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## ON THE NATURE OF ANAPHORIC RESTRICTIONS

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This paper focuses on the anaphoric options of indefinite noun phrases, as compared with those of definite noun phrases. It will be argued that both semantic and syntactic restrictions must be included in the grammar in order to explain the full range of data for these NPs, and that previous investigations have been inadequate because they have centered on either syntactic or semantic restrictions, while more or less ignoring other aspects (cf. for example, Jackendoff (1971), Lasnik (1976), or Reinhart (1976), among others).

It is well known that indefinite NPs and definite NPs behave differently with respect to their anaphoric options. Very likely, this difference in patterning is the reason that previous writers have tended to treat indefinites and definites separately. However, if these two types of NPs are considered together, that is, if they are compared in parallel contexts, it becomes evident that the distinction of definiteness and indefiniteness does not account for the differences in anaphoric options, and that the nature of anaphoric restrictions must be re-examined accordingly. The examples below illustrate this point.

- (1) a. \*He gave up his gun to the sheriff after  
       a cowboy shot up the town last night.  
    b. \*He gave up his gun to the sheriff after  
       Bill shot up the town last night.  
    c. After he shot up the town last night,  
       a cowboy gave up his gun to the sheriff.  
    d. After he shot up the town last night,  
       Bill gave up his gun to the sheriff.
- (2) a. \*That a cowboy was arrested last night  
       surprised him.  
    b. That Bill was arrested last night  
       surprised him.  
    c. \*That he was arrested last night angered  
       a cowboy.  
    d. That he was arrested last night angered  
       Bill.

- (3) a. \*Bill wants to hire a good typist.  
 Unfortunately, she prefers to dance  
 at the cabaret.
- b. Bill wants to hire Millie. Unfortunately,  
she prefers to dance at the cabaret.

Consider first the data in (1). In these examples, unlike those in (2) and (3), the indefinite NPs pattern the same as the definite NPs, in that the anaphoric options are the same. Notice also that in (1) the only difference between the starred examples and the coreferential ones appears to be syntactic in nature. Sentences (1a,b) show that for both definite and indefinite NPs, when the pronoun is in a main clause anaphoric relations are blocked. But when the pronoun is in a subordinate clause, anaphoric relations are allowed, as in (1c,d).

Syntactic data like these are easily accounted for by familiar syntactic restrictions on 'backward' anaphora. For example, these NPs and pronouns all pattern according to the syntactic restriction in Reinhart (1976), repeated below.

(4) General Coreference Restriction

Two NPs cannot be coreferential if one is in the syntactic domain of the other and is not a pronoun.

(The syntactic domain of a node A is said to be in the subtree dominated by the first branching node which dominates A.)<sup>1</sup>

In (1a,b), the full NP is in the syntactic domain of the pronoun (i.e. is 'c-commanded' by the pronoun), and coreference is blocked; in (1c,d), on the other hand, the pronoun is in the syntactic domain of the full NP, and coreference is allowed.

However, no syntactic restriction can account for the differences in (2) and (3), in which the indefinites and definites do not pattern in the same way. In the sentences of (2), there is no case in which one NP is in the domain of the other, and yet the indefinites are blocked, although the definites are allowed. Likewise in (3), the discourse level examples, there is no domain relationship between the two NPs. Nonetheless, an anaphoric reading of the indefinite in (3a) is decidedly strange. There is no way, then, that Reinhart's syntactic restriction can explain the different patterning of the indefinite NPs in examples like those

in (2) and (3).<sup>2</sup>

The reason seems to be that unlike the examples in (1), the differences here are semantic ones, not syntactic ones. In other words, in the indefinite/definite pairs in (2a,b) and (2c,d), the syntax is identical. The same is true in (3a,b). The difference is that the starred examples contain indefinites whereas the coreferential ones contain definites. This difference in patterning must therefore be the result of a difference in the semantic nature of the NPs.

Apparently, then, some kind of semantic restriction is required here. The main problem is that the restriction must be formulated so as to block the indefinites in (2) and (3), but not the one in (1c). It is not simply that indefinites are blocked unless the pronoun is in a subordinate clause. Compare the sentences in (3a) with the one in (5) below.

- (5) Bill wants to hire a good dancer. He wants to put her in the chorus line.

Unlike (3a), example (5) seems entirely natural on an anaphoric reading.

