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ON SO-CALLED 'SLOPPY IDENTITY'

I. THE PROBLEM

How is a grammar to account for the ambiguities found in the following sentences?

(1) Bill loves his wife, and so does Harry.

Possible interpretations: Bill loves his wife, and Harry loves (a) Harry's wife, (b) Bill's wife.[1]

(2) John thinks he is smart, and so does Bill.

Possible interpretations: John thinks he is smart, and Bill thinks (a) Bill is smart, (b) John is smart.

(3) Only Sam loves his wife.

Possible interpretations: (a) Sam is the only person such that that person loves his own wife. (b) Sam is the only person such that he loves Sam's wife.

(4) It was Spiro who voted for himself.

Possible interpretations: (a) Spiro is the person who voted for himself. (b) Spiro is the person who voted for Spiro.

Let us – for lack of any better names – call the (a) readings the 'non-referential' readings and the (b) readings the 'referential' readings.

II. PROPOSED SOLUTIONS AND SOME OF THEIR SHORTCOMINGS

II.1. *Ross*

In generative grammar, the normal way of treating constructions like

(5) Harry smokes pot, and John does, too.

is to derive them by a transformation from an underlying structure like

Synthese **26** (1973) 81–112.

(6) Harry smokes pot, and John smokes pot, too.

where the second occurrence of *smokes pot* is turned into *does* under identity with the first occurrence. Ross (1968, 1969) notes the problem with deriving the non-referential readings of sentences like

(7) John scratched his arm and Mary did so, too.

if the condition for such a pronominalization is morpheme-for-morpheme identity of VPs, and proposes the following definition of grammatically relevant identity:

(8) Constituents are identical if they have the same constituent structure and if they are identical morpheme-for-morpheme ('strict identity'), or if they differ only as to pronouns, where the pronouns in each of the identical constituents are commanded by antecedents in the non-identical portions of the P-marker ('sloppy identity').

The shortcomings of this theory are clear:

(a) As Ross himself notes (1969, 262), the theory predicts too many ambiguities. Consider

(9) John told Bill that he was smart, and Sam told Harry.

According to (8), the following reading of (9) would be possible:

(10) John told Bill that John was smart, and Sam told Harry that Harry was smart.

(10) however, is not a reading of (9).

(b) Intuitively, it is felt that the reason why the non-referential readings of sentences such as (1–2) and (7) are possible is that the same thing is said about the individuals talked about, e.g. in (1) that they love their wives. This intuition is not captured under Ross' approach.

(c) The ambiguities of sentences such as (3)–(4) cannot be explained by conditions for deletion of constituents, since there are no deleted constituents in these sentences.

II.2. *McCawley*

In McCawley (1967), cases like (1) are mentioned and the following proposal is made:

> The only way I know of stating this transformation [i.e. VP deletion Ö.D.] is to say that the deletion may take place only in a structure whose semantic representation is of the form $f(x_1) \wedge f(x_2)$. *John loves his wife* and *John voted for himself* can be interpreted as a property of x_1 (the index of *John*) in two ways. Let g(x) mean 'x loves x's' wife and let h(x) mean 'x loves x_1's wife'. Then the meaning of *John loves his wife and I love my wife too* can be represented as $g(x_1) \wedge g(x_2)$, where x_1 is the index of *I*, and the meaning of *John loves his wife and I love her too* can be represented as $h(x_1) \wedge h(x_2)$.

This solution seems to have some advantages compared to that of Ross. We do not need two sorts of identity, and we seem to capture the intuition mentioned above that the reason why the non-referential readings of sentences like (1) are possible is that 'the same thing' is predicated of the two individuals talked about in the sentence. Unfortunately, however, the solution does not work, for the following reason. McCawley's hypothesis implies that a sentence such as *John loves his wife* is ambiguous between two readings, one having a constant (x_1) and one a variable (x) instead of *his* in the underlying structure. This ambiguity is somewhat suspect already because of the absence of independent motivations for it, and also because it seems to presuppose that some personal pronouns are transformationally derived from full noun phrases[2], but more serious is the fact that the ambiguity can be found also in sentences the semantic representations of which cannot reasonably be supposed to contain constants, such as the following example, adapted from Schiebe (1971):

(11) Whenever someone thinks he is a failure, his colleagues probably do so, too.

Schiebe also presents another argument against McCawley's theory, in my opinion a conclusive one. Consider the following sentence:

(12) John realizes that he is a fool, but Bill does not, even though his wife does.

One of the readings of (12) is the following:

(13) John realizes that he is a fool, but Bill does not realize that

he – Bill – is a fool, even though his wife realizes that he – Bill – is a fool.

According to McCawley, what would be predicated of John and Bill is the propositional function 'x realizes that x is a fool'. However, this is not what is predicated of Bill's wife in (23), and it is thus impossible that both deletions have taken place under strict identity, as McCawley's theory would imply, since the VP of the clause *Bill does not realize that he is a fool* would then be identical to two non-identical VPs.

McCawley's solution would cover cases like (1-2). He also treats sentences like (3), but, strangely enough, does not try to relate them to the former ones. Thus, in McCawley (1970) and several other places, he provides the underlying structures (15a–b) for the sentences (14a–b), respectively:

(14)(a) Only Lyndon pities himself
(b) Only Lyndon pities Lyndon

(15)(a) Only_x (Lyndon, x pities x)
(b) Only_x (Lyndon, x pities Lyndon)

McCawley regards it as an advantage of his theory that it explains why the reflexivization rule – which gives rise to the reflexive pronoun *himself* – cannot operate on the structure (15b). His explanation for this is as follows: The transformation '*only*-lowering' combines *only* and the first occurrence of *Lyndon* in (15b) into a single NP and puts it in place of the x. Reflexivization can occur neither before nor after the *only*-lowering, since before it the two occurrences of *Lyndon* are not in the same clause and after it the first of them is contained in a larger NP (only *Lyndon*).

This would imply that each of the sentences (14a–b) is unambiguous. However, most people seem to find (14a) ambiguous between the two readings represented by (15a) and (15b) – a fact which contradicts McCawley's theory.[3, 3a]

II.3. *Keenan*

The solution presented in Keenan (forthcoming) shares some features with that of McCawley, in particular the derivation of pronouns from underlying variables of the predicate calculus type. (17a-b) are the under-

lying representations proposed by Keenan for the non-referential and referential readings of (16), respectively:

(16) John was surprised that he was drunk and so was Fred.[4]

(17)(a) (John, x)(surprise (x, drunk (x)))&(Fred, y)(surprise (y, drunk (y)))

(b) (John, x)(Fred, y)(surprise (x, drunk (x))& surprise (y, drunk (y)))

(It should be noted that Keenan treats all noun phrases as variable binding 'quantifiers', which gives him underlying representations fairly similar to those of McCawley, quoted in note 2.) Keenan formulates two different VP-deletion transformations which would yield the surface structure of (16) from the two underlying structures. The first one, which operates on (17a), deletes – roughly speaking – the second sentence in a pair of sentences which are identical or alphabetic variants[5], the second deletes VPs under strict identity.

