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# MENTAL ANAPHORA

P. T. Geach once devised a particularly insidious instrument of intellectual torture that he called 'the problem of intentional identity' (1967).[1] The problem arises when one tries to account for the behavior of the pronoun 'she' in Geach's puzzling sentence

(1) Hob thinks a witch has blighted Bob's mare, and Nob wonders whether she (the same witch) killed Cob's sow.

In this sentence the pronoun 'she' seems to in some sense refer back to the quantifier 'a witch'. Yet there are serious difficulties in supposing that 'she' plays the role of a variable that is bound by this quantifier.

On the one hand, 'a witch' might be construed as lying within the scope of the phrase 'Hob thinks'. But it certainly appears that on this construal 'she' could not be a variable bound by 'a witch', since 'she' lies *outside* the scope of 'Hob thinks'.

On the other hand, we might construe the phrase 'a witch' as lying outside the scope of 'Hob thinks'. On this construal, 'she' can be bound by the quantifier 'a witch' all right. But then (1) would be understood as meaning

(2) As regards some witch, Hob thinks she has blighted Bob's mare, and Nob wonders whether she killed Cob's sow.

As Geach points out, the difficulty with this idea is that (2) apparently implies that Hob and Nob have in mind a certain actually existing witch, whereas (1) can be understood so as not to have this implication. A speaker could use (1) to truly describe the superstitions of Hob and Nob without thereby committing himself to the existence of witches.[2]

So there is at least one way of understanding (1) on which the pronoun 'she' is not bound by a quantifier that ranges over existing objects. Geach's problem of intentional identity is that of explaining the behavior of the pronoun in this case and others like it. Below, I will propose a partial solution to this problem. But my main interest is in another related problem, also suggested by Geach, that arises out of my proposal concerning the first problem. A solution to this second

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problem has, I believe, some important consequences regarding the so-called propositional attitudes. The most important of these consequences is that, contrary to common opinion, the propositional attitude verbs such as 'believes', 'thinks' and 'wonders' do not express relations between persons and propositions.

## 1. E-TYPE PRONOUNS

Gareth Evans (1977) has made a convincing case for the existence of what he calls 'E-type pronouns'. Instead of being a variable bound by a quantifier antecedent, an E-type pronoun is a true singular term whose semantic referent is the same as that of a definite description which is "recoverable" from the clause containing the pronoun's quantifier antecedent.[3] Evans gave the following example:

(3) John owns some sheep and Harry vaccinates them.

If the pronoun 'them' is bound by the quantifier 'some sheep', then (3) is equivalent to

(4) Some sheep are such that John owns them and Harry vaccinates them.

But as Evans points out, (4) is not the most natural interpretation of (3). On its most natural interpretation, (3) – unlike (4) – would not be true unless Harry vaccinates *all* the sheep that John owns. Understood this way, (3) is paraphraseable as

(5) John owns some sheep and Harry vaccinates the sheep that John owns.

So on the most natural interpretation of (3), the pronoun 'them' is an E-type pronoun and not a bound variable. Evans gives several other examples of this kind of phenomenon, and in each case argues convincingly that the pronoun in question is not a bound variable, but a true singular term.

In spite of his point that (3) is paraphraseable as (5), Evans's view is that E-type pronouns do not go proxy for the descriptions that are recoverable from the clauses governed by the pronouns' antecedents. Rather, in his view, E-type pronouns' referents are fixed by the relevant descriptions in Kripke's (1972) sense, so that such a pronoun rigidly designates what the reference-fixing description refers to in the actual world (Evans 1977, pp. 492, 518–520).

One problem with the idea that E-type pronouns are always rigid designators is that it seems to give the wrong possible-world truth conditions for sentences like (3). If in (3) the referent of 'them' is fixed by what the description 'the sheep that John owns' refers to in the actual world, then (3) is true only in those possible worlds in which Harry vaccinates the sheep that John owns in the actual world. But then we cannot explain the fact that the following sentence can express a truth, even when 'them' is not a bound variable:

(6) John in fact owns no sheep, but it might have been the case that John owns some sheep and Harry vaccinates them.

