REMARKS ON SUBJECT 
AND C-COMMAND

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1.0 Deficiency of Anaphora Restriction II

I have proposed the following principle and restrictions to account for coreference between a definite NP and a pronoun: (Kato (1982), Kato (1984))

(1) Principle of Anaphora (PA)

NP₁ and NP₂ are noncoreferential unless the perceptual order \([ \ldots [ \text{antecedent} ] \ldots [ \text{anaphor} ] \ldots ] \) is kept on the level of perceptual processing. (Kato (1982:81))

(2) Anaphora Restriction I (AR I)

In the structure \([ s \ldots [ \alpha_i \ldots \text{NP}_2 \ldots ] \ldots \text{NP}_1 \ldots [ \alpha_i \text{ e} ] \ldots ] \), NP₁ and NP₂ are noncoreferential unless NP₁ is the antecedent of NP₂. (Where \([ \alpha_i \text{ e} ] \) is a trace left by preposing transformations) (Kato (1982:82))

(3) Anaphora Restriction II (AR II)

In the structure \([ [ \alpha_i \text{ e} ] \ldots \text{NP}_2 \ldots [ \alpha_i \ldots \text{NP}_1 \ldots ] \ldots ] \), NP₁ and NP₂ are noncoreferential unless NP₁ is the antecedent of NP₂.

I believe that the fundamental function of the use of an anaphoric expression is to refer back to an antecedent which appears previous to it on the level of perceptual processing, and that the
constraints in (1)–(3) can basically account for the problems of coreference English. If we look at the linguistic data more closely, however, it soon becomes clear that anaphora in English is not so simple as to be exhaustively covered by these constraints.

AR II, as it stands, cannot account for the following sentences:

(4) a. *She is riding a horse in Ben’s picture of Rosa.
b. *He is considered a genius in Kissinger’s home town.
c. *She looks sick in John’s picture of Mary.
d. She is kissing Ben passionately in Rosa’s high school picture.

Since all these sentences have S–PP’s and I hypothesuze that S–PP’s are generated in initial position in underlying structure, the abstract structure underlying (4) is as follows:

(5) \([\text{pp e]} \ldots \text{NP}_2 \ldots [\text{pp} \ldots \text{NP}_1 \ldots ] \ldots]\)

It is evident that (5) satisfies the structural description of AR II, each full NP corresponding to NP₁ and serving as the antecedent of NP₂. Thus, AR II incorrectly marks the sentences in (4) acceptable. This means that AR II, as it stands, is untenable.

If we compare the sentences which AR II can account for with those which it cannot, it soon becomes apparent that AR II is deficient in that it cannot distinguish between cases where NP₂ is a subject and cases where NP₂ is a nonsubject.

(6) a. Rosa is kissing him passionately in Ben’s high school picture.
b. We sent him to West Point in order to please Ben’s
mother.
c. Rosa won’t like him anymore, with Ben’s mother hanging around all the time.

Before I begin to revise Anaphora Restriction II in the direction of adding another constraint to it, I think it would be of benefit to consider little more closely the issue of how the subject works in a sentence.

1.2 Problems of Anaphora with respect to subject-non-subject distinction

It has been noted that the subject–nonsubject distinction may be involved in problems of anaphora. Consider the following sentences:

(7) In Mary’s apartment, a thief assaulted her.
(8) *In her apartment, a thief assaulted Mary.
(9) *In Mary’s apartment, she was assaulted by a thief.
(10) In her apartment, Mary was assaulted by a thief.

Lakoff (1968: 282) points out that in (7), Pronominalization can go forward from a nonclausal preposed adverb to a nonsubject (her). On the other hand, Pronominalization cannot go forward from a preposed adverb to a subject (she) in (9). Lakoff claims that “...distinction between subject and nonsubject position must be stated in the conditions on Pronominalization.” (Lakoff (1968: 282))

Lakoff presents as evidence for his claim structures which have subordinate clauses:
(11) Mary hit John before he had a chance to get up.
(12) Mary hit him before John had a chance to get up.
(13) John was hit by Mary before he had a chance to get up.
(14) *He was hit by Mary before John had a chance to get up.

