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Designating Propositions

Jeffrey C. King

Like many, though of course not all, philosophers, I believe in propositions. I take propositions to be structured, sentence-like entities whose structures are identical to the syntactic structures of the sentences that express them; and I have defended a particular version of such a view of propositions elsewhere.[1] In the present work, I shall assume that the structures of propositions are at least *very similar* to the structures of the sentences that express them. Further, I shall assume that ordinary names are devices of direct reference and contribute only their bearers to propositions, that n-place predicates contribute n-place properties or relations to propositions,[2] and that verbs of propositional attitude contribute to propositions two-place relations between individuals and propositions. The broad outline of a framework that includes these assumptions is one that I think many, though again not all, philosophers of language find congenial. I am concerned here to investigate and explain, from the standpoint of this framework, a puzzling phenomenon. The explanation I give of the phenomenon could be adapted to fit with frameworks somewhat different from the one adopted here. I adopt the present framework in part simply for definiteness.

To those of us who believe in propositions, there appear to be at least three different linguistic devices we employ in English to designate them, as illustrated by the following examples:[3]

(1) 'Logicism'
(2) 'the proposition that mathematics reduces to logic'
(3) 'that mathematics reduces to logic'

For ease of subsequent reference, let us call expressions like (1) *proposition names* (henceforth PNs); expressions like (2) *proposition descriptions* (henceforth PDs); and expressions like (3) *'that' clauses* (henceforth TCs). Further, when a PD and TC are related as (2) and (3) are (in that (2) is the result of prefixing 'the proposition' to (3)), I shall say that the PD and the TC *correspond*. One caveat before continuing: I shall not consider PDs or TCs containing contextually sensitive expressions or pronouns anaphoric on expressions outside the PDs or TCs. As far as I can see, they have no important bearing on the

issues I am interested in and handling them would require complications in many formulations I give.

Because it will be important later, let me say a bit about what I mean when I say that (1), (2), and (3) *designate* the proposition that mathematics reduces to logic. I intend this in a pre-theoretical, neutral sense that allows that these expressions may function in different ways semantically while ultimately designating the same thing—in the way in which, for example, a definite description and a name function differently (in my view, at least) in designating the same thing. Indeed, all I really mean when I say that (1), (2), and (3) designate the proposition that mathematics reduces to logic is that these expressions are *in some way or other* (and possibly different ways for (1), (2), and (3)) semantically associated with the proposition that mathematics reduces to logic, with the result that when they occur in sentences, and as a result of their so occurring, the sentences express propositions whose truth and falsity depend on the properties possessed by the proposition that mathematics reduces to logic and the relations it stands in. Since I wish to allow that different occurrences of the same expression might designate different things, I really need to characterize designation for *occurrences* of expressions in sentences as follows: an occurrence of expression e in sentence S designates o iff this occurrence of e is via some semantic mechanism associated with o and as a result S, in virtue of containing this occurrence of e, expresses a proposition P whose truth or falsity at a circumstance depends on the properties of o and the relations it stands in at that circumstance.[4] I shall sometimes talk of an *expression* designating something, instead of talking of its *occurrences* designating something, when I take all occurrences of the expression to designate the same thing. I wish to note that my rather loose characterization of designation does not rule out an occurrence of an expression designating more than one thing. This would occur if the occurrence of the expression were semantically associated with more than one thing *and, as a result of this*, the sentence expressed a proposition whose truth or falsity (at a circumstance) depended on the properties of more than one entity and the relations they stand in (at the circumstance). Intuitively, in such a case, the single occurrence of the expression affects the truth conditions of the proposition expressed by the sentence by making the truth value of the proposition depend on the properties possessed by more than one thing. Perhaps no expression does designate more than one thing (though a more precise generalization of the notion of designation (see note 4) might have it that

some plural definite descriptions or plural pronouns used deictically do), but nothing in my characterization of designation rules this out.

It should be clear that the claim that occurrences of (1), (2), and (3) designate propositions is compatible with a wide variety of theories as to how occurrences of these expressions function semantically. And as I said, it is compatible with the claim that they all function differently semantically.

My primary concern will be with corresponding PDs and TCs. Of course, there are syntactic differences between these expressions. PDs are noun phrases (NPs) and TCs are clauses (really, complementizer phrases). And so there are distributional differences between PDs and TCs. For example, some verbs take sentential complements but don't take NP complements. Thus, TCs can follow such verbs while PDs cannot:

(4) Russell said/hoped/wished that mathematics reduces to logic/ *the proposition that mathematics reduces to logic.

On the other hand, certain verbs take NP but not sentential complements, and so allow PDs but not TCs as complements:

(5) Connie embraced the proposition that mathematics reduces to logic/*that mathematics reduces to logic.

However, there are environments in which (PNs and) both PDs and TCs can grammatically occur. One such environment, and the one that will be of interest to us, is following certain verbs of propositional attitude. For certain verbs of propositional attitude take both sentential and NP complements:[5]

(6a) Russell believed the proposition that mathematics reduces to logic.
(6b) Russell believed that mathematics reduces to logic.

Not only are (6a) and (6b) grammatical, but they appear to express propositions that share the same truth value at any circumstance of evaluation.[6] This is probably what one would expect. After all, if, as seems plausible, the occurrences of (2) and (3) in (6a) and (6b) (respectively) both designate the proposition that mathematics reduces to logic and if, as we are assuming, 'believes' expresses a two-place relation between individuals and propositions, one would probably expect that (6a) and (6b) would each be true relative to a circum-

stance of evaluation iff Russell stands in the belief relation to the proposition that mathematics reduces to logic at that circumstance.

However, if we use some verbs of propositional attitude other than 'believes', we get sentences like (6a) and (6b) that fail to be necessarily equivalent:

(7a) Amy remembers the proposition that first-order logic is undecidable.
(7b) Amy remembers that first-order logic is undecidable.

These sentences can differ in truth value and so must express different propositions. Suppose that Amy took a class that covered decidability results. She may well remember what first-order logic is and what it is to be decidable, and so remember the claim that first-order logic is undecidable. So (7a) is true. But Amy may well have forgotten whether this claim is true or false. She recalls it being discussed, but can't remember if it or its negation was proved. Then (7b) is false. Sentence pairs involving other verbs of propositional attitude behave in the same way. For example,

(8a) Jody heard that first-order logic is undecidable.
(8b) Jody heard the proposition that first-order logic is undecidable.

(9a) Jody fears that first-order logic is undecidable.
(9b) Jody fears the proposition that first-order logic is undecidable.

(8a) and (9a) might be true, while (8b) and (9b) are not. For example, Jody might believe with some alarm that first-order logic is undecidable, so that (9a) is true. And having shaken off Quinean worries about intensional entities, she may not be afraid of any proposition, so that (9b) is false. Of course, some might take (8b) and (9b) to be gibberish. My own view is that they make perfect sense, but are very unlikely to be true. But even if they are gibberish, since (8a) and (9a) are not, this shows that (8a) and (8b) and (9a) and (9b) may differ in truth value (in the sense that allows something without a truth value to differ in truth value from something with a truth value). So (7a) and (7b) (and (8a) and (8b), and (9a) and (9b)) must express different propositions.

Let us call the phenomenon illustrated by the sentence pairs (7a)/(7b), (8a)/(8b), and (9a)/(9b) (that is, that the members of sentence pairs that differ only in that one has a TC where and only where the other has a corresponding PD may differ in truth value (where this includes one having a truth value and the other being gibberish) and

so must express different propositions) *substitution failure*. Some authors have drawn fairly radical conclusions from substitution failure. Kent Bach (1997) claims that it provides evidence against what he calls the *relational analysis of belief reports* (RABR). RABR as Bach understands it includes: the claim that 'believes' expresses a relation between persons and propositions; the claim that "the semantic value of a 'that' clause is a proposition"; and the claim that in a true belief report, a proposition that the subject of the report believes must be specified (presumably by the complement of 'believes'). Thus, RABR is a widely held view, and Bach claims that substitution failure is evidence against it (and Bach, of course, rejects RABR).[7] Michael McKinsey (1999) makes the radical claim that substitution failure cannot be explained on the view that verbs of propositional attitude express relations between persons and propositions.[8] It seems to me that the conclusions drawn by Bach and McKinsey are *too* radical. I shall argue that substitution failure *can* be explained from the standpoint of the framework comprising the assumptions made at the outset, without giving up the view that occurrences of PDs and TCs designate propositions. Thus, the phenomenon does not undermine what McKinsey calls "the relation theory" or Bach's RABR.

