

# On the Nature of Syntactic Structure: Implications for a theory of reference\*

Ann K. Farmer  
Natsuko Tsujimura  
University of Arizona

## 1. Introduction

One of the most interesting questions being addressed by linguists today has to do with "reference." Linguists have been interested in identifying the role structure plays in the coreference and disjoint reference possibilities of various types of noun phrases<1>. Intuitions about reference have been used as a diagnostic for determining the properties of syntactic and logical structure. For example, Saito and Hoji (1983) argue that the configuration in (1) below represents the Logical Form (LF) structure for Japanese sentences like those in (2):<2>

(1) X ...zibun/kare ...t ... <3>  
i i i

(Saito and Hoji (1983:249 examples (13)a&b and (25))

(2)a. Hanako ga zibun o kiratte iru koto ga daremo o  
nom self acc dislike fact nom everyone acc  
yuutu ni siteiru.  
depressed made

'The fact that Hanako dislikes him has depressed everyone.'

b. Hanako ga zibun o kiratte iru koto ga dare o yuutu ni  
nom self acc dislike fact nom who acc depressed  
site iru no?

'Who has the fact that Hanako dislikes him depressed?

c. Kare no hahaoya ga daremo o aisite iru (koto).  
he gen mother nom everyone acc loves fact

'His mother loves everyone.'

In (2)a&c and (2)b "X" is daremo and dare respectively. Daremo/dare is to be moved by the rule of "Quantifier Raising"<4>(QR), a rule which maps S-structure onto Logical Form structures yielding (1)<5>. Saito and Hoji (S&H) set out to show that the configuration depicted in (1) above is also to be found at the level of S-structure as well in Japanese. The X...trace relation is an instance of Move alpha, where X is some "scrambled" Noun Phrase and "t" is the trace which indicates where the NP was moved from. Such a configuration is

incompatible with a theory that does not assume that there are empty categories at the Phrase Marker level of representation<6>.

In sections 2 and 3 of this paper we will be reviewing and assessing the viability of a theory that utilizes (1) in its account of coreference and disjoint reference. In section 4 we will offer an account that is compatible with the assumption that there are no [ e ]'s at the Phrase Marker level of representation in Japanese.

## 2. The Saito and Hoji Account

What S&H attempt to show is that the "trace" "left behind" by either NP movement or QR may enter into a crucial relation with zibun/kare, a relation which yields a violation of the following principle<7>:

(S&H Principle (30))

- (3) A variable cannot be the antecedent of a pronoun or an anaphor that it does not c-command.

The "trace" is a variable in the "scrambled" cases. S&H focus on examples like those in (4) below.

(S&H (1983:250 example (15)b&c)<8>

- (4)a. ?Zi-roo o Hanako ga kare o kiratteiru koto gat yuutu ni  
           acc                  nom he acc dislike fact nom depressed  
           siteiru.  
           made

'Ji-ro , the fact that Hanako dislikes him has depressed.'

- b. \*? Zi-roo o Hanako ga zibun o kiratteiru koto gat yuutu ni  
   self  
           siteiru.

'Ji-ro , the fact that Hanako dislikes self has depressed.'

In both (4)a and (4)b Zi-roo has been moved from its base-generated position between koto ga and yuutu ni. S&H capture the oddity judgement (indicated by the \*) by way of Principle (30). That is, zibun and the "trace" of Zi-roo o will be standing in the forbidden relation. To yield this state of affairs S&H claim that zibun must have an A-position antecedent. Since Zi-roo o is in an A-bar position it does not qualify. The trace, however, is in an A-position. Therefore, in order to satisfy the requirement that zibun have an A-position antecedent it must be the case that the trace is the antecedent. But now Principle (30) is violated. Recall, (30) states that a variable cannot be the antecedent of a pronoun or anaphor that it does not c-command. In order to see clearly the c-command relation note the structure for (4)b below:

(5) [ Zi-roo o [ [ Hanako ga zibun o kiratteiru koto] ga [ t yuutu ni siteiru] ] ]

The trace is in the VP, therefore, it does not c-command zibun o.

S&H also invoke Principle (30) to account for oddity judgements associated with kare. For example, they want to account for why (6) is odd, but (7) is not odd.

(S&H (1983:248 example (11) and page 247 example (7)b)

(6) \*Kare no hahaoya ga daremo o aisiteiru (koto)  
he gen mother nom everyone acc loves fact

'His mother loves everyone.'

(7) John o kare no hahaoya ga aisiteiru (koto)  
acc he gen mother nom loves fact

'His mother loves John.'

The LF representation for (6) and (7) would be as in (8) and (9) respectively.

(8) daremo o kare no hahaoya ga t aisiteiru.

(9) John o kare no hahaoya ga t aisiteiru.