The only way I can see to explain this fact is to suppose that in this case at least, the E-type pronoun 'them' is going proxy for the description 'the sheep that John owns'.

For another kind of case in which an E-type pronoun is short for a description, consider

(7) A woman will be nominated, but it is doubtful that she will win the election.

On one way of understanding (7), its speaker would not be expressing a doubt concerning any particular woman's winning the election, but would be expressing a doubt as to whether the woman who will be nominated, whoever she may be, will win. But it seems that in order for (7) to have this interpretation, 'she' must be construed as short for the description 'the woman who will be nominated', so that (7) means

(8) A woman will be nominated, but it is doubtful that the woman who will be nominated will win the election.

The evidence that Evans gives for the view that E-type pronouns do not go proxy for descriptions is inconclusive, as he admits.[4] Moreover, the evidence we've cited to the contrary seems decisive. So I think it is clear that E-type pronouns often do go proxy for descriptions. It is in fact difficult to find good evidence that they ever function otherwise. I will return to this issue below. For the present it suffices to note first that Evans has shown that E-type pronouns are a pervasive feature of English, and second, that these pronouns frequently go proxy for descriptions that are recoverable from the clauses governed by the pronouns' quantifier antecedents.

## 2. A CONSTRUAL OF THE GEACH SENTENCE

Given the convention for E-type pronouns just described, the following is an interpretation that Geach's sentence (1) actually has in English:

(9) Hob thinks a witch has blighted Bob's mare, and Nob wonders whether the witch who blighted Bob's mare killed Cob's sow.

The existence of E-type pronouns thus provides *one* way of understanding (1) on which the pronoun 'she' is not bound by a quantifier that ranges over existing objects.

But something stronger is true. I suggest that if in (1) the quantifier 'a witch' is clearly understood to have small scope, then (1) *must* be understood as meaning (9).

The reading of (1) on which 'a witch' is taken to have small scope can I think best be expressed by taking the force of the quantifier 'a witch' to be that of 'just one witch', so that (1) is understood in the sense of

(10) Hob thinks that just one witch has blighted Bob's mare, and Nob wonders whether she killed Cob's sow.

By considering (10), we will make it more likely that we are considering a reading of (1) on which the quantifier 'a witch' has small scope. I contend that in (10), and hence in the relevant construal of (1), the pronoun 'she' must be an E-type pronoun.

My evidence is the apparent deviance of the sentence

(11) *Hob thinks that just one witch has blighted Bob's mare, and Nob is certain that she did not blight Bob's mare.

The explanation of (11)'s apparent deviance would seem to be that the small scope reading of the quantifier forces us to interpret 'she' as an E-type pronoun rather than as a bound variable, thus making 'she' go proxy for the description 'the witch who blighted Bob's mare'. So we obtain the result:

(12) Hob thinks that just one witch has blighted Bob's mare, and Nob is certain that the witch who blighted Bob's mare did not blight Bob's mare.

Thus unless we are prepared to assume that (11) ascribes a contradictory belief to Nob, we are unable to interpret 'she' in (11) at all. And so (11) appears deviant.

This explanation of (11)'s apparent deviance assumes that the small-scope reading of the quantifier in cases like (11) forces the pronoun in question to be interpreted as an E-type pronoun. Thus the explanation implies that if in Geach's sentence (1) the quantifier 'a witch' is given small scope, then (1) must mean (9).