As is shown by (17b), Keenan regards (16) under the referential reading as one complex predication about two individuals rather than as two separate sentences joined by *and*. The reason seems to be that if the embedded clauses in the first two predications are to be identical, the variable x must be bound by the noun phrase *John* in both cases. Therefore, *John* must be in commanding position with regard to the last variable. This is the reason why (Fred, y) follows directly on (John, x) in (17b). This solution seems to me rather counterintuitive, and leads to difficulties in more complex cases where the two sentences are separated from each other in the text or, even, pronounced by different speakers in a conversation, e.g.

(18) John was surprised that he was drunk and, if I am not mistaken and Peter told the truth, so was Fred.

(19) A: John was surprised that he was drunk. B: So was Fred.

This seems hard to reconcile with analyses such as (17b) where the clause *so was Fred* does not correspond to any constituent in the underlying structure.

II.4. *Schiebe*

The solution proposed in Schiebe (forthcoming) also makes use of underlying representations containing variables. However, on the basis of

examples like (11)–(12) above he draws the conclusion that one cannot, as McCawley tries to do, account for ambiguities like the ones found in (1)–(2) without postulating that VP and sentence deletion can in some cases take place under 'non-strict identity' ('indirekte Identität'). He also relates the problem of 'non-strict identity' to the description of topic-comment structure, but space does not allow us to go into his discussion here.

II.5. *General Inadequacies of Deletion Approaches*

All the proposals referred to above presuppose the existence of VP and S deletion as transformational processes, and all the purported explanations of the ambiguities of (1)–(2) (except, possibly, for McCawley's) crucially depend on there being two identical or almost identical sentences or verb phrases in the underlying structure, the second of which is deleted or substituted by a pronoun-like expression. However, similar ambiguities can be found in sentences like the following, where the supposition of such transformations is, in my opinion at least, highly improbable:

(20) John thinks he is smart, and Bill suffers from the same delusion.[6]

(21) John thinks he is smart, and the same is true of Bill.

(22) John loves his wife, and the same holds true of Bill.

(23) John loves his wife. In this respect he differs from Bill.

(24) John kissed his wife. Bill followed his example.

Already the existence of cases like (3)–(4) shows us that the problem goes beyond what can be explained by deletion and substitution rules. Some further examples of constructions where ambiguities parallel to those of (3)–(4) are found are the following:

(25) Unlike most people on his block, Bill loves his children.

(26) In contradistinction to Bill, I never speak to my wife.

(27) In love for his wife Bill surpasses most people.

(28) The fact that Bill never speaks to his wife makes him a unique case among the people I know.

However, the problem goes still further. Consider sentences of the following type:

(29) John lives in New York, and Bill lives in the United States, too.

i.e. constructions of the form *f(a), and g(b), too,* where *g* is unstressed. There are interesting constraints on which sentences can be joined in this way (see e.g. Green, 1968, and Partee, 1970). For example, the following combination does not make sense:

(30) John writes pornographic novels, and Bill eats artichokes, too.

The rule which can be formulated seems to be the following:

(31) A sentence of the form *f(a), and g(b), too* can be used only if the statement 'It follows from the truth of *f(a)* that *g(a)* is true' holds.

In other words, only if it follows from John's living in New York that he lives in the United States, (29) is appropriate, In a similar way, (32) makes sense only given the assumption that Catholics are fanatic.

(32) John is a Catholic, and Bill is a fanatic, too.

It is also easily seen that the implication or consequence relation goes only in one direction. For instance, if we invert the order of the clauses of (29) we obtain the following nonsensical result:

(33) John lives in the United States, and Bill lives in New York, too.

Now consider sentences like the following:

(34) John loves Mary, and Bill loves his wife, too.

What is interesting about (34) is that there are two possible cases when it may be used: (a) if Mary is John's wife, (b) if she is Bill's wife (we disregard the possibility that *his* in (34) refers to someone else than Bill). Thus, 'it follows from *f(a)* that *g(a)*' can here be interpreted in two ways:

(35)(a) That John loves Mary implies that he loves John's wife.
(b) That John loves Mary implies that he loves his own wife.

I think that the conclusion that can be drawn is that an adequate grammar of English needs to use the notion of 'the same property', and that in a

sentence such as (34), the verb phrase *loves his wife* can be looked upon as attributing two different properties to the referent of the subject *Bill*. Another way of formulating the rule stated in (31) would be to say that if we join *too* to a sentence that presupposes that the property that the predicate of the sentence attributes to the subject holds also about someone or something else. It is not necessary that this presupposition has been expressed in the text, as it is in (29) or (34). Consider for example the following sentence:

(36) I've caught the flu, too.

(36) is possible as the first sentence in a conversation between two persons one of whom has already earlier caught the flu. Here, too, cases similar to (34) are possible. Cf.

(37) Peter has got a letter from his mother, too.

which is possible in two situations: (a) where someone else has got a letter from his own mother, (b) where someone else has got a letter from Peter's mother.

Sentences with *even* behave in a similar way. Cf.

(38) Even John voted for Spiro.

As pointed out in Horn (1969), a sentence like (38) presupposes[7] that someone other than John voted for Spiro. Consider now (39):

(39) Even John distrusts his wife.

(39), in the same way as (37), is appropriate in two different situations: (a) where the other people involved distrust their wives, (b) where they distrust John's wife.

We see that the ambiguities involved in e.g. (39) are significantly subtler than that found in e.g. (1), since at least prima facie there seems to be no difference in what is said about John in (39) in the both readings.

II.6. *Summing up the Problem*

Consider again sentence (1), repeated here.

(1) Bill loves his wife, and so does Harry.

All solutions presented so far have presupposed that the underlying struc-

ture of (1) contains two full VPs, the second of which is deleted. Since (1) is ambiguous, there are then, if we simplify things somewhat, two possibilities:

(a) The sloppy (non-strict) identity approach: The first clause of (1) is unambiguous, the second clause has two underlying structures, only one of which is strictly identical to the first clause. By loosening conditions on identity we allow deletion also in the second clause. We might represent the solution as follows:

Referential reading: A ← strict identity → A
Non-referential reading: A ← sloppy identity → B

(b) The strict identity approach: The first clause is also ambiguous and in both readings, the second clause is strictly identical to the first, i.e.