My argument is that the solution lies in making the correct distinction between the types of indefinites involved. In the past, some writers working with restrictions on indefinites, like Wasow (1972) or Reinhart (1976), have simply lumped all of these indefinites together into a single category, labeled "nondefinite." But this classification is too broad. The distinction needed here is between those indefinites which can receive only a specific interpretation, and those which may receive a nonspecific interpretation. Briefly, following Quine (1960), specifics can be defined as those which establish an identifiable referent (i.e. those in "transparent" contexts), and non-specifics as those which do not necessarily establish an identifiable referent (i.e. those in want type "opaque" contexts). This difference is illustrated below.

- (6) a. John wants to catch a fish.  
b. A mongoose devoured my pet rat.

In (6a), on the nonspecific reading John wants to catch just any old fish that happens along.<sup>3</sup>

In (6b), on the other hand, there is an identifiable referent, in the sense that there is a particular mongoose which devoured my pet rat.

With these classifications, we can distinguish the indefinite in (3a), a good typist, as non-specific: it appears in a want type context, and no identifiable referent is established.

Next, we can distinguish the indefinites in (2) as nonspecific also.<sup>4</sup> Certain writers, like Abbott (1976) and Fodor (1976), have argued that it is not just the much discussed verbs like want, expect, and the like, that induce opaque contexts. Abbott provides an especially convincing argument that with very few exceptions, nearly all complement taking verbs induce opacity. One of her examples is repeated in (7).

- (7) That Mary kissed a boy from Texas was assumed by Jack.

Again, no identifiable referent is established, and the NP a boy from Texas is nonspecific, in the sense outlined above. In a parallel manner, the indefinite NPs in the complement clauses in (2) can also be identified as nonspecific.

With these distinctions in mind, the next step is to formulate a semantic restriction to account for the semantic differences in (2) and (3). The restriction I want to propose is based on the concept of semantic contradiction, which can be informally stated as follows: Semantic Contradiction arises if an NP<sub>1</sub> is nonspecific, and its intended coreferent, NP<sub>2</sub>, is specific.<sup>5</sup> In short, they are semantically incompatible. The constraint itself can be formulated to reflect this generalization, as in (8) below.

- (8) Semantic Contradiction Constraint (SCC)  
An intended anaphor/antecedent relation is blocked if semantic contradiction is present.

This constraint accounts for the data in both (2) and (3). The definites are of course interpreted as specific NPs, opaque contexts or not. But the indefinites in (2a,c) are blocked because one NP is nonspecific--the one in the opaque complement clause--and the other is specific. Likewise in (3a), a good typist is nonspecific while she is a specific pronoun. Further, SCC also accounts for

the completely natural anaphoric interpretation in (5). In this case, both NPs are in opaque want contexts, both are nonspecific, and thus the anaphor is not blocked.

That leaves the indefinites in (1). In these sentences there are no opaque contexts, the indefinites are specific, and therefore semantic constraints like SCC are inapplicable. Yet (1a) is blocked anyway. However, notice that it is just these specific indefinites which pattern like definite NPs, obeying the same syntactic restrictions. Recall that, like the definite in (1b), the specific indefinite in (1a) is out by syntactic restrictions on backward anaphora. For example, both would be blocked by Reinhart's syntactic restriction, as discussed earlier.

Based on data like those above, then, my conclusions are that both semantic and syntactic constraints operate to restrict the anaphor/ antecedent interpretation. Syntactic constraints operate to restrict both definite and indefinite NPs, as in (1), and semantic constraints operate to further restrict the anaphoric options of indefinite NPs, as in (2), (3), and (5).

#### FOOTNOTES

1. See Reinhart (1976) for a detailed discussion of the 'c-command' relation.

2. Actually, Reinhart argues for a separate syntactic restriction for indefinites, and this restriction is intended to account for examples like those in (2). However, this restriction makes the wrong predictions for sentences like (1a), (1c), and (3a). In short, her argument does not take into account the differences found between transparent and opaque contexts.

3. The semantics of specific/nonspecific interpretations is of course much more complex than it is made to appear here. For example, because of space limitations I am ignoring the complexities of the much discussed ambiguity between specific/nonspecific interpretations in want type opaque contexts. See DeGarrico (1980b) for a detailed discussion of the forced nonspecific interpretation of anaphoric indefinites in opaque contexts.

4. Jackendoff (1971), working within a semantic framework, is one writer who does make these specific/nonspecific distinctions, and who attempts to formulate a coreference restriction accordingly. However, his restriction can account for semantic data like those in (3) only. It cannot explain semantic data like those in (2), nor can it account for syntactic data like those in (1).

5. For the sake of brevity, and in keeping with the necessarily limited scope of this paper, this definition of semantic contradiction is much abbreviated and inadequately formulated. For a detailed discussion of this concept, covering a much broader range of data, see DeCarrico (1980a).

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