The LF for the sentences are structurally identical. Therefore, in order to capture the contrast in oddity between the two they say the following:

(S&H (1983:256))

The basic difference between a quasi operator [John] and a true operator [daremo] seems to be that the former is referential while the latter is not. And if this is correct, the contrast [between (8) and (9)] follows from one of the basic assumptions adopted in Higginbotham (in preparation); that is: a pronoun can pick up its reference freely from a linguistic antecedent that it does not c-command, subject to the disjoint reference condition. What can be the antecedent of kare in [(8)&(9)]? Suppose the antecedent of kare is the trace t. Then, the condition in (30) is violated. Furthermore, since kare then has a variable as its antecedent, it must itself be construed as a variable. But as noted above, overt pronouns cannot be interpreted as variables in Japanese. Thus, if the antecedent of kare is the trace t, we should expect the same degree of ungrammaticality in [(8) & (9)] as in [(2)a & (2)b] with kare. However, in the case of [(9)] there seems to be a way out. That is, the quasi operator [John] itself can be the antecedent of kare. And if kare has this operator as its antecedent, the condition in (30) is clearly satisfied. Note that this is not possible in the case of [(8)], since the operator is a true operator [daremo], and hence, is not referential. Thus, the only possible antecedent for kare is the

trace t , and as a result, kare is forced to be interpreted as a variable in [(8)].

### 3. Assessing the S&H Account

There are a number of points we would like to take up here. Among them are: (i) the notion antecedent of, (ii) the status of so-called "emphatic" zibun, (iii) "apparent" counterexamples to Principle (30).

The Notion "Antecedent of":

Crucial for the S&H account is the success of an appeal to the notion "antecedent of". Their use of indices is not sufficient for their purposes. For example, in distinguishing between (7) and (6) S&H appeal to the notion "antecedent of", that is in (9) John and not the trace of John is the "antecedent of" kare, whereas in (8) it is the trace which is the antecedent even though the indexing array is exactly the same. But the notion antecedent of is not defined in any structural terms that are made specific. The reader is referred to Higginbotham (in preparation) for the notion "antecedent of". In Higginbotham (1983) this is defined in the following manner:

Higginbotham's (32) page 404

- (10) Y is an antecedent of X if X is linked to Y or, for some Z, X is linked to Z and Y is an antecedent of Z.

Higginbotham (1983) goes on to say, "Antecedence of Y to X is a special case of dependence of X on Y...The intuitive idea is that an item is dependent upon those elements from which it receives its interpretation..." However, the following problems arise: if S&H are adopting Higginbotham's notion of antecedent of they appear to have no account for (6). The trace, t, cannot serve as the "antecedent of" kare since the trace cannot in anyway be taken as "fixing" the reference of kare; a trace, i.e., a "variable", is not a referring expression. But, as can be seen from their discussion of cases like (8) they do identify trace as a possible antecedent even though it is not referential<sup>9</sup>. But note; not being referential was the property that disqualified the "true operator", daremo, from being a possible antecedent. There appears to be an internal contradiction. Another point to be made here is that the S&H account of (9) is inconsistent with Higginbotham's theory of binding. S&H suggest that John-o, which is in an A-bar-position, is the "antecedent of" kare, and the trace is not the antecedent, therefore (30) is not violated and the sentence is deemed good. Higginbotham is quite clear that his theory of binding is a theory of A-binding and not A-bar-binding. This means John-o is not a possible antecedent since in S&H's theory John-o is in an A-bar-position. In short, it is not clear how they are invoking the notion "antecedent of" since the type of work they cite (i.e., Higginbotham's) does not appear to provide them with a definition that does them any good. This is

the weakest aspect of the S&H account.

There is one final point to be made here with respect to this account of kare. As it stands now there is a redundancy in their system. First, it is the case that in their theory whenever kare is coindexed with an "antecedent" trace that is ultimately bound by a quantifier the interpretation is ruled out since kare would be being interpreted as a variable. It does not matter whether or not the variable-trace c-commands kare it will have to be ruled out. However, Principle (30) rules out the case where the variable-trace is the antecedent of kare but does not c-command kare, but this is just a sub-case of the former situation, i.e., kare being having an antecedent which is bound by a quantifier.

### Zibun

Now let us turn to their account of cases involving zibun. Zibun, can be interpreted as being linked to a quantifier.

- (11) Daremo -ga zibun -ga Mary -ni kirawareteiru to  
everyone nom self nom dat be disliked comp  
omoikondeiru (koto)  
is convinced fact

"Everyone is convinced that he is disliked by Mary."

Therefore, S&H contend, the odd cases involving zibun and quantifiers are to be accounted for by the zibun-trace relation and not the zibun/quantifier relation. For the sake of argument, let us assume that there is some solution for the antecedent of notion which is compatible with S&H's basic assumptions. In order to account for the zibun cases S&H stipulate that zibun must have an A-position antecedent. We are assuming that this is valid, in their framework, at some "relevant" level of Logical Form. There appear to be some prima facie counterexamples that raise doubts as to the viability of their stipulation. There will be two points that will be taken up in discussing some of the problems we encounter. One problem has to do with the notion A-position and the other has to do with the notion "emphatic" zibun.

Our discussion will focus on the following examples.

- (12) Taroo-wa zibun-no tuma-ga yoso-no otoko-to kakeoti-sita  
TOP -GEN wife some guy -with ran away  
"As for Taro, his wife ran away with some other guy."