He observes: "...though Pronominalization cannot go backward out of subordinate clause to subjects of main clause, it can go backward out of subordinate clauses to nonsubjects of main clauses.", and he concludes "...any statement of the conditions under which Pronominalization can occur must take the subject–nonsubject distinction into account," (Lakoff (1968: 282–3))

Reinhart argues against an approach which makes mention of the grammatical relations of the NP's in the coreference restriction so that it will apply differently to subjects and objects. A restriction phrased in terms of the notion of c-command can, she claims, account for the asymmetry between subjects and objects with respect to coreference—the difference between (9), (14) and (7), (10), (11)–(13). In (9) and (14), since the full NP's are in the domain of pronouns (subject), they have to be pronouns in order to be coreferential with them. In the other sentences above, the full NP's are either out of the domain of the other NP or have pronominalized NP's in their domain. Thus, the restriction does not apply to these cases. She further claims:

For the c-command comain, this is just the predicted result of the fact that subjects have the whole sentence in their domain. The c-command domain thus naturally distinguishes between subjects and objects. (Reinhart (1976: 38))
If we consider only the examples cited above, the restriction in terms of c-command does indeed capture the difference in acceptability. But now consider the following sentences, which I have already mentioned in previous chapters:

(15) a. *In Zelda's bed, she spent her sweetest hours.
   b. In the bed which Zelda stole from the Salvation Army, she spent her sweetest hours.

(16) a. *With Zelda's feather, she tickled Dr. Levin.
   b. With the feather that Zelda inherited from her late peacock, she tickled Dr. Levin.

According to Reinhart's analysis, the preposed PP's in (15) and (16) are VP–PP's. Hence, they are attached to the S node and are in the domain of the subject NP's. For this reason they have to be pronouns in order to be coreferential with the subject NP's. Consequently, (15a) and (16a) are correctly marked as unacceptable by the restriction. On the other hand, the restriction as it stands incorrectly blocks coreference in (15b) and (16b).

Consider the next cases of 'Backward Pronominalization':

(17) a. *Zelda sent him back all Dr. Levin's flowers.
   b. Zelda sent him back all the flowers which Dr. Levin had bought for her.

(18) a. *Society has always granted her Zelda's wishes.
   b. Society has always granted her everything Zelda ever wanted.

Since the full NP's in (17) and (18) are in the domain of the pronouns, Reinhart's restriction correctly marked them unacceptable. On the other hand, the restriction fails to account for the acceptability of (17) and (18) for the same reason as in the
case of (15) and (16).

In order to handle the cases above, Reinhart has proposed without any independent motivation the apparently ad hoc restriction:

(19) The coreference restriction does not apply across island boundary. (Reinhart (1976: 163))

There are, however, counterexamples to this restriction which involve the subject–nonsubject distinction:

(20) *After day of search, he was finally found in a sleazy hotel room that Dr. Levin had rented under a false name.

(21) *She spent her sweetest hours in the bed Zelda stole from the Salvation Army.

(22) *He denied that the flowers which Dr. Levin sent had been returned.

Once Reinhart adopts such a ‘pseudo’ restriction in her theory in order to account for the sentences in (15)–(18), then she also has to add the theory the following specific restriction:

(23) If NP$_1$ is the subject and NP$_2$ is in the VP, NP$_2$ must be a pronoun for coreference to hold, even if it is in an island.

It is obvious that these patchwork restriction will complicate the grammar. She admits in her paper, “At the moment I do not know what accounts for this difference between the relation of the subject and the VP and other domain relations in the sentence.” (Reinhart (1976: 163))

The peculiarities in (7)–(18) and (21)–(23) which involve the subject–nonsubject distinction and necessitate ad hoc restric-
tions to cover them immediately lead Reinhart’s theory into self-contradiction, for although Reinhart explicitly claims that “The c-command domain thus naturally distinguishes between subjects and objects.” (Reinhart (1976: 38)), she has to add to the co-reference restriction in terms of c-command a specific restriction such as (23) which mentions the grammatical relations, ‘subject’ and ‘nonsubject’.