Before proceeding, let me re-emphasize a point mentioned earlier. As I noted in discussing the syntactic distributions of PDs qua NPs and TCs qua sentential complements, some verbs of attitude take TC complements and do not take NP complements. Earlier, in citing (4), repeated here, I said that 'said', 'hoped', and 'wished' are of this sort:

(4) Russell said/hoped/wished that mathematics reduces to logic/ *the proposition that mathematics reduces to logic.

And indeed, when we look at other NPs, it seems clear that these verbs simply do not take (most) NP complements:[9]

(4a) Russell said/hoped/wished *every girl/*Cara/*Logicism/ *snakes/*her/*gold.

So though (4) strictly constitutes an instance of substitution failure (since we included the case where one sentence has a truth value and the other is gibberish), substitution failure of *this* sort is very easily explained within our, and virtually any, framework: when we substitute an NP complement for a TC complement where the verb whose complement it is takes only TC complements, we go from a grammatical sentence to an ungrammatical sentence. Of course, this isn't very inter-

esting. Thus, we wish to consider and explain cases in which we get substitution failure, where there is independent reason to think the verbs in question take both TC and NP complements. The pairs (7a)/(7b), (8a)/(8b), and (9a)/(9b) are cases of this sort, since these sentences together with the following show that the verbs of attitude in them take both NP and TC complements:

(7c) Amy remembers Carl/some friends/snakes/him.
(8c) Jody heard Carl/some friends/snakes/him.
(9c) Jody fears Carl/some friends/snakes/him.

We wish to explain substitution failure involving verbs of attitude of *this* sort from the standpoint of our framework.

It is perhaps worth emphasizing that because substitution failure of the sort exhibited by (4) has a purely syntactical explanation, whereas substitution failure of the sort exhibited by (7)–(9) does not, substitution failure is not a homogeneous phenomenon. Indeed, as I discuss below, there may be three (or even more) different types of substitution failure.

As I said at the outset, it appears that occurrences of PDs and TCs can be used to designate propositions. For example, the PDs in the following sentences certainly appear to designate a proposition:

(10) The proposition that first-order logic is undecidable is true.
(11) Gödel's first incompleteness theorem entails the proposition that first-order logic is undecidable.

Surely, (10) attributes the property of being true to the proposition that first-order logic is undecidable, and (11) affirms that Gödel's first incompleteness theorem stands in the relation of entailment to the proposition that first-order logic is undecidable. Thus, presumably as a result of containing the PD 'the proposition that first-order logic is undecidable' and of that PD's being in some way semantically associated with the proposition that first-order logic is undecidable, the truth or falsity of the propositions expressed by (10)–(11) (at a circumstance) depends on the properties possessed by the proposition that first-order logic is undecidable and the relations it stands in (at that circumstance). But then given the neutral sense in which I am using the term 'designate', this is just to say that the PDs in those sentences designate this proposition.

Similarly, the TCs in the following sentences also appear to designate a proposition:

(12) That first-order logic is undecidable is true.
(13) Gödel's first incompleteness theorem entails that first-order logic is undecidable.

Again, surely (12) attributes the property of being true to the proposition that first-order logic is undecidable, and (13) affirms that Gödel's first incompleteness theorem stands in the relation of entailment to the proposition that first-order logic is undecidable. Thus, just as with (11)–(12), the truth or falsity of the propositions expressed by (12)–(13) (at a circumstance) depends on the properties possessed by the proposition that first–order logic is undecidable and the relations it stands in (at that circumstance), and do so because of containing the TC 'that first-order logic is undecidable' and this TC's being in some way semantically associated with the proposition that first-order logic is undecidable. As before, this is just to say that the TCs in these sentences designate this proposition.

Though we shall reconsider this assumption later (see the discussion of ATC and ATC+ below), we begin our investigation of substitution failure by assuming that PDs and TCs in all their occurrences designate propositions (and that all occurrences of a given PD or TC designate the same proposition), as they appear to do in (10)–(13). We also assume that all occurrences of a given PD or TC function semantically in the same way. Adopting these assumptions at the outset just seems to make good methodological sense. We might end up being *forced* to hold that a PD like 'the proposition that first-order logic is undecidable' or a TC like 'that first-order logic is undecidable' sometimes designates one thing and sometimes another. Or we might be *forced* to hold that some occurrences of this PD or TC function semantically in one way, while other occurrences of the same PD or TC function semantically in another way. But surely a simpler theory of these expressions holds that all occurrences of a given PD or TC designate the same thing, and do so in the same way. It is makes good sense to begin by assuming that this simple theory is correct.

These assumptions, together with our observation that, for example, the PD in (10) and the corresponding TC in (12) both designate the proposition that first-order logic is undecidable, require that occurrences of this TC and the corresponding PD always designate this same proposition (and that each occurrence of the PD or TC does so in the same way as every other occurrence of that PD or TC). However, recall that the way we are using the term, that a *PD and TC* designate the same

proposition does not require that *they* do so in the same way. In particular, we need not hold that a PD and corresponding TC make the same contributions to propositions expressed by sentences in which they occur. This naturally suggests a way we might try to explain substitution failure. Since (7a) and (7b) differ only in that (7a) has an occurrence of 'the proposition that first-order logic is undecidable' where (7b) has an occurrence of 'that first-order logic is undecidable' (similarly for (8a)/(8b) and(9a)/(9b)), it is tempting to suppose that these must make different contributions to the propositions expressed by (7a) and (7b); and that this is how/why (7a) and (7b) express different propositions and so may diverge in truth value.

Unfortunately, given the assumptions we have made, supposing that 'the proposition that first-order logic is undecidable' and 'that first-order logic is undecidable' make different contributions to the propositions expressed by (7a) and (7b) (respectively) won't by itself happily explain how they can differ in truth value. Here is why: Suppose that 'the proposition that first-order logic is undecidable' contributes to the proposition expressed by (7a) something, say *p*; and suppose that 'that first-order logic is undecidable' contributes to the proposition expressed by (7b) something, say *q*, where *not* (p=q). One or both of p and q may fail to be the proposition that first-order logic is undecidable, as long as not (p=q). At any rate, at least one of them must fail to be this proposition. Say it is p. Given our assumption that the structures of propositions closely mirror the structures of the sentences expressing them, (7a) and (7b) express propositions that can be represented as follows:

(7a′) [o [R [p]]]
(7b′) [o [R [q]]]

(where o is Amy, R is the relation expressed by 'remembers', and p is the propositional contribution of 'the proposition that first-order logic is undecidable' and q is the propositional contribution of 'that first-order logic is undecidable'). Though p isn't the proposition that first-order logic is undecidable, the following must be true: since p is the propositional contribution of 'the proposition that first-order logic is undecidable' and since this latter expression designates the proposition that first-order logic is undecidable in (7a), p must have the effect of making the truth value of (7a′) (at a circumstance) depend on the properties of the proposition that first-order logic is undecidable and the relations it stands in (in that circumstance). For to say that in (7a)

'the proposition that first-order logic is undecidable' designates the proposition that first-order logic is undecidable is to say that this occurrence of the expression is in some way semantically associated with the proposition that first-order logic is undecidable, so that as a result of its occurring in (7a) this sentence expresses a proposition whose truth or falsity at a circumstance depends on the properties of the proposition that first-order logic is undecidable and the relations it stands in at that circumstance. But we are now assuming it has this effect by contributing p to the proposition expressed by (7a) (that is,(7a′)). Thus, p must affect the truth conditions of (7a′) by making its truth or falsity at a circumstance depend on the properties of the proposition that first-order logic is undecidable and the relations it stands in at that circumstance.