- (13) Go zibun ga sono e o okaki-ni natta  
hon.self nom that picture acc painted  
sooyo<10>.  
I hear (hon. = honorification)

"I hear self painted that picture."

First we will look at (12). In (12) zibun can be linked to Taroo-wa. Taroo is a "topic" and not an argument of the predicate kakeoti-sita. And yet Taroo can be the "antecedent" of zibun. Question: does this mean that Taroo occupies an A-position? This would seem to run counter to Chomsky (1981) where it is stated (page 47) that an "...A-position is one in which an argument such as a name or variable may appear in D-structure; it is a potential theta-position." S&H refer the reader to Chomsky (1981) for a definition of A-position, but their usage appears to be rather different since they go on to say that (page 252) "Roughly speaking, an A-position is a position in which an NP can appear at D-structure. [and that] An A-bar-position is a position that is not an A-position." It looks as if the topic Taroo must be interpreted as being in an A-position. First, there is no position that it could have moved from. Second, it can be construed as being linked to zibun, which satisfies the requirement that zibun have an A-position antecedent. It appears that we have two choices. [NP,S] may or may not be an A-position, depending on whether or not the position was there at D-structure, regardless of whether or not the NP is associated with the predicate, i.e., is an argument of the predicate. On the other hand if one wanted to maintain the distinction between A-position and non-A-position along the lines of Chomsky (1981), i.e., that an A-position is a potential theta position <11> then (12) does constitute a counterexample since some topics of the type in (12) are never associated with argument positions and, therefore they never "receive a theta-role". It is not clear what position S&H are committed to. Admittedly, they may have an alternative. Indeed, there are many questions that arise when trying to unpack the alternatives. It was not made clear in their paper what that alternative may be. This does not look like a trivial matter, nonetheless.

(13) poses some rather different questions. In (13) there is an example where zibun does not have an antecedent within the sentence, much less an A-position antecedent. This appears to be a counter example to S&H's claim that zibun must have an A-position antecedent. Recall that this stipulation is very central to S&H's analysis since it was by virtue of this stipulation that zibun was required to be linked to the trace in (2)a&b. Consider in this regard S&H's footnote #6, page 250.

"The contrast is obscured [referring to examples like (4)a&b] when "zibun" appears in the subject position

- (i) [ [ zibun ga gan kamo sirenai koto] ga  
self nom cancer cancer have fact nom  
Hirosi o nayamaseta]  
acc made worried

Lit. The fact that self may have cancer worried  
Hirosi. (McCawley, 1976. p. 93)

(ii)?[ Hirosi -o [ zibun -ga gan kamosirenai koto]-  
ga [ t nayamaseta]]].

Although we do not have a clear account of the 'better-than-marginal' status of (ii), 'zibun' in this sentence seems to be used emphatically. When we put stress on 'zibun', (ii) becomes even better... As indicated in our judgements, the weak crossover effect in Japanese seems to be somewhat weaker than that in English. We speculate that this fact is partially due to the possibility of the emphatic usage of 'zibun'." <12>

It would appear that S&H are relying on some notion of "emphatic" zibun to account for "apparent" counterexamples to principle (30). That is, whenever zibun appears to violate (30) or whenever zibun fails to have an A-position antecedent it involves an emphatic usage of zibun. If we are correct in interpreting their remarks in footnote 6 in this fashion, then we are led to the question of what position they are taking with respect to the status of zibun. There are several possibilities: (i) there are two homophonous zibun's. (ii) polysemy is involved, i.e., one word - one meaning - several uses. If there are two words zibun then one would have to ask whether there is a meaning difference between zibun with an A-position antecedent as opposed to the zibun which doesn't have an A-position antecedent. If in distinguishing the two zibun's one appeals to the notion "used emphatically" then it would appear that the theoretician is committed to a use theory of meaning. Furthermore, the "two-word" hypothesis would fail to explain for the many features that the two zibun's have in common, e.g., that the antecedent must be "animate" in both cases. This would be a total accident on the homophonous zibun account.

Let us consider alternative (ii), the "one-word" hypothesis. While accounting for the overwhelming similarities between the two "different" occurrences of zibun this account would face the problem of having to reconcile the following: Sometimes zibun must have an A-position antecedent, i.e., just in those cases where principle (30) must be invoked to rule a sentence out and sometimes zibun does not have to have such an antecedent, i.e., when zibun is being used emphatically. It would appear to be problematic to say that there is one word which is, say, both +/-anaphor. This would appear to be a contradiction. In short, S&H leave us with some interesting questions with no indications as to how to go about answering them. S&H are not alone in this problem. Counterexamples of this type are cited often (cf Ross (1970) ) and they are never satisfactorily addressed.<13>

### Counterexamples to (30)

S&H claim that the following configuration should be ruled out on the basis of principle (30) coupled with the assumption that zibun must have an antecedent in an A-position:

(14) \*Q0 [...zibun ... t ...] , where Q0 = "Quasi-Operator"  
(eg. "John")

Examples (15)a&b below are instances of the configuration (14) above.