1.3 Special status of ‘subject’

It has been noticed that the special status of the subject in a sentence crucially affects the meaning or acceptability of the sentence. In fact, this is usually incorporated as a kind of constraint in syntactic rules, or realized in the form of semantic or pragmatic restriction or specified as a lexical property in the lexicon. In order to illustrate how the subject status works in a sentence, I will turn to a brief discussion of three examples below.

First, consider the sentences (24)–(25), where in each case the (b)–structure underlies the corresponding (a)–form:

(24) a. Who did John hear stories about?
   b. COMP John heard [NP stories about who]

(25) a. *Who did stories about terrify John?
   b. COMP [NP stories about who] terrified John.

In (24b), the NP is the object of heard and (24a) is perfectly acceptable, whereas in (25b), the NP is the subject of the sentence and (25a) is unacceptable. Chomsky, considering these discrepancies between the behavior subjects and non-subjects,
Masahiro Kato has proposed the Subject Condition:

(26) No rule can involve \( X, Y \) in the structure \( \ldots X \ldots \left[ \alpha \ldots Y \ldots \right] \ldots \)
where (a) \( \alpha \) is a subject phrase properly containing MMC (minimal major category) (\( Y \))
and (b) \( Y \) is subjacent to \( X \) (Chomsky (1973: 250))

Since the NP in (24b) is not in the subject phrase, condition (26) does not apply to (24b). On the other hand, in (25b), since the NP is in the subject phrase, (25a) is marked unacceptable by condition (26).

The second example I would like to discuss involves the incorporation of the notion of subject into a functional constraint. Kuno and Kaburaki (1977) presents the following hypothesis:

(27) Surface Structure Empathy Hierarchy
It is easiest for the speaker to empathize with the referent of the subject; it is next easiest for him to empathize with the referent of the object; \ldots It is next to impossible for the speaker to empathize with the referent of the \textit{by}–passive agentive:
Subject \( \geq \) Object \( \geq \ldots \geq \textit{by}–passive.\text{Agentive}

Kuno and Kaburaki claims that (27) explains the unacceptability of the (28b):

(28) a. I criticized Mary.
b. ??Mary was critized by me.

(28a) is acceptable because the first-person pronoun \( I \), whose referent the speaker is empathizing with, appears in the subject position, which is topmost in the hierarchy in (27). On the
other hand, (28b) is unacceptable because by applying Passivization, the speaker conveys the impression that he is not empathizing his own point of view in the description of his own action. That is, there is an empathy conflict between the surface subject Mary which is topmost in (27) and the by-passive agentive me whose referent is the speaker and thus should be most empathized with.

The third example concerns the peculiarities of subject-oriented adverbs. Jackendoff (1972) notes that “there is a more interesting constraint involving subject-oriented adverbs: there cannot be more than one of them, and that one must be the last S adverb in the sentence (excluding final position with pause).” (Jackendoff (1972: 88))

The sentences in (29), however, show that combination of two speaker-oriented adverbs are often acceptable:

(29) a. Probably, Max often was climbing the walls.
    b. Happily, Max has evidently been trying to
    c. Max happily has often been trying to climb the walls.

On the other hand, two subject-oriented adverbs cannot co-occur in a single sentence:

(30) a. *Carefully, Max quickly was climbing the walls of the garden.
    b. *Quickly, Max has cleverly been trying to decide whether to climb the walls.
    c. *Max cleverly has stealthily been trying to decide whether to climb the walls.

Jackendoff also comments on a constraint governing the ordering of combinations of speaker-oriented adverbs and a
subject-oriented adverbs. If a subject-oriented adverb follows a speaker-oriented adverb, the sentence is acceptable.

(31) a. Probably, Max carefully was climbing the walls of the garden.
    b. Happily, Max has cleverly been trying to decide whether to climb the walls.
    c. Max often has quickly been trying to decide whether to climb the walls.

But the opposite order is unacceptable:

(32) a. *Carefully, Max probably was climbing the walls of the garden.
    b. *Cleverly, Max has happily been trying to decide whether to climb the walls.
    c. *Max quickly has often been trying to decide whether to climb the walls.