Referential reading: A ← strict identity → A
Non-referential reading: B ← strict identity → B

Above, arguments have been given against both of these solutions, the main argument being against the sloppy identity approach on one hand that it does not cover cases where a deletion approach is impossible and against the strict identity approach on the other that it does not explain cases which would under the sloppy identity approach look as follows:

A ← sloppy identity → B ← strict identity → B

In the quotation above, McCawley pointed out that a sentence such as

(40) John loves his wife

can be interpreted as a property of John in two ways. Examples like (34) above gives further support to this view. It seems, though, that we must reject McCawley's hypothesis that (40) has two underlying grammatical structures. Let us see if this apparent contradiction can be solved.

III. A DIGRESSION ON OPACITY

We shall now leave the main topic of this paper to discuss a problem which may help us to understand the problems we have discussed earlier, namely that of 'referential opacity', a notion connected with the work of, among others, Frege, Russell, and Quine, and treated within the frame-

work of generative grammar by e.g. Partee (1970) and Keenan (1970, forthcoming). As an example, consider the sentence (from Keenan, forthcoming):

(41) John was surprised that the man who won was drunk.

(41) has two readings, only one of which implies (43), given the truth of (42).

(42) Fred is the man who won.

(43) John was surprised that Fred was drunk.

(41) is an example of a so-called opaque context, a context where a substitution of a noun phrase for a coreferential noun phrase does not necessarily preserve the truth-value of the sentence. Keenan calls the reading of (41) that does not imply (43) 'the opaque reading' and the one that does 'the transparent reading' and says that in the opaque reading, 'the information contained in the way the drunk person is identified ("the man who won") is an essential part of John's surprise'. He proposes meaning representations for the transparent and opaque readings of (41) which are paraphraseable as (44)–(45), respectively:

(44) The man who won is such that John is such that the fact that the former won surprised the latter.

(45) John is such that the fact that the man who won is such that the fact that he won surprised him.

In other words, Keenan explains the transparency-opacity ambiguity by postulating that the NP in question can originate in different positions in the underlying structure (meaning representation). There is, however, an alternative way of approaching the problem of opacity, which I will now discuss. What I will say is largely a restatement of Stalnaker's discussion in Stalnaker (1970).

First, the notion of a 'proposition' must be clarified. In Stalnaker's conception, propositions and sentences are kept clearly apart. A proposition is something that can be the object of a speech act, such as a statement or a question. In other words, if I state something, what I state is a proposition. Propositions can also be the objects of attitudes, such as believing, doubting, etc. – 'propositional attitudes'.

No long afterthought is needed to see that one proposition can be expressed by different sentence (-type)s and that one sentence(-type) can express different propositions. For example, if John asks, 'Are you hungry?', and Bill answers, 'Yes, I am hungry', what John questions is identical to what Bill affirms, although they express it by different sentences. On the other hand, if John says, 'I am hungry', he has stated quite another proposition than Bill did by uttering the same sentence.

Propositions, according to Stalnaker, are 'abstract objects representing truth conditions'. He goes on:

> ...when a statement is made, two things go into determining whether it is true or false. First, what did the statement say: what proposition was asserted? Second, what is the world like; does what was said correspond to it? What, we may ask, must a proposition be in order that this simple account be correct? It must be a rule, or a function, taking us from the way the world is into a truth value. But since our ideas about how the world is change, and since we may wish to consider the statement relative to hypothetical situations, we want a function taking not just the actual state of the world, but various possible states of the world into truth values. Since there are two truth values, a proposition will be a way – any way – of dividing a set of possible states of the world into two parts: the ones that are ruled out by the truth of the proposition, and the ones that are not. (1970, 273)

It is convenient, then, to think about propositions in terms of sets of possible worlds – the set of possible worlds where the proposition is true and the set of worlds where it is false. Making the statement that *p* can then be said to be the act of committing oneself to the actual world's being one of the worlds where *p* is true.

The notion of proposition, as defined here, is clearly relevant for the grammar of natural languages such as English. For example, the rules for so-called 'sentence pronominalization' must be formulated in terms of identity of propositions. As noted above, most generative grammarians would derive the pronoun *it* in a sentence such as (46) as derived from a sentence by a transformational rule.

(46) He said that the world is flat, but she denied it.

Consider, however, a conversation like the following:

(47) A: I love you.
B: I doubt *it*.

Although B is clearly referring to what A said, the pronoun *it* cannot here

be derived under identity from a repetition of A's utterance since 'I doubt that I love you' is not what B meant. The identity is rather an identity of propositions.

With the help of the concept of proposition, we can approach a problem which is intimately connected with that of opacity – the distinction made in Donnellan (1966) between 'referential' and 'attributive' uses of descriptions.

According to Donnellan, "a speaker who uses a definite description attributively in an assertion states something about whoever and whatever is the so-and-so. A speaker who uses a definite description referentially in an assertion, on the other hand, uses the description to enable the audience to pick out whom or what he is talking about and states something about that person or thing." As an illustration, we can give the following modification of one of Donnellan's examples:

(48) The man who committed the robbery was left-handed.

Typical examples of the two uses would then be the following: Suppose that Jones has been accused of committing the robbery. His defensor might then argue as follows at the trial: 'It is clear from the way the robbery was done that the man who commited it is left-handed. Now, Jones is right-handed and thus cannot be guilty.' This would be an attributive use of the description 'the man who committed the robbery'. If, on the other hand, someone sitting in the courtroom sees Jones writing with his left hand and utters (48), assuming the guilt of Jones, then he would be using the description referentially.

Generally, a sentence containing a definite description, such as (48), can be associated not only with one proposition, but with two. Thus, (48) can be associated with the proposition that is true in the worlds where the man who committed the robbery in this world (the actual world), let us call him A, is insane. It is evident that these two sets of worlds are not the same.

It is easily seen that the attributive use of the description corresponds to the first case – where the identity of the person referred to depends on the possible world chosen – whereas the referential use corresponds to the second use – where it is the same guy all the time. In the second case, we can substitute any coreferential expression for the description and still

get a sentence which expresses the same proposition and thus has the same truth-value.