(15)a. Kobonnōo-no John o [aizin-no Mary ga zibun -no  
 child-loving lover  
 musume o kamatte-kure-nai] koto ga t kanasimi-no  
 daughter care for-not fact despair  
 donzoko e oiyatta.  
 bottom toward drove  
 "That Mary , his lover, does not care for self's  
 daughter drove John , who loves children, to extreme  
 despair.

b.\* Kobonnōo-no John o [aizin-no Mary ga zibun -no  
 musume o kamatte yara-nai] koto ga t kanasimi-no  
 donzoko-e oiyatta.(note: the appropriate inter-  
 pretation is Mary = zibun)

Notice that (15)a and (15)b are identical with respect to the structural configuration. That is, both have the configuration illustrated in (14). However, only (15)b is consistent with their account. S&H do not discuss examples like (15)a, which constitutes another apparent counterexample to their account. The S&H account predicts that zibun in (15)a cannot be linked to John-o for the following reasons: first, on the basis of the assumption that zibun must have an antecedent in an A-position, the Q0 (=quasi-operator), John, cannot be the antecedent since it occupies an A-bar-position. The trace of John-o is in an A-position, therefore, zibun can have the trace as an antecedent. However, if the trace is the "antecedent of" zibun, satisfying the A-position requirement, principle (30) is violated. The trace in (15)a does not c-command zibun, therefore the trace, which is a variable, cannot be the antecedent for zibun, which is an anaphor. This is what (30) states. However, (15)a with zibun linked to John-o is not ungrammatical, in fact, it is not even odd. Our conclusion at this point then is that stating the zibun-antecedent relationship solely in terms of structural configuration (as in (14)) not only makes incorrect predictions, eg. ruling out cases like (15)a, (or forces one to conclude that zibun is being used emphatically), but also fails to capture the distinction between (15)a and (15)b. It seems obvious that any solution to such problems as illustrated in (15) must recognize a distinction between the verbs <14> kurer and yar and furthermore must recognize the role that other predicate types play in delimiting the antecedent possibilities of zibun.<15> In Section 4 we will outline what we think will be a promising line to pursue in trying to account for such so-called counterexamples.

## Summary

The S&H account has a major problem with the notion antecedent of. Without a workable definition there is not reason to believe that Principle (30) is playing any role. The questions that arised during the discussion here of "emphatic" zibun revealed that appeal to this zibun has provided an escape hatch. However, there is an unsatisfactory consequence; it is impossible to falsify the theory. Finally, it appears that the S&H argument



for a Move alpha account of scrambling is not a cogent one. Upon close inspection one finds that there is only one example that their theory handles and that is (4)b. All the other examples involve a trace that is available only after QR and so provides no evidence for (1) being required at S-structure.

#### 4. An Alternative

At the outset we list several important, nonobvious assumptions.

- (16) a. Grammatical Relations in Japanese are not defined configurationally.
- b. Word order is not accounted for by the rule Move alpha in Japanese, i.e., word order is "base-generated".
- c. We assume the PS rule:  $X' \rightarrow X' * X$  <16>
- d. The linguistic system is modular, as defined by Harnish & Farmer (1984).
- e. Principles utilized in accounting for co-disjointreference intuitions may be defined over PredicateArgumentStructures, Phrase Markers or both.

EG: A Principle defined over Predicate Argument Structure:  
Disjoint Reference (DR) Principle (defined over Lexical Structure, i.e., PAS):  
**The arguments of a predicate are intended to be disjoint unless marked otherwise.** <17>

EG: A Principle defined over both the Predicate Argument Structure and P-markers:

**The Antecedent Condition** <18>

Alpha can be an antecedent for beta, where beta = zibun, iff

- (i) beta is in the domain of alpha
- (ii) alpha carries the diacritic 'S', and
- (iii) the X-bar constituent which contains alpha and is a sister of gamma (gamma = a predicate) does not contain beta.

Definition of in the domain of

Beta is in the domain of alpha iff alpha is an argument slot of gamma (gamma = a predicate), and beta (= zibun) is (contained in) a sister of gamma, where alpha is not equal to beta.

Definition of contained in  
(defined over syntactic structure)

(narrowly construed)).

**Alpha is contained in beta if beta dominates alpha.**

The diacritic 'S'(ubject)

**Assign the diacritic 'S' (=subject) to the leftmost argument slot of a PAS (Predicate Argument Structure).**

f.Kare is a referring expression.

g.Empty Categories are not represented at the Phrase marker level of representation.

h.There is no VP constituent in Japanese.

It should be pointed out that what we will be attempting to do in a preliminary fashion is to account for oddity judgements and not grammaticality judgements. The sentences that will be discussed here are the examples analyzed by S&H together with those cited by us as cases that should also be taken into account.

(17)a. Kare ga John o syookaisita (koto)  
he nom acc introduced fact

b. John-o kare-ga syookaisita (koto)

'He introduced John...'

(18)a.Kare-no hahaoya ga John o aisiteiru (koto)  
he-gen mother nom acc loves fact

b. John-o kare-no hahaoya-ga aisiteiru (koto)

'His mother loves John.'