Geach himself considers the suggestion that his sentence (1) might mean the same as (9). But he quickly dismisses this idea on the grounds that

> our reporter might be justified in asserting [(1)] if he had heard Hob say 'The witch has blighted Bob's mare' and heard Nob say 'Maybe the witch killed Cob's sow', even if Hob had not thought or said anything about Cob's sow nor Nob about Bob's mare. Of course our reporter would somehow have to know that when they used the words 'the witch' Hob and Nob *meant to refer to the same person*. (Geach 1967, p. 630)

If Geach is right, there is yet another way of construing (1) on which the pronoun 'she' is not bound by a quantifier that ranges over existing objects. But it is far from clear that Geach in fact is right.

Suppose Hob says 'The witch who burned Rob's barn has blighted Bob's mare', and Nob says 'I am certain that the witch who burned Rob's barn did not blight Bob's mare'. Suppose also that Hob and Nob have no actual person in mind when they say these things. It nevertheless seems true that they "meant to refer to the same witch" in the relevant sense, since both intended to refer to the witch who burned Rob's barn.[6] By Geach's reasoning, these circumstances would justify the assertion that

(13) Hob thinks a witch has blighted Bob's mare, and Nob is certain that she did not blight Bob's mare.

But would (13) really be justified in these circumstances? On the one hand, if the quantifier 'a witch' is understood to have large scope in (13), then it surely seems that (13) would *not* be justified. For then (13) would imply that Hob and Nob are thinking of a certain actual witch, and this would not be true in the imagined circumstances. On the other hand, if 'a witch' is understood to have small scope in (13), then as we've seen, (13) would mean the same as the apparently deviant (11), and so would mean (12). But clearly (12) would not be true in the imagined circumstances, and so (13) would not be true either.

There is thus some reason to doubt that any construal of (13) would be justified in the circumstances we imagined. But if this is so, then no construal of (1) would be justified in the circumstances Geach imagines

either. So it is doubtful that Geach's further construal of (1) is a proper one. Certainly, more evidence than Geach actually gives is required to support the view that such a construal exists in English.[7]

However, my main concern here is not to dispute the propriety of Geach's construal of (1). I am primarily interested in the implications of a second objection that Geach raises to the idea that the construal of (1) as (9) suffices to solve his problem. I think that this further objection is well taken, but we shall see that it can be answered without requiring any further ways of construing (1).

## 3. GEACH'S SECOND PROBLEM

Geach agrees with Russell that

(14) The witch who blighted Bob's mare killed Cob's sow

is analyzable as

(15) Just one witch blighted Bob's mare and she killed Cob's sow.

But he suggests that it is doubtful that (14) and (15) are mutually replaceable *salva veritate* in the context 'Nob wonders whether'. The result of applying this prefix to (14) is (9)'s right conjunct:

(16) Nob wonders whether the witch who blighted Bob's mare killed Cob's sow.

But, Geach says, (16) seems to be analyzable *not* as

(17) Nob wonders whether (the following is the case:) just one witch blighted Bob's mare and she killed Cob's sow,

but rather as

(18) Nob assumes that just one witch blighted Bob's mare, and Nob wonders whether she (that same witch) killed Cob's sow.

Geach then notes that if (18) is the correct analysis of (16), then this analysis "introduces intentional identity over again," since the occurrence of 'she' in (18) is problematic in just the way it was in Geach's original sentence (1) (Geach 1967, p. 631). If Geach is right, the construal of (1) as (9) will not suffice to solve his problem, for the same problem just arises over again in the analysis of (9).

I agree with Geach that (16) is not analyzable as (17).[8] My reason is simply that (16) implies, while (17) does not, that Nob assumes that just one witch blighted Bob's mare. However, a proponent of (9) would have no difficulty in both accepting this fact and rejecting Geach's proposal that (16) is analyzable as (18). For he could point out that on his kind of view, 'she' would be an E-type pronoun in (18) just as it is in his construal of (1). So on his view, (18) would mean

(19) Nob assumes that just one witch blighted Bob's mare, and Nob wonders whether the witch who blighted Bob's mare killed Cob's sow.