According to Donnellan (and Stalnaker seems to agree with him), "whether or not a definite description is used referentially or attributively is a function of the speaker's intention in a particular case. 'The murderer of Smith' may be used either way in the sentence 'The murderer of Smith is insane'. It does not appear plausible to account for this... as an ambiguity in the sentence. The grammatical structure of the sentence seems to me to be the same whether the description is used referentially or attributively: that is, it is not syntactically ambiguous. Nor does it seem at all attractive to suppose an ambiguity in the meaning of the words: it does not appear to be semantically ambiguous. (Perhaps we could say that the sentence is pragmatically ambiguous: the distinction between roles that the description plays is a function of the speaker's intentions.)"

Here, I would disagree with Donnellan. First, it seems that as far as speakers' intentions are concerned, there is rather a gradual transition than two clear types of uses[8]. Second, it seems that the distinction can be made independently of the speaker's intentions. Donnellan builds a large part of his argument on a discussion of the question what happens if the description fails to refer. He argues, among other things, that "using a description referentially, a speaker may say something true even though the description correctly applies to nothing." This, in his opinion, shows that the Strawsonian theory of referring expressions needs a revision. One such case would be if the person who uttered (48) referentially was mistaken about Jones's guilt. It would still be evident 'what he meant', i.e. what proposition he was aiming at, namely that Jones what left-handed, which might still be true.[9]

Consider, however, the following example. Suppose that John has seen Mary a few times together with a bald man, who he supposes to be her husband. In fact, however, she is married to another person, who is not bald at all. If John then says

(49) Mary's husband is bald.

to a person who understands what mistake has been made, it seems to me that this person can interpret what John said as a true or false statement regardless of John's intentions. The problem is that in order to know if John has said something true or false, we must know what proposition

he has expressed, and propositions can be defined only relative to a certain model of the universe. If a proposition about a certain individual is a way of dividing the set of worlds where the individual exists into two subsets, the identification of propositions will depend on how we construct our individuals. For example, if I confuse the two individuals D. H. Lawrence and T. E. Lawrence and utter the sentence

(50) T. E. Lawrence wrote *Lady Chatterley's lover*

I may be said to have made either a true, false, or truth-valueless statement accordingly as my listeners interpret me as having said something of (a) D. H. Lawrence, (b) T. E. Lawrence, (c) a fictitious individual having some of the properties of D. H. Lawrence and some of those of T. E. Lawrence. It is obvious that the sets of possible worlds where each of these three individuals exists and is, furthermore, the author of *Lady Chatterley's lover* are quite distinct.

Notice that whatever the status of the referential-attributive distinction, there seems to be no difference in truth conditions between the two 'readings'. Whenever one is true, the other is. This holds only for simple sentences, however. Consider again sentence (41), repeated here.

(41) John was surprised that the man who won was drunk.

It is not too difficult to see that the opaque-transparent distinction is very much the same as Donnellan's referential-attributive distinction. And in (41), we certainly have two readings with different truth-conditions. The relations between opacity and Donnellan's distinction have been noted in Partee (1970) and Stalnaker (1970). Partee suggests that "opaque contexts just make particularly significant an ambiguity which is actually present in a much broader range of cases".

In the case of the simple sentence, one might say that it does not really matter if we choose to regard the sentence as expressing one or the other proposition, since the truth-conditions do not vary. In the so-called 'opaque' contexts, the sentence does not have the function of an assertion, rather it so to speak names the proposition. For example, a sentence such as

(52) John believed that the world was flat.

expresses a relation between the individual John and the proposition that the world is flat. In such contexts, it is of primary importance to identify the proposition.

Let us in this connection remember Frege's theory about sentences and their reference and sense. According to Frege (1892), the reference of a sentence is a truth-value and the sense of a sentence is a proposition ('Gedanke'). However, in what he called 'oblique' contexts – which seems to be more or less the same as what is usually termed 'opaque' contexts – the reference of a sentence is a proposition.

Above, a proposal to account for opacity in terms of scope was mentioned. However, if we want a unified treatment of opacity and the referential-attributive distinction, such a solution is made more difficult. Furthermore, as Stalnaker (1970) notes, "modal and propositional attitude concepts may be involved, not only as parts of statements, but as comments on them and attitudes toward them." The content of a simple sentence 'may be doubted, affirmed, believed or lamented'. We can see the implications of this clearly if we consider cases of the following sort:

(53) The man who won was drunk. This astonished me.
(54) The man who won was drunk. This was what I could not believe.

Keenan's system would not assign two readings to the first sentence in the pairs (53)–(54). However, the second sentences are clearly ambiguous between an opaque and a transparent reading. The only way of getting out of this difficulty would seem to be to derive e.g. (53) in the transparent reading from a structure like (55):

(55) The man who won was drunk. The man who won was such that the fact that he was drunk astonished me.

and postulate that the pronoun *this* is inserted after the transformation that moves the noun phrase *the man who won* into the embedded clause according to Keenan's theory. This presupposes, however, that sentence pronominalization is a transformational process which takes place under identity of morphemes at some derived level of derivation – a theory to which (47) above would be a counterexample.

IV. TOWARDS A NEW THEORY

Let us now return to our main theme. Above, we talked about 'the same property' as being a crucial concept in the explanation of the ambiguities of (1)–(4). But what is a property? It seems that the discussion above of propositions offers us a possible approach to this problem. A proposition was said to be a way of dividing a set of worlds into two subsets, one where the proposition is true and one where it is false. Consider now a sentence such as

(56) John is bald.

This sentence can be said to express the proposition that John is bald, but it can also be said to express of John that he is bald or to predicate of John the property of being bald. Sentence (57) thus divides the possible worlds where John exists into two sets of worlds, the set of worlds where he is bald and the set of worlds where he is not bald. The property of being bald can – like the proposition – be thought of as a division into two parts of a set of possible worlds, but only relative to an individual, in this case relative to John. Relative to another individual, say Peter, the property of being bald would be associated with two other sets of worlds, namely those where Peter is bald and those where he is not bald. In other words, properties can be thought of as functions from individuals into propositions.[9a] That is, or course, what should be meant by 'propositional function', but in treatments that do not distinguish sentences and propositions, this term has often been used to designate sentential expressions containing free variables, e.g. *x is bald*, what *expresses* propositional functions.[10] For these, we will use the term 'open sentence'. Open sentences, then, express propositional functions or properties.

Most sentences can be regarded as predications, i.e. associations of some property with an individual (or a set of individuals). There is good reason for assuming that the topic and the comment of a sentence correspond to the elements of a predication thus understood, i.e. to an individual and its property (see Dahl, 1970, forthcoming). At least in English, the comment, which expresses the property, will mostly coincide with a surface verb phrase.

What now about the concept 'the same property'? What does it mean

to say that 'A has the same property as B'? Consider again sentence (1).

(1) Bill loves his wife, and so does Harry.