Since 'that first-order logic is undecidable' also designates the proposition that first-order logic is undecidable, similar remarks apply to q and (7b′): q must have the effect of making the truth or falsity of (7b′) (at a circumstance) depend on the properties possessed by the proposition that first-order logic is undecidable and the relations it stands in (at that circumstance—though q might have this effect by *being* that proposition, since we have assumed only that *p* is not the proposition that first-order logic is undecidable). Let us put this by saying that p and q *determine* the proposition that first-order logic is undecidable, (this is so even if the *way* that q makes the truth or falsity of (7b′) at a circumstance depend on the properties of the proposition that first-order logic is undecidable and the relations it stands in at that circumstance is by *being* the proposition that first-order logic is undecidable—in that case, q determines itself). Because it will be relevant in a moment, recall that given the way I am using the term 'designate', 'the proposition that first-order logic is undecidable' and 'that first-order logic is undecidable' may designate things in addition to the proposition that first-order logic is undecidable in (7a) and (7b). That is, because these expressions occur in (7a) and (7b), the truth or falsity of the propositions expressed by those sentences (at a circumstance) may also depend on the properties possessed by some other entity o* and the relations it stands in (at the circumstance). If this were so, since p and q are the contributions that these expressions make to (7a′) and (7b′), it must be p and q that have the effect of making the truth or falsity of (7a′) and (7b′) (at a circumstance) depend on the properties possessed by o* and the relations it stands in (at the circumstance). In such a case we shall also say that p and q determine o* (in addition to the proposition that first-order logic is undecidable). Thus, though p

and q must both determine the proposition that first- order logic is undecidable, one or both of them can determine some other entities as well (and they may determine *different* other entities).

Looking now at (7a′) and (7b′), it seems that whether they are true or false at a circumstance must depend on how o, R, and the things determined by p and q are configured at the circumstance. That is, these propositions represent o, R, and the things determined by p and q as being arranged in a certain way. The propositions are true at a circumstance of evaluation if these things are arranged there in the way the propositions represent them as being arranged, false otherwise. In much the same way, a sentence like 'Chris loves the successor of 1' expresses a proposition that can be represented as follows:

[c [L[s]]]

where c is Chris, L is the relation of loving, and s is the propositional contribution of the definite description 'the successor of 1'. This proposition represents Chris, the loving relation, and the thing determined by s (that is, 2) as being arranged in a certain way. It is true at a circumstance if those things are arranged in the relevant way, false otherwise.

Returning to (7a′) and (7b′), then, (7a′) is true at a circumstance iff o, R, and the thing(s) determined by p are arranged in a certain way there; and (7b′) is true iff o, R, and the thing(s) determined by q are arranged in a certain way. But then it appears that there are only two ways that (7a′) and (7b′) could diverge in truth value at a circumstance: (1) one of p or q determines some entity (or entities) o* (in addition to the proposition that first-order logic is undecidable) not determined by the other, so that one but not the other of (7a′) and (7b′) requires for its truth (at a circumstance) that o, R, the proposition that first-order logic is undecidable, *and o** be arranged in a certain way (at the circumstance); or (2) p and q determine the same entities (either only the proposition that first-order logic is undecidable or this proposition *and* some additional entities), but (7a′) requires that o, R, and those entities be arranged one way (at a circumstance) for its truth (at the circumstance), and (7b′) requires that *those same things* be arranged a *different way* (at a circumstance) for its truth (at the circumstance).[10] Unfortunately for the view under consideration, neither of these options seems attractive. If (1) is right, the reason that (7a′) and (7b′) can differ in truth value at a circumstance is that either p or q determines, and so either 'the proposition that first-order logic is undecidable' or 'that first-order logic is undecidable' des-

ignates, some entity (or entities) o* (in addition to the proposition that first-order logic is undecidable) that the other doesn't designate. But this suggestion strikes me as mysterious and ad hoc. The claim is that both of these expressions designate the proposition that first-order logic is undecidable and one of them designates in addition something else. But what in the world could this additional entity (or entities) be that is designated by one of these expressions and not the other? Unless some philosophically motivated and non–ad hoc account can be given of what this entity is and why only one of these expressions designates, this option is unacceptable. And I can think of no such account.

The second option fares no better. On this option, p and q determine the same entities, and so 'the proposition that first-order logic is undecidable' or 'that first-order logic is undecidable' designate the same entities. Thus, we may as well assume that they both designate only the proposition that first-order logic is undecidable, (as seems independently plausible, especially in light of what was said about the first option above). So (2) claims that (7a′) and (7b′) may differ in truth value at a circumstance because (7a′) requires for its truth at a circumstance that o, R, and the proposition that first-order logic is undecidable be arranged one way at the circumstance; and (7b′) requires for its truth at a circumstance that o, R, and the proposition that first-order logic is undecidable be arranged in a different way at the circumstance. But this is implausible in the extreme! This would mean that these propositions may differ in truth value (at a circumstance) for the same reason that the proposition that Tom loves Sue and the proposition that Sue loves Tom (sadly) may differ in truth value at a circumstance. In both cases, the two propositions require for their truth (at a circumstance) that the *same* things be arranged *differently* (at the circumstance). But in the case of (7a′) and (7b′), what could these two different arrangements of the *same things* (Amy, the remembers relation, and the proposition that first-order logic is undecidable) be? One of these arrangements presumably would be Amy standing in the remembers relation to the proposition that first-order logic is undecidable. But what would the *other* arrangement of these elements be? It seems to me there is no remotely plausible answer to this question.

Supposing that 'the proposition that first-order logic is undecidable' and 'that first-order logic is undecidable' make different contributions to the propositions expressed by (7a) and (7b) (respectively) and that this is how/why the propositions expressed by those sentences may dif-

fer in truth value (at a circumstance) leads to options (1) and(2) above as to *precisely how* the difference may come about. We have now seen that neither option is viable. I conclude that holding that the propositional contributions of 'the proposition that first-order logic is undecidable' and 'that first-order logic is undecidable' are distinct does not explain why (7a) and (7b) can diverge in truth value.

It is worth pausing to note that invoking *guises* for, or *modes of presentation* of, propositions does not appear to help explain *our* substitution failure at all. For first, even if we were to invoke such things, it does not seem as though 'the proposition that first-order logic is undecidable' and 'that first-order logic is undecidable' differ in terms of the guise or mode of presentation under which they present something. Second, in any case, it certainly does not seem as though the difference in truth value between (7a) and (7b) (in the situation as described) has to do with Amy's having multiple modes of presentation of the proposition that first-order logic is undecidable. Indeed, we can simply stipulate that Amy has only one way of thinking of this proposition, and we still have the result that (7a) and (7b) diverge in truth value. Amy remembers the proposition that first-order logic is undecidable (presented in way m), but cannot remember whether it (presented in way m) is true or false. Thus, she doesn't remember that first-order logic is undecidable (when presented in way m).

Before turning to *our* explanation of substitution failure, let us briefly consider a final way one might be tempted to explain it. Though, as we have mentioned, the propositions expressed by (7a) and (7b) are not necessarily equivalent, those expressed by (7b) and (7d) appear to be:

(7a) Amy remembers the proposition that first-order logic is undecidable.
(7b) Amy remembers that first-order logic is undecidable.
(7d) Amy remembers the fact that first-order logic is undecidable.

Thus, one might reason as follows. The reason that we get substitution failure in the case of (7a) and (7b) is that the TC in (7b) does not designate a proposition in that construction, contrary to what we have assumed to this point. Rather, it designates a *fact*: the fact that first-order logic is undecidable. Thus, substituting 'the fact that first-order logic is undecidable', which (presumably in all of its occurrences) designates the fact that first-order logic is undecidable, for 'that first-order logic is undecidable' gives us a sentence (7d) necessarily equivalent to

the original sentence (7b). However, when we substitute 'the proposition that first-order logic is undecidable' for 'that first-order logic is undecidable', we are substituting an expression designating the *proposition* that first-order logic is undecidable for an occurrence of an expression designating the *fact* that first-order logic is undecidable. Thus, the resulting sentence (7a) asserts that Amy stands in the remembering relation to the *proposition* that first-order logic is undecidable, whereas the original sentence asserted that Amy stands in the remembering relation to the *fact* that first-order logic is undecidable (of course, one must hold that facts are not simply true propositions). So, the sentences are not necessarily equivalent.