(19)a. Hanako ga zibun o kiratteiru koto ga Jiroo o  
nom self acc dislike fact nom acc  
yuutu-ni siteiru.  
depressed make

'The fact that Hanako dislikes him has depressed Jiro.' (zibun can be associated with Jiro)

b. Hanako ga zibun o kiratteiru koto ga daremo o  
nom self acc dislike fact nom everyone acc  
yuutu-ni siteiru.  
depressed made

'The fact that Hanako dislikes him has depressed everyone' (zibun **cannot** be linked to daremo)

c. Hanako ga zibun o kiratteiru koto ga dare o  
           nom self acc dislike fact nom who acc  
 yuutu-ni siteiru no?  
 depressed made Q

'Who has the fact that Hanako dislikes him  
 depressed'?" (intuitions differ)

(20) Daremo ga zibun ga Mary ni kirawareteiru to  
       everyone nom self nom dat disliked comp

omoikondeiru (koto)  
 is convinced fact

'Everyone is convinced that he is disliked by Mary.'

(21) Daremo ga kare ga Mary ni kirawareteiru to  
       everyone nom he nom by disliked comp

omoikondeiru (koto)  
 is convinced fact

'Everyone is convinced that he is disliked by Mary.'

(22) Kare-no hahaoya ga daremo o aisiteiru (koto)  
       he-gen mother nom everyone acc loves fact

'His mother loves everyone.'

(23) Taroo-wa zibun-no tuma ga yoso-no otoko to kakeoti-sita.  
       topic self's wife nom some person with ran away

'As for Taro, his wife ran away with some other guy.'

(24) Go zibun ga sono e o okaki-ni natta sooyo.  
       hon. self nom that picture acc painted I hear

'I hear self painted the picture.'

We will not be providing a uniform account of these sentences. We are taking a modular approach. For example, the intuitions associated with one sentence may be captured by a pragmatic principle defined over syntactic structure, while another sentence may be accounted for by a pragmatic principle that is not sensitive to structural properties of the sentence. Therefore, we see the task of accounting for intuitions of co & disjoint reference as involving factoring out the contribution of syntactic structure from the contribution of the context in which the sentence is uttered. Sentences (17), (18) and (20) will be accounted for by principles defined over syntax (broadly construed) while sentences (19), (21) (22) (23) and (24) will all involve an interaction of contextual considerations and semantic factors. Sentence (23) also involves a structural factor. Our approach is unlike the S&H account in that we are not subsuming cases like (19) under an account which handles examples

like (17), (18) and (20). Now let us turn to our account of (17)a&b.

The account of (17)a & b is quite straightforward. The Disjoint Reference Principle handles both a&b. That is, the "arguments of a predicate are intended to be disjoint unless otherwise marked." This principle is defined over lexical structure (i.e., the PAS), therefore word order makes no difference with respect to this particular principle. The two NPs, Kare and John are taken to be disjoint. The order of the NPs does not affect the interpretation of the sentence with respect to disjoint reference.<20> The Disjoint Reference Principle is not defined over the Phrase marker level of representation which, coupled with our assumption that there are no Empty Categories in the sense of Chomsky (1981) & (1982) defined at the Phrase marker level of representation, predicts that "disjointness" of arguments is still presumed even when an NP is "missing": <21>

(17)c. John-o syookaisita (koto) <22>  
Lit. "Introduced John."

d. Kare-ga syookaisita (koto)  
Lit. "He introduced."

(Where whatever satisfies the subject argument slot in (c), or object argument slot in (d) of the predicate is taken to be disjoint from the other argument of the predicate; the individuals referred to by John and kare respectively.)

Turning to (18)a & b we have to account for the following intuitions: in (18)a kare and John are taken to be referring to two different individuals, while in (18)b they can be taken to be coreferential. In this example word order does appear to play a role. Notice that the NPs are associated with two different predicates so the Disjoint Reference Principle is not applicable. It appears that when kare precedes it is taken to be disjoint from the preceded NP; in this case John is the relevant NP.<23>

In sentence (20) we must account for the following intuition: zibun can be construed as linked to daremo. Our account is straightforward. The Antecedent Condition is invoked in this case. The Antecedent Condition is defined over syntactic structure (broadly construed). The Condition links 'S' argument slots to zibuns in its domain. Obviously there need not be an NP represented at the Phrase marker level of representation which corresponds to the 'S' argument slot, that is, the Condition does not link NPs to NPs. For example, the NP-daremo is not coindexed with the NP-zibun, but the 'S' argument slot corresponding to daremo is "linked" to the NP-zibun. If there is an NP corresponding to the 'S' argument slot, the type of NP, i.e., whether it is a referring expression, a quantified NP, or a pronoun, doesn't play a role. This accounts for the "variable-like" interpretation of zibun with respect to a quantifier such as daremo.