We have said earlier that in (1), under both interpretations, 'the same property' is predicated of Bill and Harry, but that the property may be either 'loving one's wife' or 'loving Bill's wife'. Looking closer at these properties, we see that 'loving one's wife' corresponds to the function which, relative to every individual x, chooses the worlds where x loves x's wife, whereas 'loving Bill's wife' takes out the worlds where x loves Bill's wife. Now, if we choose Bill as the individual we want to attribute the property to, we see that these two sets of worlds – where he loves his own wife and where he loves Bill's wife – coincide, since his own wife = = Bill's wife. In other words, the two functions have the same value if we choose Bill as argument.

This means that if we look at the sentence *Bill loves his wife* in isolation, it does not matter which of the two properties we consider that the verb phrase expresses – the information we get about Bill is the same. However, as soon as we look at the property *in abstracto* and begin to relate it to other individuals, we must choose one of the two possibilities. Thus, the question whether the VP in *Bill loves his wife* is ambiguous or not seems to get the answer: it all depends on the way you look at it. The parallels with the referential-attributive 'ambiguities' treated in Section III should be clear.

Only, *even*, *also*, *too*, and the cleft-sentence construction can all be regarded as operators or operations that join an expression referring to an individual and an expression designating a property, as does also ordinary predication, but which demand for their interpretation also that the property be related to other individuals. For example, *only* seems to have the basic function to relate an individual a (or a set of individuals M) referred to by a term to a property P, asserting that in the universe of discourse, no individual has P if not identical to a (or a member of M), in other words, that if we express P by an open sentence S, the only substitutions for which S is satisfiable are terms referring to a. The truth-conditions of e.g. (3)

(3) Only Sam loves his wife

will then crucially depend on what property loves his wife is interpreted as expressing.

The primary source of the ambiguities in (1)–(4) is the presence of the personal pronouns such as *his* in (1). We saw earlier that a theory which tries to assign two underlying structure counterparts to this pronoun meets with great difficulties. Let us consider how this pronoun should be treated.

The meaning of an expression is built up from the meaning of its parts. How does this apply to *his* in a verb phrase like *loves his wife*? We said that *loves his wife* expresses a property, which we described as a function which assigns a set of worlds to a given object. In the same way we can look at the meaning of *his* as a function, more specifically a function which has as its arguments the same individuals that the property was attributed to but assigns to them not worlds but objects – themselves. In other words, the meaning of *his* would be the identity function. It may seem that this way of expressing it is rather complicated and that it would be much simpler to use the notion of 'coreferentiality'. However, if we look at the identity function as just one of the possible functions that can play a role in the determining of reference, we can gain some generality. For example, consider the pronoun *each other*, as in

(57) The children like each other.

(57) attributes to the set referred to by *the children* the property that each member of the set has the property that he loves the other members of the set. Thus, the meaning of each other can be said to be a function that assigns to each member of a given set the subset consisting of the other members of that set.

Since the reference of *his* in *loves his wife* is a function of the individual that the property is attributed to, it follows that the reference is indeterminate as long as the property is not related to a definite person. It also follows that if we first relate the property to some individual a and then say that the same property holds of another individual b, there are two possible ways in which the pronoun *his* can be interpreted in relating the property to b. Either we can take the value for a of the function that determines the reference of *his* (we represent this as $f(a)$), or we can take the value of the function for b, i.e. $f(b)$. In the first case, we get the 'referential' reading, in the second case, the 'non-referential' reading.

In (1), the attribution of 'the same property' to two individuals is brought about with the help of the *so do*-construction. Rather than explaining the use of this construction by postulating a substitution transformation, I prefer to say that *so do* has the meaning 'has the same property' or 'performs the same action'[11], where 'the same property' or 'the same action' so to speak refers back to an earlier expression in the discourse. Using the same jargon as for the pronoun *his* talked about above, we could say that the meaning of *so do* is the identity function applied to properties. As (21)–(24) show, several different constructions may be used in an analogous way.

Let us return for a moment to the constructions with *only*. As we have said, a sentence with *only* relates a property to an individual, expressing the proposition that there is no individual except the one mentioned which has that property. There is a difference, though, between sentences with *only* and some other constructions which would seem to be logically equivalent (and are in fact so treated in e.g. Keenan, 1971 and Dahl, 1970). Cf. the following sentences:

(58) Only I love my wife.

(59) Only I love his wife.

(60) No one but me loves my wife.

(61) No one but me loves his wife.

(58) is ambiguous, the two readings being synonymous to the unambiguous sentences (60) and (61), respectively. (59), on the other hand, is not synonymous to (61), as one might possibly have expected. Notice that in (58)–(59), the verb agrees with *I* in number and person. In other words, *I* functions as the (surface) subject of these sentences. It seems reasonable to explain the form of the possessive pronoun in (58) by a rule that demands that such a pronoun must agree with the (surface) subject of the clause, since there would be no reason else to exclude (61) as a reading of (59). Let us say that in (58), the pronoun *my* is *bound* by its antecedent *I*. It seems now that the referential-non-referential ambiguities arise in the very contexts where we are dealing with 'bound' pronouns in this sense.

V. FURTHER EXAMPLES OF NON-REFERENTIAL PRONOUNS

We have already found parallels between the referential-non-referential ambiguities and the problem of opacity. We shall now see that there are other cases of 'non-referential' pronouns which are perhaps even still more closely connected with opacity. Consider a sentence such as

(62) The President of the U.S. has more power today than he had twenty-five years ago.

(62) is clearly ambiguous as to the reference of the pronoun *he* – it can refer to Richard Nixon or to the person who had the office of president twenty-five years ago. Under the first reading, the pronoun *he* is coreferential to its antecedent, under the second, it is rather 'cosignificant'. Descriptions such as *the President of the U.S.* refer to definite individuals only relative to a point in time. Other descriptions may also be relative to place, e.g. *the President*, or as in the following example, *the divorce laws*:

(63) The divorce laws are not as strict in our country as they are in Italy.

Generally, we can say that descriptions refer only relative to *points of reference* (Scott, 1970). The sense or intension of a description can then be looked at as a function from such points of reference to individuals (an 'individual concept'). The ambiguity in the pronouns in (62)–(63) can then be described as a possibility of 'referring back' to either the intension or the extension (reference) of the antecedent.

In an analogous way, sentences in a natural language express propositions only relative to points of reference. For example, a sentence such as *It is raining* expresses a proposition only if we supply a point in time and space. We can then talk about the 'intension' of a sentence as a function from points of reference to propositions (a 'propositional concept'). Cf. now the following sentence, taken from Lemmon (1971):

(64) It used to be true that the population of London was under 4 million, but this is not longer true today.