This explanation of substitution failure apparently requires us to say that one can bear the remembers relation to both facts and propositions. ((7a) affirms that Amy bears the relation to a proposition; (7b) affirms that she bears the relation to a fact. Of course, one would have to supplement the explanation of substitution failure just given with an account of how/why one can stand in the remembers relation to a (true) proposition without standing in the remembers relation to the fact that makes the proposition true.) It also requires us to say that TCs sometimes designate propositions (for example, when embedded with respect to 'believes') and sometimes designate facts (for example, when embedded with respect to 'remembers'). Since a given TC may designate a fact or a proposition depending on the verb of attitude it is embedded with respect to, the explanation posits an ambiguity in TCs. Let us call this way of explaining substitution failure the *ambiguity in 'that' clause* account, (henceforth *ATC*).[11]

ATC fails to provide the correct explanation of the *general* phenomenon of substitution failure. And if we try to extend it so that we do get a general explanation of the phenomenon, we are left with an empty, unsatisfactory explanation of many cases. Let me take these points in turn.

To see that ATC cannot provide an explanation of the general phenomenon of substitution failure, note that there are cases of substitution failure in which substituting 'the fact that p' for 'that p' does *not* result in a sentence necessarily equivalent to the original sentence. For example, consider the following:

(14a) Ken felt that Nicole was lying.
(14b) Ken felt the proposition that Nicole was lying.
(14c) Ken felt the fact that Nicole was lying.

Since (14a) may be true while (14b) is not, we have a case of substitution failure.[12] But clearly (14a) might be true while (14c) is not. However, if the substitution failure exhibited in (14a)/(14b) were a result of the TC in (14a) designating a fact rather than a proposition, as ATC claimed for the previous case (7a/7b/7d), we would expect (14c) to be necessarily equivalent to (14a). But it is not. Further, since (14a) can be true even if Nicole wasn't lying, (14a) cannot assert that Ken stands in some relation to the *fact* that Nicole was lying. But if ATC were correct, this is what (14a) would assert. Thus, ATC cannot explain the substitution failure here.

We could try to extend ATC to include the claim that the TC in (14a) designates some other entity that is *neither* a fact *nor* a proposition; and that this is why (14b) and (14c) fail to be necessarily equivalent to (14a). Let us call this extension of the account *ATC+*. It seems to me that the explanation ATC+ gives of examples of substitution failure such as (14a)/(14b) above is very unsatisfactory. ATC+ claims that the TC in (14a) designates some nonfact/nonproposition. However, crucially there appears to be *no* definite description such as 'the fact/possibility/state of affairs/circumstance that Nicole was lying' that can be substituted for 'that Nicole was lying' in (14a) and yield a sentence necessarily equivalent to (14a). Surely this should make us extremely suspicious. For the evidence in favor of *ATC* (that is, in favor of thinking that TCs sometimes designate facts) was precisely that substituting 'the fact that first-order logic is undecidable' for 'that first-order logic is undecidable' in (7b) yielded a sentence necessarily equivalent to (7b). But in the case of (14a) we have no comparable evidence that the TC designates some nonfact/nonproposition. We simply have the substitution failure itself. And if the TC in (14a) does designate some nonfact/nonproposition as the ATC+ theorist has to claim, surely it must be some sort of thing like a possibility or state of affairs. *But then why can't we find a description such as 'the possibility/state of affairs/that Nicole was lying' that can be substituted for the TC in (14a) yielding a sentence necessarily equivalent to it?* These considerations, it seems to me, render ATC+ implausible. In particular, its explanation of cases like (14a)–(14c) is empty, claiming as it does that the 'that' clauses in such examples designate some we-know-not-what nonfact/nonproposition that cannot be designated by any definite description. And cases like (14a)–(14c) arise with many other verbs, including 'suspect', 'heard', 'expect', 'imagine', 'indicate', and 'explain'.[13] Thus, ATC+ can give no satisfactory explanation for *many* cases of substitution failure.

There is a further reason for rejecting ATC+. The following inferences seem valid:

1. Jimmy doubts that first-order logic is undecidable and Heather suspects that first-order logic is undecidable.
2. So, there is something that Jimmy doubts and that Heather suspects.

1′. Jimmy denies that first-order logic is undecidable but Heather knows that first-order logic is undecidable

2′. So, there is something that Heather knows and that Jimmy denies.

Yet it does not appear that ATC+ can explain this. For since, according to ATC+, the TC in the first conjunct of each premise designates a proposition and the TC in the second conjunct designates a fact or nonfact/nonproposition, the conclusions should not follow from the premises. But they certainly appear to.[14]

On the basis of these considerations, I reject ATC+. "Officially," I shall leave open the possibility that *ATC* explains substitution failures such as that exhibited in (7a/7b/7d), in which the description 'the fact that first-order logic is undecidable' can be substituted for a corresponding TC and yield a sentence necessarily equivalent to the original. But this would still leave us without an account of substitution failures such as (14a)/(14b). Thus, the official position of the present paper is that there are certainly two, and *may* be three, different kinds of substitution failure: (1) substitution failure in which an NP complement is substituted for a TC complement where the verb whose complement it is takes only TC complements, resulting in ungrammaticality (see example (4)); (2) substitution failure of the sort exhibited by (14a)–(14c), which we are about to explain; and (3) substitution failure resulting from substituting a PD for a corresponding TC, where the TC designates a fact and the PD designates a proposition (see (7a)/(7b)). I am committed to there being substitution failures of types (1) and (2); and I allow that there *may* be substitution failures of type (3). However, I also think that it is possible that alleged instances of type (3) are instances of type (2). Whether this is so depends upon how much independent evidence there is for thinking that TCs sometimes designate facts (which are not simply true propositions), and how much independent evidence there is for thinking that they do so in sentences like (7b). Precisely because I think the considerations here are rather subtle, I leave open the possibility that ATC is correct

about cases like (7a)/(7b). However, since we have rejected ATC+, we henceforth once again assume that occurrences of TCs (in nonfactive contexts) designate propositions, unless otherwise indicated.

To return to where we were before digressing to consider ATC and ATC+, whether 'the proposition that first-order logic is undecidable' contributes the proposition that first-order logic is undecidable to the propositions expressed by (8b)/(9b) ('Jody heard the proposition that first-order logic is undecidable'/ 'Jody fears the proposition that first-order logic is undecidable') or not, this PD designates this proposition. And this makes it almost inevitable that (9b) is true iff Jody stands in a certain relation to the proposition that first-order logic is undecidable. Similarly, whether 'that first-order logic is undecidable' contributes the proposition that first-order logic is undecidable to the proposition expressed by (9a) ('Jody fears that first-order logic is undecidable') or not, this TC designates this proposition. And this makes it almost inevitable that (9a) is true iff Jody stands in a certain relation to the proposition that first-order logic is undecidable. (Note that since (9a)/(9b) is not a case to which ATC would apply, the foregoing remarks hold even if ATC is correct.) But then it appears that (from the standpoint of our framework) the *only* way for (9a) and (9b) to diverge in truth value, and hence express different propositions, is for their truth to require that Jody stand in *different relations* to the proposition that first-order logic is undecidable. And now that we have mentioned it, this seems *intuitively* correct. In fearing the proposition that first-order logic is undecidable, Jody is related to it by being scared of it. (Of course, one might think that it is impossible to be scared of propositions, so that (9b) is anomalous—but this is to agree that for (9b) to be true, Jody *per impossible* must be scared of a proposition.) Note that she need not believe the proposition for (9b) to be true. By contrast, in fearing *that* first-order logic is undecidable Jody must more or less anxiously believe the proposition. Note that she need not be scared of the proposition for (9a) to be true. But then it really does seem that in fearing *the proposition* that first-order logic is undecidable, intuitively one stands to it in a different relation than one stands to it in fearing *that* first-order logic is undecidable. Thus, it would appear that 'fears' contributes different relations to the propositions expressed by (9a) and (9b) and so is ambiguous (or polysemous—see below). By contrast, that (6a) and (6b) (repeated here for convenience)—

(6a) Russell believed the proposition that mathematics reduces to logic
(6b) Russell believed that mathematics reduces to logic

—*are* necessarily equivalent suggests that 'believe', unlike 'fears', is univocal and expresses the *same* relation in (6a) and (6b).