The next example to be discussed does not involve the Antecedent Condition. Note that in (19)a,b & c the NP-o is not asso-

ciated with an 'S' argument slot. The argument slot corresponding to the NP-o does not qualify as an antecedent for zibun. What we want to capture is that when the NP-o is a referring expression and it follows zibun in the sentence, zibun the NP can be construed as "coreferential," if a "psychological predicate" is involved. Whereas when the NP-o is daremo, zibun cannot be "linked" to the NP-o. The order of constituents does not seem to play a role, i.e., any order yields "non-linking". As noted in footnote # 5 speakers differ as to the linking of zibun with dare ('who'). We can only speculate at this point about a reasonable account of the above intuitions. We suspect that both pragmatic and semantic factors play a role. As already noted, the above example involves a "psychological predicate". It has been widely recognized in the literature that an account of zibun which includes this type of predicate does not yield a neat generalization of the notion "antecedent of zibun" (cf. McCawley (1976), Inoue (1976) and Kameyama (1984)). We do not feel that there is a generalization to be captured. That is, what links zibun with an antecedent in (20) does not generalize to the kind of case exhibited in (19)a-c. It should be noted that our tack allows us to say that there is no special relationship between zibun and, say, daremo in cases like (20). This kind of example falls under the general account of 'S' antecedent. Whereas, when zibun fails to "link" to daremo we are suggesting that it involves nonsyntactic factors, i.e., pragmatic and semantic. It may well be that it is an important fact that daremo is not a referring expression when it comes to construing zibun with NP-o's of a psychological predicate, and furthermore, order does play a role in this particular case, when the NP-o is a referring expression (i.e., not a quantifier) as opposed to other cases involving zibun.

Now let us turn to example (21). The intuition to be accounted for here is that kare cannot be linked to "daremo". Recall that we have assumed that kare is a referring expression and, unlike English "he", cannot be construed as a variable. This is completely in line with S&H's claim. We would capture the oddity in mapping into LF, i.e., if kare is linked to daremo then kare is in the proper configuration to be interpreted as a bound variable, but that is incompatible with the property of kare being a referring expression. Example (22) falls under this explanation also.

Examples (23) and (24) involve what we would characterize as cases where zibun does not have an NP that it is "linked" to linguistically. That is to say, the association of Taroo-ga in (23) is not a direct reflex of a linguistic rule. In Farmer (1984) it was suggested that so-called Topics are linked structurally to the verb via a rule of "Predication":

Farmer (1984) example (3.13)

Predication:

Coindex X'-ga/wa with V

(note: this is a purely syntactic gesture that indexes X'-ga/wa's with the head V.)

We will also assume the following Pragmatic Inference from Farmer (1984):

Farmer (1984) example (4.31)

Pragmatic Inference:

Given  $X'_i$ -wa and  $V_i$ , if the speaker is speaking literally and directly, then the PAS of  $V$  is somehow "relevant" to  $X'_i$ -wa.

To quote from Farmer (1984): "As the literature on Japanese richly attests, the possibilities for being 'relevant' are enormous...[the inference to be] made [is] that some 'connection' must exist between  $N'_i$ -wa and the predicate [and one connection could certainly be that  $X$  is married to  $Y$ ]" In (23) it is reasonable to explore the possibility that the "linking" of zibun with Taroo is established pragmatically, i.e., that a pragmatic inference driven by meeting the relevant structural description is responsible, in part, for this interpretation.

As for the case of (24), there is also no antecedent designated in the sentence. Recall, that we are not assuming that there are two zibun's, one which is used "emphatically" and another that must have an antecedent within the sentence. We will be assuming that there is single zibun which has various properties. For example, if zibun has an antecedent in the sentence there are certain structural requirements, most noteworthy of which is that it be a "subject." This subject does not have to be represented at the PS level of representation. But if there is no potential antecedent as defined by the Antecedent Condition then one presumes that there is a contextually salient entity that the speaker has in mind.<24>

## Concluding Remarks

In this paper we have addressed the following question; what role does structure play in the coreference and disjoint reference possibilities of various types of noun phrases. Or, put slightly differently, what does the linguistic system contribute to the recognition of the speaker's intents to refer? We have reviewed and critiqued what can be taken as one theory's answer to this question: the S&H proposal. S&H crucially relied on a zibun/kare - trace relation to characterize various intuitions concerning co & disjoint reference. We discussed the viability of their approach. It was concluded that there were many problems and unanswered questions. We outlined an alternative, claiming that not all cases involving the construal of zibun were to be subsumed under one principle defined over one level of representation, (specifically, the PS level). We feel that a successful account of the construal of kare and zibun will follow our suggestions at least in spirit.

## Footnotes

\*We would like to thank Peter Culicover, Ken Hale, Mike Harnish, Eloise Jelinek, Tom Larson and Dick Oehrle for making other very helpful critical comments. We also express our appreciation Stuart Davis, the editor of this volume, for publishing this paper.

1. We agree with Bach and Partee (1980) that the terms coreference, noncoreference, and disjoint reference are misleading. We use these terms here simply to identify a range of phenomena discussed in the literature, which does use these terms, even though the terms do not properly describe the phenomena. It is difficult to find a theory neutral way to describe these cases that is not cumbersome. Bach and Partee opt for "coindexing" which is, perhaps, better than "coreferential", but even this term is not free of theoretical trappings. In our account we will describe intuitions in terms of, for example, individuals being referred to, i.e., whether same or different, or x (not) being "linked" to y, i.e., x is a bound variable or not. For the moment we have used the terms co and disjoint reference.