As Lemmon points out, the pronoun *this* here clearly refers not to a proposition (in his terminology, a 'statement'), nor to a sentence but to a propositional concept (in his terminology, a 'proposition'). Cf. the differ-

ent use of tenses in the following sentence, where *this* refers to a proposition (in our sense):

(65) My brother told me that the population of London was under 4 million last year, but this is not true.

In other words, a proposition is timelessly true or false, whereas a propositional concept can change truth-value. Lemmon says that cases like these illustrate "a deep-seated ambiguity in the notion of *saying the same thing*" and that "both statements [i.e. propositions, Ö.D.] and propositions [i.e. propositional concepts] can equally well be referred to by 'that'-clauses." We can see that there are clear parallels between the ambiguity Lemmon talks about and the ambiguities we have found in the notion of 'the same property'.

There are further parallels, and further ambiguities. Consider again sentence (9), repeated here.

(9) John told Bill that he was smart, and Sam told Harry.

To begin with, notice that (9) is synonymous to (66):

(66) John told Bill that he was smart, and Sam told Harry the same thing.

Both (9) and (66) are four ways ambiguous:

(67)(a) John told Bill that John was smart, and Sam told Harry that John was smart.

(b) John told Bill that John was smart, and Sam told Harry that Sam was smart.

(c) John told Bill that Bill was smart, and Sam told Harry that Bill was smart.

(d) John told Bill that Bill was smart, and Sam told Harry that Harry was smart.

In the non-referential readings of (9) and (66), the notion of 'saying the same thing' is relativized not only to time, as in Lemmon's example, but also to the person who said it and the person it was said to, due to the presence of the pronoun *he*. In other words, relative to the situations in which it was conveyed, 'the message' talked about in the two clauses of

(9) and (66) is identical. In the reading (10) above, this is not the case, and therefore (10) is not possible.

Sentence pronouns can be treated in the same way as the other pronouns we have been talking about: given a sentence pronoun p, p will denote either $f(a)$ or $f(b)$, where f is the intension function of the antecedent of p, and a and b are the reference points of the antecedent and p, respectively. That a sentence pronoun may have zero expression, as in (9), should not be a real problem for the theory.

Sentences containing terms the reference of which is relative to some point of reference can often be regarded as ambiguously expressing two or more propositional concepts, in the same way as expressions designating properties are ambiguous when they contain terms the reference of which is relative to individuals. Cf. the following:

(68) The President of the United States is a Republican. This was the case in 1955, too.

This is ambiguous between 'that the President of the United States that year was a Republican' and 'that the person who is now President was a Republican'.

The following sentence-pair illustrates the parallels between these ambiguities and the ones we have treated earlier:

(69)(a) In the U.S., opponents to the Government are treated harshly. This is also the case in the Soviet Union.

(b) The U.S. Government treats its opponents harshly. So does the Soviet Government.

Other examples of similar ambiguities are:

(70) In 1972, the President of the U.S. visited China for the first time.

(i.e. either (a) it is the first time that Nixon visits China or (b) it is the first time that an American President visits China).

(71) The President of the United States is still a Republican.

Attempts have been made (e.g. in Dahl, 1971) to represent ambiguities such as that found in the following sentence by postulating a difference in the position of the description 'the President of the U.S.' in the under-

lying structure, similarly to Keenan's proposals for opacity mentioned above:

(72) In 1955, the President of the U.S. was a Republican.

However, the existence of cases such as (71) throws doubt on such a solution.

In (62)–(63), we saw cases where 'identity of intension' rather than 'identity of reference' accounted for the use of a pronoun. Here, the intension was a function which took points of reference as its arguments. In the same way, we could talk of the intension of an expression such as *his wife* as a function taking the possible referents of *his* as arguments (we disregard time for the moment). One should then expect to find 'intensional' pronouns also in this case. In fact, there are such uses of pronouns, as in the following sentence taken from Karttunen (1969):

(73) The man who gave *his paycheck* to his wife was wiser than the man who gave *it* to his mistress.

However, as was pointed out by Partee (1970), such pronouns are not always possible; thus, the following sentence is not ambiguous as to the reference of *her*:

(74) John was kissing *his wife* and Bill was kissing *her* too.

The conditions are not quite clear: however, it seems that one important factor is the peculiar role of the pronoun *his* in (73); it is 'non-referential' in the sense that it has no full noun phrase as its antecedent but has the function of contributing to determining the reference of the noun phrase it is contained in.

In this connection, the following facts about Swedish may be of interest. The natural way of expressing what would be expressed by the 'non-referential' reading of (74), if it was possible, is (75):

(75) John was kissing *his wife* and Bill was kissing *his* too.

Consider now a sentence like

(76) John has his wallet in his left pocket and Bill has his in his right pocket.

In Swedish, the noun phrase *his wallet* can be translated in two ways:

either literally, *sin plånbok*, or by using the definite article instead of the possessive pronoun: *plånboken* 'the wallet'. In the latter case, we can get a non-referential personal pronoun, thus:

(77)(a) John har *sin plånbok* i vänster ficka och Bill har *sin* i höger ficka '... his wallet... his'

(b) John har plånboken i vänster fiicka och Bill har *den* i höger ficka '... the wallet... it'

The interesting feature about noun phrases such as *plånboken* as used in (77b) is that although they do not contain any possessive marker, their reference is still interpreted as relative to the person referred to by the subject of the sentence, and this relativity is reflected in the use of anaphora. Any adequate theory of the semantics of the definite article must account for these facts.

VI. THE PRONOUN IDENTITY CONDITION AND THE CASE OF RUSSIAN

Grinder and Postal (1971) vehemently argue for the thesis that what they call 'Identity-of-Sense Anaphora' are derived by syntactic deletion rules. One of their arguments involves sentences like (1). They point out that for many speakers of English, sentences like the following are unambiguous, having only a referential reading:

(78) Pete painted his house and so did his mother.

To explain this fact, they postulate a constraint called the Pronoun Identity Condition ('PROIC'), which says that in the relevant dialects, the deletion rule that would give the ungrammatical reading of (78) can only operate if the pronouns deleted are identical in (surface) form.

(79) Pete painted his house and his mother painted his house.