Now if (16) implies that Nob assumes that just one witch blighted Bob's mare, then (16) and (19) are logically equivalent. But of course (19) cannot be an *analysis* of (16), since (16) itself *occurs* in (19). So a proponent of (9) could with some justice contend that (18) also cannot be an analysis of (16), for on his view, (18) is just a shorthand way of writing (19). What has misled Geach, he could say, is the fact that (16) and (18) are logically equivalent. But this does not imply that (18) is an analysis of (16).

Since Geach gives no reason for believing that (18) is an analysis of (16), as opposed to merely being logically equivalent to it, our proponent of (9) would have won this skirmish. But I think that Geach may well be right after all. The issue depends on whether (18), or an example analogous to it, can be understood in such a way that the relevant pronoun cannot be taken as going proxy for a definite description.

Consider sentences of the following kind:

(20) Nob wishes he had caught the fish that got away.

I wish to restrict my attention to readings of (20) on which it does not imply that any fish actually did get away. (What "got away" might have been an old boot that Nob mistook for a fish.) How can we express the content of the wish that such a reading of (20) ascribes to Nob? Or in other words, what state of affairs would make this wish come true? It cannot be the state of affairs that

(21) Nob caught the fish that got away.

For in order to correspond to Nob's wish, (21) must mean, for some time $t$,

(22) Nob caught at $t$ the fish that got away from him at $t$.

But (22) expresses a contradictory state of affairs, and Nob's wish is perfectly consistent. To give a perspicuous rendering of the content of Nob's wish, it seems, we need to follow Geach's lead and analyze (20) as

(23) Nob assumes that just one fish got away, and Nob wishes it had been the case that he caught it.

In (23) the second occurrence of the pronoun 'it' clearly does not go proxy for a definite description that is recoverable from the occurrence's quantifier antecedent. For the relevant description would be 'the fish that got away', and again, if 'it' were going proxy for this description, then (23) would ascribe to Nob a contradictory wish, as it clearly does not.

So Geach was right. There are uses of pronouns in cases similar to his original example that cannot be explained by the hypothesis that the pronouns are going proxy for certain definite descriptions. No solution to Geach's problem is complete unless it provides an explanation of these uses.

## 4. MENTAL ANAPHORA

Nob could express the mental states ascribed to him in (20) and (23) by saying the following:

(24) Just one fish got away. Would that it had been the case that I caught it.

Since Nob would be expressing a consistent wish, the second occurrence of 'it' in (24) cannot be going proxy for the description 'the fish that got away'. Moreover, I think it is also clear that this occurrence of 'it' is not a variable bound by its antecedent quantifier 'just one fish'.

To think of 'it' as a bound variable in (24) is to think of (24) as having been formed by prefixing the quantifier 'just one fish' to a certain complex "predicate" which we might represent as

(25) ($x$) got away. Would that it had been the case that I caught ($x$).

But it is quite implausible to suppose that (24) has this structure. One

reason is that if it does, then it becomes impossible to explain the ungrammaticality of the following sequences:

(26) *No fish got away. Would that it had been the case that I caught it.

(27) *Every fish got away. Would that it had been the case that I caught it.

The quantifiers 'No fish' and 'Every fish' should, when prefixed to a complex predicate, yield grammatical results in the same cases in which prefixing the quantifier 'just one fish' yields a grammatical result. So if (24) were constructed in this manner, then since (24) is grammatical, (26) and (27) should be too. But they aren't.[9]

So (24) is not formed by prefixing the quantifier 'just one fish' to a complex predicate. Rather, (24) is a sequence of two separate sentences, the first of which is constructed by prefixing 'just one fish' to the simple predicate '($x$) got away'. Thus the second occurrence of 'it' in (24) is not a bound variable.

But if this occurrence of 'it' is neither a bound variable nor going proxy for a definite description, then how is the pronoun functioning in this context? The answer must be that, in this occurrence, 'it' is functioning as an E-type pronoun which, instead of going proxy for the description 'the fish that got away', has its referent fixed by this description. If so, then in this occurrence, 'it' is a rigid designator that refers at each possible world to the fish (if any) that got away from Nob in the actual world. Thus the state of affairs that would make Nob's wish come true is that of Nob's having caught *that fish*.