2. These sentences are all considered to be odd under the interpretation that zibun/kare ('self'/'he') is "linked" to (or is bound by) daremo/dare ('everyone'/'who').

3. For typographical reasons we will be using underlining to stand for indexing. When two elements are underlined that represents coindexing.

4. The rule Quantifier Raising (QR) is an instance of Move alpha in the Logical Form (LF) component where alpha is a Quantifier. See May (1977) for the motivation of the rule QR.

5. The second author's intuition differs slightly from that of S&H's in that there is a distinction in oddity between (2)a and (2)b. That is, (2)b sounds better than (2)a. It seems, at least to this author, that dare can more easily be associated with a referent than daremo can. The speakers who share the author's intuitions may well distinguish between quantifiers and WH-words. This point must be explored further.

6. S&H claim that the configuration depicted in (1) is incompatible with a theory that utilizes the following rule:

(i)  $X' \rightarrow X' * X$

However, this is incorrect. The rule in (i) does not entail that (1) is impossible. A theory which assumes rule (i) could well assume Empty Categories are present at the Phrase Marker level of representation and furthermore, assume free indexing which would all mean that (1) could be "base-generated". As Chomsky (eg (1981)) often points out base generating versus "movement" is not an interesting issue. The two are equivalent. The real issue is whether the relation depicted in (1) holds or not.

7. Below are some of what we take as the relevant assumptions in the S&H proposal.

a. Grammatical Relations are defined configurationally, (which means that there is a VP constituent).

b. Word order is accounted for by the rule: Move alpha, which Chomsky adjoins a moved constituent to the left of the leftmost constituent, leaving a bound trace behind.

c. The trace (t) is a variable.

d. zibun can be a bound variable.

e. They assume some notion of "antecedent of".

f. zibun must have an A-position antecedent.

g. They assume the rule of Quantifier Raising (QR), which moves a quantifier to the left and Chomsky adjoins it to the leftmost constituent, leaving a bound trace behind.

h. Kare cannot be interpreted as a bound variable, i.e., it can never be bound by a quantifier.

8. It should be noted (i) also sounds unnatural, at least without some strong, overriding context.

(i) Ziroo o [Hanako ga imooto o kiratte iru] koto ga t  
yuutu-ni siteiru.

'Jiro, the fact that Hanako dislikes his/her sister has depressed.'

It appears that sentences with involving scrambling across an embedded clause will lack naturalness. Therefore, these examples are already difficult/or odd without introducing zibun and kare.

9. It has been pointed out to us (Michael Rochemont, personal communication) that S&H may be relying on Chomsky's citation of Evans who (quoting M.R.) "relies on Frege; roughly, a variable-trace is a variable ranging over individuals, and is in this sense referential." This apparently allows the claim that the variable-trace fixes the reference of some other constituent, i.e., some other element can be "dependent" upon the variable-trace for its interpretation. However, in Standard Logic, it doesn't make sense to say that variables bind and force a constituent into being interpreted as a variable. Another point that should be made is that invoking Frege (i.e., Standard Logic) is not clearly justified for the following two reasons: first, the level where the trace is defined as a variable does not exist in Standard Logic and there is no reason to believe that properties of variables in logical form (in Standard Logic) are properties of trace. Second, within GB theory there is a crucial difference between trace and variables, namely, at LF (GB's LF) the variable-trace must be free, whereas at LF' (LF is mapped onto LF') variables can be bound or free, a property true of variables in Standard Logic.

10. A good example of a situation in which this sentence may be appropriately uttered involves the following: suppose that two students, A and B, are visiting a professor's house. While waiting, A and B are looking at a painting on the wall. Student A has visited the professor before, and knows that the professor



himself painted the picture. Then, A can utter (13) and be understood as referring to the professor by way of "go-zibun" even though the professor is not present. Notice that there is no linguistic antecedent what-so-ever.

11. Even this raises more questions. What is meant by "potential"? Notice, an [NP,S] may be a theta-position, but when there is a sequence of [NP,S]'s (as in the case of S&H's account of scrambling) then only the rightmost can "potentially" be a theta-position. The terms are simply too vague at this point to push it any further.

12. The following are examples involving zibun in non-subject position:

- (i) Dare o [zibun-no musuko-ga kurasu de itiban de aru] to iu koto-ga t yorokobasete iru no?

"Who does the fact that self's son is the best in the class please?"

- (ii) Dare o [zitu-no chichi oya ga zibun o korosooto site iru]to iu moosoo-ga t noirooze-gimi-ni sase-te iru no?

"Who does the imagination that own father is trying to kill self make neurotic?"

S&H do not provide an account of these examples either. We assume, perhaps wrongly, that they would cite these cases as involving "emphatic zibun" as well. One could be led to the dubious conclusion that whenever S&H are confronted with data that does not follow the predicted pattern will always be a case of this so-called emphatic zibun. Their position on this matter is left quite unclear and we really cannot speculate much more than we have already without creating, unintentionally, a scenerio which they would not endorse.