They argue that in a theory where 'Identity of Sense Anaphora', such as *so did* in (78), are present in the underlying structure, any solution for this problem must be 'ad hoc' and "must in principle fail to provide an explanation for the correlation of reading gaps with pronoun agreement

facts". However, Lakoff (1970) proposes that cases like (78) be handled by the postulating of 'transderivational constraints', i.e. by a rule to the effect that any reading of (78) is blocked in which there would be a phonological difference between the verb phrase of the first phrase and the full verb phrase that *would have been used* to express what *so did* expresses. To get a formulation which is more in accordance with the terminology used in this paper, we could express the constraint as follows: In certain dialects of English[12], *so do* can only be used to express that an individual *a* has the property *p* expressed by the antecedent *A* of *so do* if the sentence *a A*, where *a* is the subject and *A* is the predicate, is grammatical.

Thus, there are ways to handle (78) even in theories which do not derive *so do* by a transformation. Earlier in this paper, several facts have been pointed out that suggest that a transformational approach to 'Identity-of-Sense' or 'cosignificant' pronouns will prove to be as inadequate as the same approach to 'coreferential' pronouns. The constructions discussed by Grinder and Postal are only a few of the possible ways of 'referring back' to an earlier expression if one does not want to repeat it. There are many such cases that cannot plausibly be derived transformationally. Some such instances are exemplified by sentences (20)–(24) above. Below, I give some of Grinder and Postal's examples together with some parallel sentences where a transformational derivation seems rather far-fetched. The (a) sentences are from Grinder and Postal.

(80)(a) Max is looking for immortal zebras that can fly but there are no such zebras.
(b) Max is looking for immortal zebras that can fly but there are no zebras with those wonderful properties.
(c) Max is looking for immortal zebras that can fly but creatures of that peculiar kind do not exist.

(81)(a) Larry married a nurse who owned an iguana but Pete did not marry one.
(b) Larry married a nurse who owned an iguana but Pete did not marry any nurse possessing an animal of the kind mentioned.

In Dahl (1970), I treated some Russian sentences similar to (1)–(4), where the referential and non-referential readings are overtly differentiated. Cf. for example the following two sentences:

(82)(a) Ja ljublju svoju ženu, i Ivan tože 'I love my wife, and so does Ivan (i.e. Ivan loves his own wife)'

(b) Ja ljublju moju ženu, i Ivan tože 'I love my wife, and so does Ivan (i.e. Ivan loves my wife)'

In the first and second persons, there is a choice between the reflexive possessive *svoj* and the ordinary possessives *moj*, *tvoj* etc. In (82) and many other similar cases, *svoj* takes the non-referential reading and the non-reflexive pronouns the referential reading. In the third person, *svoj* is obligatory and has both readings. Similarly with sentences with *tol'ko* 'only':

(83)(a) Tol'ko ja ljublju svoju ženu 'Only I love my wife' (non-referential)

(b) Tol'ko ja ljublju moju ženu 'Only I love my wife' (referential)

The solution I proposed in Dahl (1970) really explained only the second case and furthermore, presupposed a rather specific analysis of the underlying structures of sentences with *only* and also that reflexivization worked in a certain, rather complicated way. Is there any other explanation for the facts?

Actually, it can easily be seen that (82a–b) are quite parallel to (78) above. The corresponding sentences with full VPs are as follows:

(84)(a) Ja ljublju svoju ženu, i Ivan tože ljubit svoju ženu. 'I love my wife, and Ivan loves his wife, too'

(b) Ja ljublju moju ženu, i Ivan tože ljubit moju ženu 'I love my wife and Ivan loves my wife, too'

In both cases, we have identity of pronouns between the two clauses. In the cases that would correspond to the readings that we do not get there is no such identity:

(85) Ja ljublju svoju ženu, i Ivan tože ljubit moju ženu 'I love my wife, and Ivan loves his wife, too'

Thus, it seems that whatever the explanation for the unambiguity of (78) is, a similar explanation would account for (82). (83) is a harder case, though, since it does not contain any VP pronoun.

It would of course be at least logically possible to extend the constraint

formulated above so as to cover also cases with *only*. In that case, one would expect to find similar facts for *only*-sentences in English, for example that the following sentence would be unacceptable for some speakers:

(86) Only Pete painted his house; his mother did not paint her house.

It seems, however, that we are rapidly approaching the point where it is impossible to obtain any clear judgments of grammaticality or acceptability.

One might think of other possible ways of explaining the facts about Russian. For example, sentences such as (82b) differ from the other cases we have been talking about in the respect that is it not at all clear that it makes sense to say that *ja* 'I' is the antecedent of *moju* 'my', since the latter is not a 'pronominalization' of the former in the way that e.g. *his* in (86) is a 'pronominalization' or 'stands for' the NP *Pete*. It might be, then, that a non-referential reading is not possible in (82b) because of this. It does not explain, however, why a referential reading is not possible in (82a).

It should also be noted that although, as I said, this is a place where judgments of grammaticality become extremely vague, (83a–b) are felt to be 'less unambiguous' than (82a–b) by native speakers. Possibly, this can be connected with the fact that (82a–b) are easier to explain by a principle similar to that used to account for (78).

VII. CONCLUSION

In the beginning of the paper, we scrutinized some earlier attempts to account for the ambiguities found in the sentences (1)–(4) within a generative grammar. It seems that the main shortcoming of these attempts is that they purport to explain the phenomena in question in *syntactic terms*, i.e. in terms of identity of constituents in more or less remote syntactic structures. The intention of this paper has been to show that the referential-non-referential ambiguities have to be resolved in *semantic terms*, i.e. in terms of the properties, propositions etc. expressed by the linguistic elements.

It has been argued in this paper that in certain cases, a verb phrase can

without being structurally ambiguous in any clear sense be regarded as expressing either of two different properties, properties being regarded as functions from individuals to propositions. In the same way, it has earlier been argued by e.g. Stalnaker (1970) that a fixed sentence in a fixed context can express two different propositions without being grammatically ambiguous. In simple sentences, these 'ambiguities' will not be very obvious, since they will never influence the truth value of a sentence in a given context. However, when the verb phrases or sentences in question occur as arguments of various operators or are 'referred back' to by various anaphoric devices, the choice between the different possible interpretations will in some cases be crucial.

If these hypotheses turn out to be correct, there will be some annoying consequences, in particular for the theory that sentences have a deepest underlying grammatical structure which is at the same time an unambiguous representation of their meaning. But do we really need such a level? It is, of course, desirable to have a notation in which we can represent the properties of propositions that are used in logical reasoning so as to be able to study relations such as 'logical consequence'. It is an empirical question, however, whether any such notation can be regarded as the underlying grammatical structure of sentences in English or any natural language. The demand we must put on the grammatical structure of a sentence is that it be possible to specify the rules that relate it to the semantic interpretation of the sentence. This does not imply that it must be semantically unambiguous. If we find that sentences can be semantically ambiguous without having more than one grammatical structure, this would be counterevidence to the theory that identifies semantic and underlying grammatical structure. If my arguments in this paper are correct, there is such evidence.