To summarize, I claim that 'fears' is ambiguous (or polysemous), contributing different relations to the propositions expressed by (9a) and (9b), and 'believed' is univocal, expressing the same relation in (6a) and (6b). This in turn explains why (9a) and (9b) can diverge in truth value and (6a) and (6b) cannot. More generally, I claim that there are two classes of verbs of propositional attitude (that take both NP and S complements), with the members of one class ambiguous in the way that we have claimed 'fears' is and the members of the other univocal in the way that we have claimed 'believed' is. In particular, here are some examples of members of the first class, ambiguous verbs of propositional attitude (henceforth *AVP*s): 'remember', 'fear', 'feel', 'understand', 'explain', 'expect', 'hear', 'mention', 'indicate', 'suspect', 'demand', 'desire', 'suggest', 'request', 'imagine', 'know', and 'recommend' (though if ATC is correct, some of these verbs—for example, 'remembers' and 'understand'–are not AVPs; see below). What is characteristic of verbs of this class is that the analogues of (9a) and (9b) containing them may exhibit substitution failure and so must express different propositions, as we saw in the case of (8a)/(8b) and (7a)/(7b). I claim that the reason such sentence pairs exhibit substitution failure is that the AVPs in them contribute relations to the propositions expressed by the a examples that differ from the relations they contribute to the propositions expressed by the b examples.

A question that arises here is what determines which relation an AVP contributes to the proposition expressed by the sentence in which it occurs. I incline toward the view that it is the *syntactic category* of the complement of the verb that determines which relation it contributes.[15] The alternative is to claim that it is the nature of the *semantic value* of the complement of an AVP that determines which relation it contributes to a proposition. On this view, 'that p' and 'the proposition that p' must be assigned different semantic values. Note that this would allow one of the values to be the proposition that p and the other to be an entity that determines (only) the proposition that p. For ease of exposition, let us call the relation an AVP expresses when it has an NP

complement its *NP relation* and the relation it expresses when it has a TC complement its *TC relation*.

Here are some members of the second class of verbs, univocal verbs of propositional attitude (henceforth *UVP*s): 'believe', 'doubt', 'deny', 'prove', 'accept', 'assert', 'state', and 'assume'. The characteristic feature of these verbs is that analogues of (9a) and (9b) containing them are necessarily equivalent. Thus,

(15a) Cari doubts the proposition that first-order logic is undecidable.
(15b) Cari doubts that first-order logic is undecidable.
(16a) Cari asserts the proposition that first-order logic is undecidable.
(16b) Cari asserts that first-order logic is undecidable.

Positing two classes of verbs of propositional attitude, the members of one of which are ambiguous, accounts for the data we have looked at. However, positing ambiguity to explain recalcitrant data in semantic theorizing is rightly looked upon with suspicion. Of course, *independent evidence* of ambiguity in such a case ought to allay any such suspicions. And it appears to me that there is independent evidence that members of our one class of verbs really are ambiguous (or polysemous—see below) and members of the other class are not.

First, as I hinted above, there is a strong *pre-theoretical* intuition that in sentence pairs containing AVPs such as (9a) and (9b), the verbs in question have different meanings. As we said in discussing (9a) and (9b), fearing the proposition that first-order logic is undecidable intuitively involves being scared and does not involve belief, whereas fearing that first-order logic is undecidable intuitively involves (anxiously) believing something and does not involve being scared of anything. But then intuitively, we feel as though 'fear' in (9a) and (9b) has two different meanings, one of which involves being scared but not believing anything, and the other of which involves believing something but not being scared. Similarly, there is a pre-theoretical intuition that in the following two sentences, the AVP 'felt' means different things:

(17a) Steve felt the proposition that mathematics reduces to logic.
(17b) Steve felt that mathematics reduces to logic.

The truth of (17a) requires Steve to have had a tactile experience, and does not require that Steve was positively disposed toward the view that mathematics reduces to logic (again here, one might hold that (17a) is

anomalous because it is impossible to feel propositions—but, again, this is to agree that the truth of the sentence requires that Steve feel a proposition). The truth of (17b) requires Steve to be positively disposed toward the view that mathematics reduces to logic, but does not require that he had a tactile experience. So here again we have a pre-theoretical intuition that the meaning of the verb in (17a) involves things that the meaning of the verb in (17b) does not involve, and vice versa. By contrast, there is *no* pre-theoretical intuition that in the sentence pairs containing UVPs (6a/6b; 15a/15b; 16a;16b) the verbs have different meanings. That *even pre-theoretically* we feel as though in sentence pairs such as (9a)/(9b) and (17a)/(17b) the verbs have different meanings, and that we don't feel this way about sentence pairs such as (6a)/(6b), (15a)/(15b), and (16a)/(16b), *strongly* supports the claim that AVPs really are ambiguous and UVPs are not.

Second, it is suggestive that AVPs generally allow a much wider range of NP complements than do UVPs. As the following examples show, AVPs can take as NP complements referring expressions, bare plurals, mass nouns, and quantifier phrases of all sorts.[16]

(18) I fear Cari/snakes/water/every car/her.
(19) I desire Cari/snakes/water/every car/her.

By contrast, UVPs allow a very limited range of NP complements:

(20) I deny *Cari/*snakes/*water/*every car/the proposition that mathematics reduces to logic.
(21) I assert *Cari/*snakes/*water/*every car/the proposition that mathematics reduces to logic.

Indeed, many and perhaps most UVPs appear to allow only NP complements that designate propositions or quantify over them ('logicism', 'the proposition that mathematics reduces to logic', 'what John said', 'every theorem of Peano arithmetic', etc.). Exceptions to this seem primarily to involve cases like 'believe' and 'doubt', where NPs denoting things that in some sense can (or are thought to) *give expression to* propositions, or contain expressions expressing propositions, are also allowed:

(22) Cari believes/doubts Terry/the Tarot cards/the Bible/*furniture.

However, even in these exceptional cases, the truth of the sentence is determined by whether the subject of the ascription bears the belief

relation to some proposition (for example, to believe Terry presumably is to believe something Terry said, wrote or etc.).[17]

This data, it seems to me, is quite suggestive. If UVPs really are univocal and express relations between individuals and propositions, then this would explain why the NP complements allowed by such verbs would be restricted to those that designate propositions (or designate things that give expression to or contain expressions expressing propositions). By contrast, if AVPs express two different relations, one of which obtains between individuals and propositions (their TC relations) and the other of which obtains between individuals and objects of various sorts (their NP relations), this would explain why the class of NP complements such verbs allow is so much wider than the class allowed by UVPs.

The third bit of evidence that AVPs are ambiguous and that UVPs are not concerns data involving gapping. Consider a sentence such as:

(22) Tom fears snakes and John bears.

Such sentences are a bit awkward, but the idea is that the second conjunct verb has been elided. Thus, the second conjunct contains a null verb with the semantic properties of its antecedent ('fears'). So the second conjunct means that John fears bears. Now suppose that Bert and Dave are deranged and that they have come to think that certain abstract objects, including properties and propositions, might visit them. I make this supposition so that sentences such as 'Dave expects the property of being red' or 'Dave expects the Pythagorean theorem' should not sound completely anomalous in this context. Now consider the following sentences:

*(23) Bert expects that mathematics reduces to logic and Dave the proposition that set theory is consistent.

(24) Bert believes that mathematics reduces to logic and Dave the proposition that set theory is consistent.

Though both sentences, like (22) itself, are somewhat awkward, my judgment is that (23) is significantly worse than (24) (and I find that most people make the same judgment). The claim that AVPs are ambiguous and UVPs are not would explain this. The first conjunct of (23) asserts that Bert stands in a certain relation R to the proposition that mathematics reduces to logic. R here is the relation we claim that 'expects' expresses that obtains between individuals and propositions (its TC relation). 'Expects' expresses this relation because its so doing

is triggered by its having a TC complement in the first conjunct. The elided verb in the second conjunct should express the same relation (we assume that the elided verb must express the same relation as its antecedent). But here the object of the verb is an NP. Thus, we have a sort of conflict. The elided verb is constrained to be interpreted the same way as its antecedent, as expressing R; but it takes an NP complement, which triggers the elided verb's expressing a relation other than R. Thus, the sentence is very awkward. Presumably, the awkwardness of 'Bert threw a party and Tom a baseball' has a similar explanation. By contrast, in (24) the antecedent verb and the elided verb both will be interpreted in the same way, since they are univocal and so there is no triggering of the expression of different relations by complements of different categories. Thus, the conflict present in (23) is not present here. So we predict that (24) will be significantly less awkward than (23). And so it seems to be.