We have thus found cases in which E-type pronouns refer rigidly, and so behave in the way that, according to Evans, E-type pronouns always behave. Of course we saw earlier that E-type pronouns do not always work this way, and sometimes instead go proxy for definite descriptions. Thus our evidence shows that there are *two* species of E-type pronouns.

Now let us return to the problem of understanding the behavior of the pronoun in sentences like

(23) Nob assumes that just one fish got away, and Nob wishes it had been the case that he caught it.

(23) ascribes to Nob an assumption and a wish based on this assumption. The ascription is accomplished by using the words of (24), words that

Nob could use in our language to express this same wish. Thus in its second occurrence in (23), the pronoun 'it' must have the same meaning that it has in (24), and so must have the meaning of an E-type pronoun whose referent is fixed by description.

Of course like any singular term when used in the scope of a cognitive-attitude operator, the pronoun 'it' is not functioning in (23) in the way that a singular term would normally function. A speaker of (23) would not be using the pronoun in the normal way to refer to a certain object that the sentence is meant to say something about. Instead, the use of 'it' in (23) would represent a mental act of singular reference on the part of Nob. And because the pronoun has the meaning of an E-type pronoun in this context, its use represents Nob's mental act as one whose objective reference is fixed by Nob's assumption that just one fish got away, and fixed in a manner that is analogous to the way in which the reference of an E-type pronoun is fixed by the clause governed by its quantifier antecedent. In (23) we thus utilize a form of pronominal anaphora to represent what in effect must be a semantically analogous form of *mental* anaphora.

Before going on, we should summarize the partial solution to Geach's initial problem that follows from our discussion.[10] First, we may as before interpret 'she' as an E-type pronoun that goes proxy for the description 'the witch who blighted Bob's mare'. As we've seen, this yields (9) as a construal of (1). However, (9) is itself ambiguous in a certain way that we are now in a position to understand. Again, consider (9)'s right conjunct:

(16) Nob wonders whether the witch who blighted Bob's mare killed Cob's sow.

We have seen in effect that Geach was right to propose (18) as an analysis of (16):

(18) Nob assumes that just one witch blighted Bob's mare, and Nob wonders whether she (that same witch) killed Cob's sow.

If in (18) 'she' is taken to be an E-type pronoun whose reference is fixed by description, then (18) provides an analysis of one of (16)'s meanings.[11] And since (16) is (9)'s right conjunct, this also provides an analysis of one of (9)'s meanings.

However, (16) has a second meaning as well. For (16) can be true

even though Nob's wonder is not singular in form, and is not meant to be directed at any witch in particular. So understood, (16) would mean

(28) Nob assumes that just one witch blighted Bob's mare, and Nob wonders whether whoever is a witch that blighted Bob's mare killed Cob's sow.

This provides an analysis of a second meaning of (9). So in total, we now have two construals of (1) on which the quantifier 'a witch' is understood to have small scope.

But we also need to consider the possibility that 'she' in (1) is an E-type pronoun whose reference is fixed by description. I am not certain that this is a proper interpretation of (1), but I see no good reason to think otherwise. Understood this way, (1) would in part ascribe to Nob a mental act whose reference is fixed by the description 'the witch who blighted Bob's mare'. But such an act would have to be based on *Nob's* assumption that just one witch blighted Bob's mare. Therefore, the present interpretation of (1) entails (18). But then this construal of (1) just turns out to be equivalent to the reading provided by the first analysis of (9) given above (the analysis in terms of (18)). Thus, we still end up with a total of two small-scope construals of (1).