13. In section 4 of this paper we will discuss zibun further.

14. The (auxiliary) verbs, kure and yar, can be distinguished in terms of focus of benefit. That is, in a simple sentence, kure implies that the object (or the speaker is benefited (i.e., someone may be doing the object (or the speaker) a favor), while yar suggests that the non-speaker (or object) is benefited, (i.e., the speaker or the subject is the person who is doing someone a favor). Examples are given below.

- (i)a. Yamada sensei-ga (watasi-o) party-ni shootaisite-  
teacher-nom I-acc to invite  
kure-ta.  
-past  
"Mrs Yamada invited me to the party." (speaker's benefit)

- b. (watasi-ga) sono seito-o party-ni shootaisite-yat-  
 I-nom that student-acc invite  
 ta.  
 past  
 "I invited the student to the party." (student's  
 benefit)

For further discussion on the difference between these two verbs, see Kuroda (1965), and Kuno and Kaburaki (1977).

15. What seems to be crucially involved in (11) is the pragmatic effects of such verbs as kurer and yar, which may override the syntactic (and/or semantic) conditions.

16. The PS rule  $X' \rightarrow X' * X$  expresses the following: the head of a phrase (i.e., the "governor" in GB theory) appears to the right of the constituents in its syntactic domain. X may be instantiated by any category, (eg:  $\begin{bmatrix} N' & N' & V \end{bmatrix}$   
 $V'$ )

17. cf Farmer (1984), Harnish & Farmer (1984) for utilization of this principle for English.

18. See Tsujimura (1984) for the original formulation of the Antecedent Condition and for a definition of "in the domain of" and "contained in."

19. When we say "syntax (or syntactic domain) broadly construed" we mean to pick out both Lexical Structure (i.e., Predicate Argument Structure) and the Phrase Structure level of representation. That is, for us, S-structure is a pair: Lexical Structure & the PS level of representation. Whereas, when we say: Syntax (or Syntactic domain) narrowly construed, we are picking out only the PS level of representation.

20. Our analysis of (17)b does not involve so-called strong crossover. S&H claim that (17)b does fall together with other strong crossover cases.

21. In GB theory it is assumed that in (17)c & d that Empty Categories are represented at the P-marker level of representation. This means that something like PRO or pro would be represented in (17)c and d respectively. We are not capturing the "disjoint reference" interpretation via a rule or condition which depends on whether an NP is an R-expression, anaphor or pronoun. For further discussion of this position see Farmer (1984), Harnish & Farmer (1984) and Farmer & Harnish (in preparation).

22. The "subject" is missing at the PS level of representation. What satisfies the "subject" slot of the predicate is fixed contextually. This is true of the "object" slot in (17)d.

23. Recall that S & H assume that c-command is the relevant notion in these two sentences. In (18)a, kare c-commands "John"

therefore they are construed as disjoint whereas in (18)b the fronted constituent containing John c-commands kare, but kare does not c-command this constituent because movement involves Chomsky adjoining the moved constituent.

24. See footnote 8 for an example of a scenario involving the construal of zibun with a referent, which has not been mentioned.

## References

- Bach E. & B.H. Partee (1980) "Anaphora and Semantic Structure" Papers from the Parasession on pronouns and anaphor. CLS. pp. 1-28.
- Chomsky, N. (1981) Lectures on Government and Binding. Foris Publications. Dordrecht.
- Farmer, A.K. (1984). Modularity in Syntax: A Study of Japanese and English. MIT Press, Cambridge.
- Farmer, A.K. & R.M. Harnish (in preparation). "Anaphora: Formal and Pragmatic Constraints."
- Harnish, R.M. & A.K. Farmer (1984). "The Modularity of the Linguistic System" *Lingua*
- Higginbotham, J. (1983) "Logical form, binding, and nominals" *Linguistic Inquiry* 14.3 pp.395-420.
- Higginbotham, J. (in preparation). *Sense and Syntax*, to appear MIT Press, Cambridge.
- Inoue, K. (1976) "Reflexivization: An Interpretive Approach" in M. Shibatani (ed.), *Syntax and Semantics 5: Japanese Generative Grammar*, Academic Press, New York,
- Kameyama, M. (1984) "Subject/Logophoric Bound Anaphor Zibun" to appear in CLS
- Kuno, S. and Kaburaki (1977) "Empathy and Syntax" *Linguistic Inquiry* Vol 8 #4 pp. 627-672.
- Kuroda, S-Y. (1965). *Generative Grammatical Studies in the Japanese Language*. MIT PhD Dissertation.
- McCawley, N.A. (1976). "Reflexivisation: A transformational Approach" in M. Shibatani (ed.), *Syntax and Semantics 5: Japanese Generative Grammar*, Academic Press, New York, pp.51-116.
- May, R. (1977). *The Grammar of Quantification*. MIT PhD Dissertation
- Ross, J.R. (1970). "On Declarative Sentences" in Jacobs and Rosenbaum (eds.) *Readings in English Transformational Grammar*. Ginn and Company, Waltham MA. pp. 222-273.
- Saito, M., H. Hoji. (1983) "Weak Crossover and Move alpha in Japanese" *Natural Language and Linguistic Theory* 1.2 pp 245-259.

Tsujimura, N. (1984). "A Modular Approach to Japanese Reflexive  
'zibun'". University of Arizona manuscript.