This point is supported by the following consideration. Consider the result of substituting PNs for PDs in (23)–(24):

*(25) Bert expects that set theory is consistent and Dave logicism.
(26) Bert believes that set theory is consistent and Dave logicism.

Here again, the example with the AVP is significantly worse. And as before, we attribute this to the fact that the first and second conjuncts have complements of different syntactic categories and so "trigger" the AVP's expressing different relations in those conjuncts. At the same time, the elided verb is constrained to be interpreted the same way as its antecedent. Thus, an unresolvable conflict arises. Not so in the case of (26).

Admittedly, these judgments regarding (23)–(26) are subtle. My suspicion is that this *may be* because AVPs are really polysemous rather than ambiguous. For with polysemous verbs, it appears that sentences such as (23) and (25) can range from quite awkward to almost impeccable. As I've already said, I do think that (23) and (25) are much more awkward than (24) and (26). But if AVPs really are polysemous, they may do significantly better on traditional ambiguity tests (such as the gapping just considered) than truly ambiguous expressions. Thus the subtlety of the judgments here. For simplicity, I shall continue to talk of AVPs as being ambiguous; but I should be taken to mean *ambiguous or polysemous*. And indeed, I currently lean toward the view that AVPs are polysemous.[18]

A loose end remains to be tied up, and it is related to my claim that some verbs of propositional attitude are ambiguous and that which relation they express in a given sentence is determined by the syntactic category of their complements.[19] It concerns sentences in which AVPs have 'something', 'everything', or 'nothing' as their complements.[20] Thus, consider the following sentence:

(27) Tara mentioned something.

Given what has been said to this point, since 'something' is an NP it results in 'mentioned' expressing its NP relation. However, the following inference appears to be valid:[21]

1‴. Tara mentioned that first-order logic is undecidable.
2‴. So, Tara mentioned something.

But on my account, the argument is not valid. Since the complement of 'mentioned' in the premise is a TC, the view we have outlined claims that 'mentioned' in the premise expresses its TC relation. But from the fact that Tara stands in this TC relation to the proposition that first-order logic is undecidable, it doesn't follow that Tara stands in the quite different NP relation to anything! Thus, the truth of the premise does not force the truth of the conclusion given what I have said.[22]

Of course, (27) also has a reading on which 'mentioned' expresses its NP relation. For the following argument is valid:

1⁗. Tara mentioned the proposition first-order logic is undecidable.
2⁗. So, Tara mentioned something.

'Mentioned' in the premise expresses its NP relation. Thus, for the conclusion to follow from the premise, 'mentioned' in the conclusion must express its NP relation. Of course, our account does predict that (27) has a reading on which 'mentioned' expresses its NP relation.

To summarize the main point here, it appears that (27) has a reading on which 'mentioned' expresses its TC relation even though it has an NP as its complement; and so our claim that it is the syntactic category of the complement that determines which relation an AVP expresses is incorrect. Similar considerations suggest that when an AVP has 'everything' or 'nothing' as its complement, it can express its TC relation.

The interesting thing about this phenomenon is that it appears that 'everything', 'nothing', and 'something' are unique among NPs in this

respect. That is, when an AVP has *virtually any other NP as its complement*, it expresses (only) its NP relation. To illustrate, consider the following sentences:

(28) Tara mentioned Michelle.
(29) Tara mentioned most past presidents.
(30) Tara mentioned the Goldbach conjecture.

The NP relation expressed by 'mentioned' is a relation an individual can bear to many sorts of objects; and one bears this relation to an object by referring to it in an incidental manner. By contrast, when one mentions that first-order logic is undecidable, and so stands in the *TC* relation expressed by 'mentions' to the proposition that first-order logic is undecidable, one bears a relation to the proposition that one cannot bear to nonpropositions and that requires one to assertively utter a sentence that expresses the proposition. Now, it should be clear that in (28)–(30), 'mentioned' expresses its NP relation. For each sentence merely asserts that Tara referred to something in an incidental manner. This is so even when the NP complement designates a proposition, as in (30). (30) doesn't entail that Tara mentioned *that* an even number greater than two is the sum of two primes (and thus that she committed herself to the truth of Goldbach's conjecture), and so doesn't entail that Tara stands in the TC relation expressed by 'mentioned' to the Goldbach conjecture.[23]

In addition, whenever 'mentioned' has a TC complement, it expresses its TC relation; and so the truth of the sentence in which it occurs requires the subject of the ascription to have assertively uttered a sentence expressing the proposition designated by the TC.

Thus, the NPs 'something', 'everything', and 'nothing' appear to provide singular exceptions to our claim that an AVP expresses its NP relation when and only when it has an NP complement, and that it expresses its TC relation when and only when it has a TC complement.[24] I am not at all sure why 'something', 'everything', and 'nothing' behave in this exceptional way. But there is a bit of data that is both suggestive and comforting. Earlier, I noted that certain verbs of propositional attitude do not take NP complements. Among them are 'say', 'wish', and 'hope'. I cited the following as evidence that these verbs do not take NP complements:[25]

(4a) Russell said/hoped/wished *every girl/*Cara/*some fish/*snakes/*her/*gold.

Curiously, these verbs can take 'something', 'everything', and 'nothing' as complements:[26]

(4a′) Russell said/hoped/wished something/nothing/everything.

This is comforting, because we are forced to claim that 'something', 'everything', and 'nothing' behave unlike other NPs when they are complements of AVPs, in that the TC readings of AVPs are available in such cases. However, (4a) and (4a′) show that 'something', 'everything', and 'nothing' exhibit other behavior that is unlike that exhibited by other NPs. That 'something', 'everything', and 'nothing' behave unlike other NPs in sentences like (4a′) makes our claim that they behave exceptionally in sentences like (27) more plausible and less ad hoc.[27]

Further, the data comprising (4a) and (4a′) are suggestive. Given that here 'something', 'everything', and 'nothing' behave syntactically in a most un-NP-like fashion, perhaps it is not surprising that they don't, as "normal" NPs do, require the AVPs whose complements they are to express NP relations. After all, if NPs require AVPs to express NP relations, then it is reasonable to suppose that NPs that behave syntactically in un-NP-like ways would not require this. This is especially so, if, as we claim, it is the *syntactic category* of the complement of an AVP that determines which relation it expresses.

In conclusion, I have explained substitution failure from the standpoint of a framework that includes the assumptions mentioned at the outset. I have thus shown that the radical conclusions Bach, McKinsey, and others draw from the phenomenon of substitution failure are unwarranted. Limitations of time and space have prevented me from formulating a semantics for PDs and TCs. I leave this task for another occasion.

University of California, Davis

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Notes

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[1] See King 1994, 1995, 1996, and 1998. On the view defended in these papers, the syntactic relation between lexical items in a sentence is literally part of the relation binding together the constituents of the proposition expressed by the sentence. For the sake of generality, I suppress this feature of my view here.

[2] On the view defended in King 1995, *syntactically complex* n-place predicates do not contribute n-place relations to propositions. Again, I suppress this subtlety.

[3] There appear to be other devices for designating propositions—for example 'what David said'.