## 5. SOME IMPLICATIONS OF MENTAL ANAPHORA

Kripke (1972) introduced the notion of reference-fixing by description as providing one hypothesis concerning how proper names' referents might be determined in natural languages. Though Kripke denies that names' referents are often determined this way, I have argued elsewhere that on the contrary, proper names' referents are invariably fixed by description.[12] I would also argue that the referents of the various kinds of demonstratives are often fixed by description, and we have seen above that the referents of certain E-type pronouns are determined in this way. So if I am right, reference-fixing by description is a widespread and fundamental semantic mechanism. But the existence of mental anaphora shows that the mechanism is not confined to the use of singular terms in language, for it shows that an analogous phenomenon occurs at the level of *thought* as well. It shows that our thoughts are frequently directed referentially towards objects in the world on the basis of descriptive assumptions. So it is beginning to look as if reference-fixing by description is a fundamental mechanism, not just of

language use, but of intentionality in general. This is one important implication of mental anaphora.

Proper names, demonstratives, indexical pronouns, and E-type pronouns whose referents are fixed by description – in general, *all* singular terms except for definite descriptions – are terms whose normal primary function is to introduce a referent into what is said by the sentences containing the terms. What is said by such a sentence, or what proposition it expresses, is therefore functionally determined by which object is the term's referent. I call terms of this sort 'genuine terms'.[13] When a term is used as a genuine term in a sentence, but the term has no referent, it follows that the sentence expresses no proposition at all. Now the existence of mental anaphora shows that there are mental acts that are semantically analogous to the use of a genuine term. From this the further important consequence follows that it is possible to think without thinking of a proposition.

Consider again our earlier example

(23) Nob assumes that just one fish got away, and Nob wishes it had been the case that he caught it.

Suppose Nob is right that just one fish got away, at time $t$, say. Let us call this fish 'Bubbles'. Then it is easy to specify the proposition that Nob wishes had been the case. It is a proposition that is true at a possible world $w$ just in case in $w$, Nob catches Bubbles at $t$. But suppose Nob is wrong. Perhaps more than one fish got away, or perhaps what Nob thought was a fish that got away was really just an underwater branch. Then it seems quite impossible to specify the proposition that Nob wishes had been the case. If there were such a proposition, then surely it would be expressed by the words 'he caught it' in (23). But since the pronoun 'it' would have no referent in this context, the words 'he caught it' would express no proposition at all in (23).

Yet we may still suppose that (23) is true, even when the assumption it ascribes to Nob is false. And in these circumstances, (23) would truly ascribe to Nob a perfectly good wish, the same wish we would ascribe to him by saying

(20) Nob wishes he had caught the fish that got away.

Thus it is possible to wish, without there being a proposition that one is wishing true. And since there are forms of mental anaphora analogous to that ascribed by (23) involving every type of cognitive attitude, it is

possible to be in practically any cognitive attitude without being related by that attitude to a proposition.[14] Thus the widely held view that the cognitive attitude verbs express mental relations that hold between persons and propositions, is false. This is a second important implication of mental anaphora.

If the cognitive attitude verbs do not express mental relations between persons and propositions, then we are faced with the task of providing an alternative account of the meaning and logical form of cognitive attitude ascriptions. I cannot do justice to this difficult problem here, but our discussion of mental anaphora does suggest some points that are relevant to further inquiry.

In my earlier description of mental anaphora, I depended on an important idea that is due to Wilfrid Sellars. This is the idea that when we use a cognitive attitude verb to ascribe a mental state or act, we are also classifying that mental state or act in semantic terms.[15] In the case of belief, for instance, we use sentences of the form '*x* believes that *p*' to ascribe a propensity to engage in thoughts that are semantically analogous to uses of the sentence *p* in our language. But the important point suggested by our discussion of mental anaphora is that *the analogy can be based on semantic features of the sentence other than the proposition it expresses*. In particular, the analogy can be based instead on those semantic features of the relevant sentence that *determine* which proposition it expresses.