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NOTES

[1] We disregard the possibility that *his* in (1) may refer to someone else than Bill (similarly in the other examples).

[2] I am not quite certain whether this is the correct interpretation of McCawley's theory, since I do not quite see how the distinction between constants and variables fits with the underlying representations for sentences that he proposes in other parts of the same paper and elsewhere, where e.g. *The man kissed the woman* is analyzed as consisting of the 'proposition' x_1 *kissed* x_2 and the 'NP-descriptions' x_1 *is a man* and x_2 *is a woman.* Notice, in particular, that the pronominalized VP is not an underlying constituent in this theory.

[3] In a similar way, Keenan (1972 and forthcoming) asserts that the following sentences are unambiguous, having only a non-referential reading:

(i)(a) John shot himself and so did Fred
(b) John hurt himself and so did Fred

However, most people seem to find at least sentences like the following ambiguous:

(ii)(a) John voted for himself and so did Fred
(b) John admires himself and so does Fred

The reason why the referential reading is rather hard to get in (i)(b) might be that the expression *hurt oneself* is really an idiom. It seems that (iii) does not hold, although (iv) does.

(iii) John hurt himself ⇒ John hurt someone
(iv) John voted for himself ⇒ John voted for someone

(⇒ stands for 'entails'). The same might be true for (i)(a), but here the explanation is rather that we interpret *shoot oneself* as 'kill oneself', and empirically we know that people are usually not killed twice.

[3a] A further difficulty with McCawley's theory is the analysis of sentences such as the following:

(i) Lyndon pities only himself.

McCawley does not provide any semantic representation for (i), but for the somewhat more complicated (ii), he gives (iii).

(ii) Only Lyndon pities only himself.
(iii) Only_x (Lyndon, Only_y (x, Pity(x,y)))

According to McCawley, (ii) says that Lyndon is the only person who possesses the property of pitying only himself. Since (i) says that Lyndon has the property of pitying only himself, we should be able to derive the semantic representation of (i) from (iii) by deleting $Only_x$ and the occurrence of *Lyndon* and substituting *Lyndon* for all occurrences of x, which yields (iv):

(iv) Only_y (Lyndon, Pity (Lyndon, y))

This says that Lyndon is the only person who is pitied by Lyndon. Although this would have the same truth-conditions as (i), it is still not an adequate formalization of it, as is shown by the following sentence:

(v) Lyndon pities only himself, and that is true of Richard, too.

Evidently, (v) attributes to both Lyndon and Richard the property of pitying only oneself. However, (iv) does not talk about this property at all, it refers to the property of

being the only person who is pitied by Lyndon, which is something quite different. We might, however, revise McCawley's notation somewhat so as to obtain the following representation for (i), which would be more adequate although more complex:

(vi) Lyndon $\in \{x \mid \text{Only}_y(x, \text{Pity}(x, y)\}$ "Lyndon belongs to the set of all persons x such that the only person that x pities is x"

[4] The derivation of constructions of the type *so does NP, so is NP* by a simple transformation rule from structures of the form *NP* + *VP* entirely misses the fact that e.g. (i) is synonymous to (iii) rather than to (ii).

(i) John is drunk and so is Fred.
(ii) John is drunk and Fred is drunk.
(iii) John is drunk and Fred is drunk, too.

In fact, there seems to be a crucial difference between *so do* and *do so*. Cf.

(iv) John smokes pot and *Fred does so.
so does Fred.
(v) John does not smoke pot although his brother does so.
*although so does his brother.

Only *do so* can be regarded as a simple VP pronoun.

[5] alphabetic variants: expressions which can be derived from each other by putting in some variable-letter for all occurrences of another variable-letter.

[6] (20) is naturally interpreted with a non-referential reading, but it is not difficult to find parallel cases where the referential reading is preferred, e.g.

(i) Humphrey thought he would win, and his aides suffered from the same delusion.

[7] It is unclear if this is really a logical presupposition in the sense of e.g. Keenan (1971b), since there is no natural negation of (38) and it is thus hard to apply the 'negation test'. This question does not seem to have any bearing on the argument, anyway.

[8] In Partee (1970), David Kaplan is quoted as having made the following remark: "having a particular individual in mind (the 'referential' case) and knowing nothing about an individual other than some single descriptive phrase (the 'attributive' case) may just be two extremes on a continuum of 'vividness'. One may consider, for instance, the case of a detective tracking down a criminal and obtaining more and more clues, including perhaps fingerprints, voice recordings, photographs of varying clarity, etc. It is not at all clear at what point the detective, who may be described as 'looking for the man who did so-and-so', stops looking for 'whoever it is that did so-and-so' and starts looking for a particular individual." Also, it is not clear what is to be said about the case when the speaker *thinks* that he has a particular individual in mind although there is no such individual.

[9] There are at least two sources for confusion in Donnellan's argument. First, in a case like the one referred to, 'the speaker has said something true' only if we use that expression in a rather liberal way. What has happened is that there is a true proposition – that Jones is lefthanded – that the speaker is aiming at, but he cannot be said to have expressed it in a correct way, since 'the man who committed the robbery' does not denote Jones. Second, counter to Donnellan's explicit statement, the same kind of situation can obtain with what he would label as clearly attributive uses of descriptions. Take, for instance, the person finding 'poor Smith foully murdered' and exclaiming

'Smith's murderer is insane', making an inference from the brutal manner of the killing. Now, suppose the speaker is mistaken insofar that Smith is not really dead, although severely injured. If the conclusion that the person who committed the deed is insane is correct, the speaker may well be said to have made a true statement in the same way as in the preceding example. If this example is not convincing, one may instead consider the fact that a description which is used referentially may well be embedded in another description used attributively, as would be the case in the sentence

(i) The man who murdered the guy in the red hat is insane.

If the murdered person's hat was really yellow, it follows that the whole description *the man who murdered the guy in the red hat* does not correctly apply to anyone. Still, it may be used both referentially and attributively to express true statements.

What is correct in Donnellan's account is that in the referential cases, as opposed to the attributive ones, the same proposition is obtained even if we exchange coreferential descriptions.

[9a] Actually, this is an oversimplification. Rather, we should say that properties are functions from pairs of an individual and a point in time, to propositions, since, for instance, Peter may be bald at one time and have hair at another.

[10] I have myself indulged in this use, see Dahl (1970).

[11] Actually, 'has the same property, too' and 'performs the same action, too'. See note 4.

[12] I apologize for this sloppy use of the term 'dialect'.

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