[4] I intend the notion of an occurrence of an expression e being *associated* with an object o via *some semantic mechanism* in such a way that, for example, supposing that an occurrence of 'that grass is green' is associated via a semantic mechanism with the proposition that grass is green does not entail that this occurrence of this TC is associated with a *constituent* of that proposition (for example, grass) via a semantic mechanism (and so from the fact that the TC designates the proposition, it does not follow that it

designates any constituent of the proposition). For the TC is associated with grass by being *semantically* associated with the proposition that grass is green, *and* by grass's being a constituent of this proposition. But this latter relation (constituency) between grass and the proposition that grass is green is not a *semantic* relation (presumably, it is some sort of part/whole relation), and so the TC is not associated with grass via "purely" semantic means (of course, a *part* of the TC, 'grass', is purely semantically associated with grass, but again the *TC* is associated with grass only *by having a syntactic part* that is semantically associated with grass, and again this is not a purely semantic relation between the TC and grass). Thus, the way I intend the notion, the TC is not associated with grass via a semantic mechanism. For an occurrence of an expression e to be associated with an object o via a *semantic mechanism* requires the relation between the two to be "purely" semantic. Roughly, this means that either o is "directly" associated with e via semantic rules, so that o is a semantic value of e, or some other entity o′ is so associated with e, and o′ bears a purely semantic relation to o. This latter would be the case if, for example, e had associated with it by semantic rules some descriptive conditions, which o in turn satisfies (the satisfaction of descriptive conditions here being understood as a semantic relation). Note that in addition to requiring such a semantic relation between e and o, designation requires that as a result of this relation, the truth or falsity of the proposition expressed by the sentence containing this occurrence of e depend on the properties of o and the relations it stands in. Finally, let me note that if I were applying the notion of designation to occurrences of expressions that are non-rigid, I would want to characterize it somewhat differently. However, PDs and TCs will be my concern here, and it appears that a given occurrence of a PD or TC designates the same proposition (or whatever—see discussion of ATC below) at all circumstances of evaluation (and times). Since my concern is with TCs and PDs, it doesn't matter if my characterization of designation yields strange results when applied to other expressions. All this said, I recognize that the characterization of 'designation' given is fairly loose. Still, I believe it is sufficiently precise for present concerns. I am indebted to the comments of an anonymous referee here.

[5] In the present work, I presuppose that in (6a) below (and similar examples), the complement of 'believed' really is an NP as it appears to be, and not, as is claimed by Den Dikken et al. (1996; 2002 with respect to similar examples) a "covert" clause. It would be interesting to investigate the phenomenon discussed in the present paper from the standpoint of the view of Den Dikken et al. Indeed, an anonymous referee suggested that I do this in the present work. However, approaching our puzzle from the standpoint of Den Dikken et al. would require a separate paper. Thus, here I simply assume that what appear to be NP complements really are.

[6] I am deliberately skirting the issue of whether (6a) and (6b) express the same proposition. On views of the semantics of sentences like (6a) and (6b) according to which they are contextually sensitive, we must consider (6a) and (6b) as uttered in the same context. The claim would then be that the sentences, so uttered, express propositions that have the same truth value at every circumstance of evaluation. Henceforth, I shall ignore the possibility that (6a) and (6b) and sentences like them are contextually sensitive, since it seems to me that the question of whether they are is orthogonal to present concerns.

[7] Bach does not spell out *precisely* why substitution failure provides evidence against RABR. But what is important here is that he thinks substitution failure supports the radical conclusion that RABR is false. Bach noted (in personal correspondence) that though he thinks substitution failure provides evidence against RABR, he draws the radical conclusion that RABR is false from other arguments. Still, I intend to show that substitution failure can be explained from the perspective of (a version of) RABR, and that it therefore doesn't even provide evidence for Bach's radical conclusion.

[8] McKinsey calls such a view *the relation theory*. Sometimes McKinsey appears to claim only that substitution failure undermines an argument in favor of the relation theory (see the first three paragraphs of his section 6, beginning on 529). But he also writes:

> (17) Monica thinks that Jimmy is cute.
>
> If 'think' expresses a relation in (17), then the result of replacing the 'that' clause in (17) with a term that refers to the proposition expressed by the imbedded sentence should make sense:
>
> (18) *Monica thinks the proposition that Jimmy is cute.
>
> But to my ear (18) does not make sense. (530)

This certainly makes it sound as though he is claiming that the relation theory cannot explain the substitution failure exemplified by (17) and (18). Actually, McKinsey has chosen a poor example. For it seems to me that the explanation of (17) and (18) is particularly straightforward: 'thinks' takes complementizer (TC) complements but does not take NP complements (though see next note). Note that 'thinks' does not allow any of the following NPs as complements:

> Monica thinks *every student/*flowers/*Logicism/*Sue/*her

Thus (18) is simply ungrammatical. But we could replace his sentence pair with one employing a verb like 'remember' that takes both NP and TC complements, and for which we get substitution failure.

[9] Gilbert Harman, Paul Pietroski, and Ernie Lepore noted that 'said', 'wished', and 'hope' (and 'think'—see previous note) can take certain (apparent) NP complements:

> Russell hoped/wished said that.
>
> Russell hoped/wished/ said the same thing I did.
>
> Russell said a few words/the only sensible thing that was said all day/the words we were hoping he would say.

That these verbs allow a very small, idiosyncratic range of NP complements doesn't undermine the point made in the text, which is that they syntactically don't allow any other NP complements. (Let me remark cryptically that Anthony Everett pointed out to me that one might challenge the claim that the complements in the sentences cited by Pietroski, Lepore, and Harman really are NPs; since my point here doesn't require that they aren't, I will not pursue this here.) This gives us good reason to think that they syntactically don't allow PNs and PDs, and that this is the reason for substitution failure with such verbs.

[10] One could of course combine the two options, but the arguments I give against each option would apply to the view that combines them. Presumably, an advocate of option (2) would want to hold that there is some difference in the *structures* of the propositions expressed by (7a) and (7b) that explains why the two propositions require for their truth at a circumstance that the same things be arranged *differently* at the circumstance. This makes no difference to my argument here, so I ignore it. Thanks to John MacFarlane and an anonymous referee for insightful criticism and discussion that resulted in significant improvements in the argument I am giving here.

[11] Terry Parsons (1993) tentatively endorses ATC (see 455). From the fact noted here, that ATC must hold that different occurrences of a given TC designate different things, it does not strictly *follow* that ATC must posit an ambiguity in TCs. One could try to assign TCs a univocal semantics that allows some occurrences of TCs to designate facts and other occurrences to designate propositions. But I don't see any motivated way of doing this. And in any case, my argument against ATC and ATC+ would apply to a theory that assigns TCs a univocal semantics.

[12] Since 'felt' takes NP complements ('Ken felt a peach/snakes/Marilyn Monroe/

her'), the substitution failure here is not a result of 'felt' not taking NP complements.

[13] For 'imagine' to exhibit the relevant behavior, it must be understood in the sense in which imagining that p is thinking or conjecturing that p (for example, if someone asks me where Jay is and I say that I imagine that he is at the movies, I am not here reporting simply that I have formed a mental image of Jay being at the movies). Also, with respect to the verb 'explain', I am assuming that explaining that p is different from explaining the fact that p. If John simply told some people that quantifiers take scope, John explained that quantifiers take scope. But he did not thereby explain *the fact* that quantifiers take scope. The latter requires more than simply telling someone that quantifiers take scope.

[14] Admittedly, as noted in Parsons 1993, other similar inferences seem bad in the sense that the conclusions seem somewhat infelicitous. For example,

1″. Jimmy believes that first-order logic is undecidable and Heather regrets that first-order logic is undecidable.
2″. So there is something that Jimmy believes and that Heather regrets.

Some explanation needs to be given for why this conclusion sounds odd. Parsons takes the oddness of sentences like the conclusion here to support ATC. The idea is that since, according to ATC, TCs embedded with respect to factives like 'regrets' designate facts, and TCs embedded with respect to nonfactives like 'believes' designate propositions, when we try to quantify across both the factive and nonfactive context, the result is odd. I don't think data of this sort support ATC, because we can get comparable oddness even attempting to quantify across *two factive* contexts:

* There is something that John saw and that Joe confessed.

It seems to me plausible that whatever explains the oddness in these cases would also explain the oddness of our conclusion above.

[15] An astute anonymous referee noted that the phenomenon of substitution failure (or something similar to it) arises in certain cases with predicates as well (assuming, as we have been, that one-place predicates express properties): 'This apple is red' and 'This apple is the property of being red' are not equivalent. The referee suggested that I might argue that the substitution failure arises because 'is' expresses two different relations something can bear to a property: instantiation and identity. He or she further noted that I might claim that the disambiguation is governed by syntax, as I suggest here with respect to AVPs. This account fits very well with the view being defended here, and I thank the referee for this helpful comment and suggestion. Also, Zoltán Szabó noted that in Hungarian, it is not the syntactic *category* of the complement that determines which relation an AVP expresses. This is because in Hungarian we have examples such as:

(a) Amy emlekszik arra az allitasra hogy
Amy remembers to-that the proposition that …
(b) Amy emlekszkik arra hogy …
Amy remembers to-that that …

where these exhibit the readings corresponding to the English pair:

(a′) Amy remembers the proposition that …
(b′) Amy remembers that …

But the Hungarian examples have complements of the *same* syntactic category, since both are headed by the demonstrative pronoun 'arra' and so are NPs. Here we can claim that it is *all* the syntactic *properties* of the complement (including its internal syntactic structures) that trigger the verb's expressing one relation rather than another. Of

course, the claim that it is the syntactic *category* of the complement that triggers the verb's expressing the relation it does may still be correct for English. But since this doesn't appear to be correct cross-linguistically, perhaps even for English we should put the point in terms of *all* syntactic *properties* of the complements, which of course includes their syntactic categories.

