

Speaks, Jeff. ms. "On Possibly Nonexistent Propositions."

Turner, Jason. 2010. "Fitting Attitudes De Dicto and De Se," *Nous*, 44: 1-9.

van Inwagen, Peter. 2006. "Names for Relations," *Philosophical Perspectives*, 20: 453-77.

———. 2004. "A Theory of Properties," *Oxford Studies in Metaphysics*, 1: 107-38.

Wittgenstein, Ludwig. 1922. *Tractatus Logico-Philosophicus*. Routledge.