In the case of sentences that contain token-reflexive elements, the proposition that the sentence expresses is determined by the sentence's linguistic meaning together with certain features of the context of utterance. For instance, consider cases involving E-type pronouns such as

(29) Just one witch blighted Bob's mare. Maybe she killed Cob's sow.

Given that in this case the pronoun 'she' is being used with the meaning of a rigid E-type pronoun, then which proposition (if any) is expressed by the sentence 'she killed Cob's sow' is determined in part by which object (if any) is the referent of this use of 'she'. And since 'she' is an E-type pronoun in this case, its referent is in turn determined by a certain feature of the context of utterance, namely, by the description recoverable from the clause containing the pronoun's quantifier antecedent. Thus which proposition is expressed in such a case by the

sentence 'she killed Cob's sow' is in part determined by facts about the sentence's linguistic meaning, including the fact that its subject 'she' has the meaning of a rigid E-type pronoun, and in part by a feature of the context of utterance, namely, the pronoun's descriptive antecedent.

Of course as we've seen, the fact that a sentence has such semantic features as these, features that determine which proposition (if any) the sentence expresses, is no guarantee that the sentence really does express a proposition. In the present case, assuming that there are no witches, the sentence 'she killed Cob's sow' would in fact express no proposition, since in this context 'she' would be a genuine term that has no referent. Consequently, when we use a sentence with such semantic features to ascribe a mental state or act, as in

(30) Nob assumes that just one witch blighted Bob's mare, and Nob wonders whether she killed Cob's sow,

we are classifying the mental state or act (Nob's wondering) in terms of semantic features that *determine* which proposition (if any) the agent is thinking of; but the possession of these semantic features by a mental state or act does not *guarantee* that the agent is in fact thinking of a proposition. Just as one may use a sentence with a perfectly determinate linguistic meaning even though the sentence as so used expresses no proposition, one may also engage in perfectly determinate acts of thought without thinking of a proposition.

Our discussion of mental anaphora, and the account it suggests of the meaning of cognitive attitude contexts, may help to shed some light on the behavior of proper names in such contexts. Consider the following pair of sentences:

(31) Al believes that Hesperus is a planet.
(32) Al believes that Phosphorus is a planet.

Given that Hesperus' and 'Phosphorus' are coreferential genuine terms, the sentences 'Hesperus is a planet' and 'Phosphorus is a planet' must express the same proposition. But this fact seems difficult to reconcile with the fact that (31) may be true while (32) is false. For if (31) says truly that Al believes a certain proposition, and (32) just says that Al believes this same proposition, then (32) must be true also. This is sometimes thought to be a difficulty for the idea that names are genuine terms. But in my view the source of the difficulty lies instead in the assumption that 'believes that' expresses a relation between persons and propositions, an assumption we have just seen is false.

A given use of the sentence (31) ascribes a propensity to engage in thoughts that are semantically analogous to the sentence 'Hesperus is a planet' as it is meant in this use. But again, the analogy can rest on those semantic features of the sentence that determine which proposition the sentence expresses, rather than on the proposition expressed itself. Suppose that the referent of 'Hesperus' as it is used in (31) is fixed by a certain description, 'The *E*' say, while the referent of 'Phosphorus' as it is used in (32) is fixed by a different but coreferential description, 'The *M*'. Then (31) and (32) might be used to ascribe beliefs that involve propensities to engage in mental acts of reference that are analogously based on these same descriptions. Thus (31) and (32) might mean, respectively,

(33) Al assumes that just one thing is *E*, and Al believes that it is a planet; and

(34) Al assumes that just one thing is *M*, and Al believes that it is a planet.

There is no difficulty in supposing that (33) and (34) could have different truth values. So the hypothesis that (31) and (32) mean the same as (33) and (34) would explain how (31) and (32) could themselves have different truth values, even though the sentences 'Hesperus is a planet' and 'Phosphorus is a planet' express the same proposition.