The differences observed in the combinatory and distributional properties of the sentence adverbs in (29)–(32) can be predicted if we assign them subclass according to the inherent lexical properties which they share, for example, speaker-orientedness vs. subject-orientedness in the case above.

When we consider those three cases where the notion of 'subject' is more or less involved, it seems reasonable to claim explicitly that various surface discrepancies of English sentences can be properly captured by incorporating the notion 'subject' into the linguistic theory. I believe that this holds also when we consider coreference restrictions.
1.4 Revision of Anaphora Restriction II

Taking the observations in the previous sections into consideration, I revise Anaphora Restriction II as follows:

(33) Anaphora Restriction II  
NP₁ and NP₂ are noncoreferential unless (a) NP₁ is the antecedent of NP₂ or (b) NP₂ is nonsubject in the structure \[ [\alpha₁ e] \ldots \text{NP₂} \ldots [\alpha₁ \ldots \text{NP₁} \ldots ] \ldots \]

(33) correctly blocks the sentences in (4) and marks the sentences in (6) acceptable, for the NP₂'s in (4) are subjects while the NP₂'s in (6) are not.

1.5 Further remarks on 'subject'

Let us consider why the sentences whose NP₂'s are subjects are unacceptable while the sentences whose NP₂'s are not subjects are acceptable. For clarity, I repeat (4a) and (6a) below:

(4) a. *She is riding a horse, in Ben's picture of Rosa.  
(4)' a. [pp e] she is riding a horse in Ben's picture of Rose.  
(6) a. Rosa is kissing him passionately in Ben's high school picture.  
(6)' a. [pp e] Rosa is kissing him passionately in Ben's high school picture.

In (4a)', although the postposing S–PP (which contains the antecedent of the pronoun) leaves a trace in its original initial position, there is no actual constituent in front of She in (4a) when it is uttered. Since the trace has no substance in itself, it
works simply as a sign to inform hearers of the original position of moved elements. In fact, in (4a), the addressee cannot identify the referent of the subject She until he comes to the end of the sentence. This constitutes a serious violation of the pragmatic constraint of the function of subject, which Keenan (1976) points out as follows:

(34) The reference of a b-subject (basic subject) must be determinable by the addressee at the moment of utterance. It cannot be made to depend on the reference of other NP's which follow it.

Thus if two NP's in a b-sentence (basic sentence) are to be stipulated as being the same in reference it will either be the non-subject which get marked (perhaps deleted) or the rightmost NP. Thus in English we could never say Herself admires John for John admires himself, for in the first sentence the reference of the subject cannot be determined independently of that of a following NP, so the subject would not be autonomous in reference. (Keenan (1976: 313))

In connection with the semantic role of subjects, Yasui (1978b) claims that the word order in English is, generally speaking, fairly fixed, and thus the sentence initial position on the surface structure may serve as "a base of operations" for speech acts. In other words, various elements seem to compete with one another for this initial position in order to realize the linguistic function of each element. Since the unmarked position of subjects in English is the sentence initial position, subjects usually stand as the base of operations for speech acts. That is, they have to provide the orientation of the utterance conveyed from addressers
to addressees. (Yasui (1978b: 32, 45, 47))

There is another interesting remarks about subjects made by Chafe (1976):

(35) ...best way to characterize the subject function is not very different from the ancient statement that the subject is what we are talking about... Human knowledge appears to consist, among other things, of a large number of cognitive units which are our knowledge of particular individuals and events... it is likely that one of the main ways in which new knowledge is communicated—perhaps even the only way—is by identifying some particular as a starting point and adding to the addressee's knowledge about it. (Chafe (1976: 43–4))

It seems clear that what these three linguists have in common is the view that—subjects serve as the starting points or decision makers of sentence orientation. Consequently, the reason of unacceptability of the sentence in (4) lies in the fact that all these sentences have pronoun subjects whose referents cannot be identified at the moment of utterance. It is thus highly reasonable to add to Anaphora Restriction II a subject constraint to exclude such cases.

REFERENCES


Chomsky, N. 1973. “Conditions on transformations”, in Anderson and


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