[16] Some AVPs are more limited than others in the sorts of NP complements they can take. For example, 'suspect' can take as complements NPs "denoting" people ('John', 'every student') and NPs denoting something like action types ('arson', 'treason'). But it isn't entirely clear what to make of sentences like 'I suspect rocks'. Presumably this variation is explained by the NP relation a given AVP expresses. Some AVPs express NP relations that can hold between people and all sorts of things (for example, 'fear'). Other AVPs express NP relations that persons can bear only to a limited class of things (for example, 'suspect'), and so the sorts of NP complements such verbs felicitously allow is more restricted. Still, AVPs allow a wider range of NP complements than UVPs.

[17] There still is a question as to the precise semantics of sentences containing UVPs like 'believes' or 'doubts', where the NP complement designates something that can give expression to propositions (or contains expressions expressing propositions, etc.). It seems to me that there are at least three accounts one might give. Consider the sentence

(i) Cari believes Terry.

The first account one might offer is that 'Terry' here at the relevant level of syntactic representation is something like 'what Terry said'. The latter is an NP designating a proposition, and so (i) is true iff Cari bears the belief relation to the proposition denoted by the latter NP. Thus, on such a view NP complements of 'believes', etc. that apparently designate nonpropositions are at the relevant level of syntax NPs that designate propositions. A second account would hold that 'believes' expresses a relation between individuals and propositions or things that can assertively express propositions (or things that contain expressions assertively expressing propositions, etc.). Necessarily, this relation holds between an individual and a thing that can express a proposition iff it holds between that individual and a certain proposition assertively expressed by the thing that can express a proposition, where the individual knows that the thing that can express a proposition assertively expressed the proposition in question. A third view holds that UVPs such as 'believes' are ambiguous: they express relations between individuals and propositions and relations between individuals and things that can assertively express propositions. However, necessarily an individual stands in the latter relation to a thing that can express a proposition iff she stands in the former relation to a certain proposition assertively expressed by the thing that can express propositions, and knows that the thing in question assertively expressed the proposition in question. Of course, on this third option such UVPs are ambiguous. Still, on all three of these options, an individual's standing in the relation expressed by such a verb to a proposition is in some sense "basic", since the truth of a sentence containing such a verb and an NP complement that (apparently) doesn't designate a proposition is explicated in terms of an individual's standing in the relation in question to a proposition. In this sense, the UVPs in question are still importantly different from AVPs. Thanks to Jason Stanley for insightful comments on these issues that helped me see some of the possibilities here.

[18] Roughly, polysemy is the phenomenon in which a word has two or more *significantly related* meanings (in this it is distinguished from straight ambiguity), as perhaps does 'eye' in examples such as 'eye of a person', 'eye of the hurricane'. An anonymous referee worried that if the translations of AVPs into other languages behave like AVPs, this would undermine the position being defended here. I take it the worry is that if a verb really is ambiguous (or polysemous), we would expect there to be languages in

which the verb is disambiguated. Hence, if AVPs are not disambiguated in other languages, this would be a blow to the present view. Two comments on this: First, I claim that 'know' is an AVP and that it *is* disambiguated in other languages. So presumably this is evidence *for* the current view. Second, sometimes polysemous words are not "dispolysemated" in other languages. For example, in English, the polysemous word 'mouth' can refer to both human orifices and places where rivers meet the ocean. The same is true for the Spanish 'boca'. Presumably the question of whether we should expect disambiguation/dispolysemation in other languages depends on how closely related the distinct meanings are. Since AVPs may, and I think do, differ in this regard, we might expect cross-linguistic disambituation/dispolysemation in some cases and not others. Thus, it seems to me that subtle questions are involved in interpreting the cross-linguistic data here.

[19] In discussing this above, I said that we should hold either that it is the syntactic category of the complement of an AVP that determines which relation it expresses or that it the nature of the *semantic value* of the complement of an AVP that determines which relation it expresses. If the latter, then expressions of the different syntactic categories have different sorts of semantic value. But then the syntactic category of the complement indirectly determines which relation an AVP expresses. The syntactic category determines the nature of the semantic value, where that nature determines which relation an AVP expresses. So here I shall just talk about the syntactic category of the complement determining which relation an AVP expresses.

[20] Friederike Moltmann (2002) brought data of this sort to my attention.

[21] When I say that the argument is valid, I mean that the premise and conclusion have readings on which the conclusion follows from the premise.

[22] It might be thought that we could explain why the inference is valid in the following way. Suppose the premise is true, so that Tara mentioned that first-order logic is undecidable (that is, Tara stands in the TC relation expressed by 'mentioned' to the proposition that first-order logic is undecidable). For Tara to do this, she must mention logic (that is, stand in the NP relation expressed by 'mentioned' to logic). (The underlying assumption here is that it is impossible to mention that first-order logic is undecidable without mentioning logic—of course, one could do the latter without doing the former.) But since Tara stands in the NP relation expressed by 'mentioned' to logic, she stands in the NP relation expressed by 'mentioned' to something. That is, she mentioned something. So the conclusion is true. Though such an explanation *may* explain the validity of such inferences containing AVPs like 'mentioned', it can't explain the validity of the following inference involving another AVP:

(i) George suspects that John is rich.
(ii) So, George suspects something.

Here the above explanation won't work, because we can't move from the truth of the premise to the truth of the claim that George suspects John, or … (as we did from the truth of 'Tara mentioned that first-order logic is undecidable' to the truth of 'Tara mentioned logic'). Thus, there are at any rate some valid inferences of this sort involving AVPs that are not explained in the way suggested.

[23] Similar remarks apply to 'know'. The truth of the sentence 'Tara knows the Goldbach conjecture' does not require Tara to know that an even number greater than two is the sum of two primes. Rather, it requires Tara to be familiar with the (content of the) conjecture.

[24] 'That' is another exception. 'Tara mentioned that' can be true if Tara stands in the TC relation expressed by 'mentioned' to the proposition 'that' designates (in the context of utterance). At any rate, 'that', 'something', 'everything', and 'nothing' are singular exceptions to our claim that an AVP expresses its NP relation when and only

when it has an NP complement.

[25] Of course, a sentence like 'Russell said snakes' can be given in response to a question such as 'What is the most common animal around here?' But here 'snakes' in the complement is elliptical for something like 'Snakes are the most common animal around here'. The point is that 'said' cannot take an NP complement that is not elliptical for a full clause (except for the NPs already noted).

[26] Some of these can sound a bit odd, for example, 'Russell hoped everything'. But this is simply because it is hard to see how one could hope *everything*. As noted earlier, these verbs can also take 'that' as complements. See notes 9 and 24.

[27] Jason Stanley and Delia Graff independently noted another apparently related respect in which 'everything', 'something', and 'nothing' behave unlike other quantificational NPs. The sentence 'John is everything his mother wanted him to be: a doctor, a good father, kind, and handsome' is fine even though the "substitution instances" of 'everything' include expressions from different syntactic categories (for example, 'a good father', 'kind'—similar examples can be constructed with 'something' and 'nothing'). By contrast, other quantifiers don't allow this, as evidenced by the anomalousness of 'John has every property his mother wanted him to have: a doctor, a good father, kind, and handsome' (the only expressions that would work here are 'kindness', etc.). That 'everything', 'something', and 'nothing' allow "substitution instances" from different syntactic categories is probably related to their odd behavior noted in the text, since here 'Tara mentioned something' follows from sentences with complements of different syntactic categories (though it expresses different propositions in the two cases). This all supports the claim made in the text that these NPs behave quite unlike other NPs in various respects.