I believe that the concept of mental anaphora might also prove useful in explaining the meaning of *de re* cognitive attitude ascriptions, but I will have to leave this topic to another occasion.[16]

## NOTES

[1] This paper is a slightly revised version of a paper presented to the Third Finnish-Soviet Logic Symposium (Helsinki, May 23–27, 1983). Research on the paper was supported by a grant from the American Council of Learned Societies under a program funded by the National Endowment for the Humanities. The ideas expressed here are based on some earlier unpublished work of mine, written in 1974. I am grateful to Hector Castañeda for comments on this work, and to Marvin Belzer, Patrick Francken, Jaakko Hintikka, Lawrence Lombard, Lawrence Powers, and Esa Saarinen for later useful discussions.

[2] A similar point applies to the construal of (1) as

(1′) As regards somebody, Hob thinks that she is a witch and has blighted Bob's mare, and Nob wonders whether she killed Cob's sow.

For (1′) seems to imply that Hob and Nob have a single real person in mind whom they both believe to be a witch, while (1) can be construed so as not to have this implication.

[3] I argued for the existence of such terms in the unpublished work mentioned in note 1.
[4] Evans's argument is that "the sentence which results when the description takes the place of the E-type pronoun (the 'prolix sentence') is often ambiguous in a way in which the original sentence is not" (Evans 1977, p. 518). But in the examples Evans gives, it is not obvious that the original sentences in question are in fact unambiguous. In one case, Evans says that the sentence

> A man murdered Smith, but John does not believe that he murdered Smith

unambiguously attributes to John a noncontradictory belief of the murderer that he is not a murderer, while

> A man murdered Smith, but John does not believe that the man who murdered Smith murdered Smith

is ambiguous, with one reading attributing to John a contradictory belief. But this argument is inconclusive. The impression that the original sentence is unambiguous may derive solely from the unlikelihood of anyone's using the sentence with the interpretation on which it attributes a contradictory belief to John. That this is what is going on in Evans's case is suggested by the fact that in other analogous cases like (7), the original sentence clearly *is* ambiguous.
[5] Here and below, I will ignore the interpretations of (9) and other sentences on which the relevant definite descriptions have largest scope. Thus none of the interpretations I consider imply the existence of objects satisfying the descriptions in question.
[6] To be relevant, of course, the sense cannot imply that there exists a witch to whom both meant to refer.
[7] Among those who think that Geach's construal is proper are Castañeda (1974), Saarinen (1978) and Pendlebury (1982).
[8] Here I depart significantly from the view of Dennett (1968).
[9] Evans (1977) uses this kind of argument to a similar purpose, p. 494. I gave an argument similar to the one given here in the unpublished work mentioned in note 1.
[10] The solution is complete only if Geach's further construal of (1) does not exist in English. But I do not wish to claim here that this construal does not exist. I only wish to claim that its existence is doubtful and unproven. So *for all we know*, the solution proposed here may be complete.
[11]Strictly, I have only shown that there is such a reading of (18), not that (16) has this reading as one of its meanings. However, I did show that (20) has an analysis, namely (23), whose meaning is analogous to this reading of (18), and it would be quite implausible to suppose that (20) has such a meaning while (16) does not.
[12] See McKinsey (1978a, 1978b and 1984).
[13] See McKinsey (1984). The concept of a genuine term was of course first introduced by Russell. In various places he called such terms 'logically proper names', 'genuine names', and 'mere names'. (See for instance Russell 1957, p. 218.) But since many genuine terms are not names at all (demonstrative pronouns, for example), Russell's terminology was somewhat infelicitous.
[14] An exception would be knowledge, since knowledge cannot be based on a false assumption.
[15] See for instance Sellars (1969). For a good explanation and discussion of Sellars's idea,

see Binkley (1973), and for a defense of Sellars's approach to the cognitive attitudes, see McKinsey (1983).

[16] Pollock (1980) has used a notion very like that of mental anaphora to give a compelling account of the *de re* attitudes. My own approach, while similar to Pollock's, would differ in detail.

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