

Non-binding restrictions on co-indexing of pronouns¹

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Pronouns have no intrinsic referential meaning of their own, and in order to be interpreted they must be linked to a referential linguistic or discourse entity, and derive their reference by that link. Nowadays there is a wide agreement that syntactic factors, such as binding, play a prominent role in the distribution and interpretation of pronouns. Syntactic binding involves two conditions: c-command and coindexation. The binder c-commands, and is coindexed with, the bindee, as in (1):

(1) a. John_i believes [that Mary hates him_i].

In an approach assuming that clauses have an internal abstract hierarchical 'tree' structure, c-command is a relation between two constituents neither of which dominates the other; the node immediately dominating the c-commanding constituent also dominates the c-commanded constituent (Reinhart 1983). Thus, in a standard clause, the constituent which c-commands all other constituents (except the clausal constituent) is the subject. One consequence is that, within a clause, there is nothing that c-commands the subject and as a result there is nothing that qualifies as a potential antecedent for the subject, therefore subjects can only take clause-external antecedents. Another consequence is that nominals embedded within the subject do not c-command, and therefore cannot bind, constituents in the rest of the clause. A collateral effect is that, while binding necessarily involves coreference, coreference can hold in the absence of binding (see (4)).

In addition, binding involves certain locality constraints, i.e. the binding relation between binder and bindee holds within a clearly defined binding domain (BD): informally, bound pronouns cannot be too close to their antecedents, as in (2):

(2) [*John_i hates him_i.]

While the nature of these constraints has been the subject of on-going debate, the most widely assumed theoretical constructs for defining locality conditions on binding remain *governing category* (GC)² and *complete functional complex* (CFC) (the latter derived from, and incorporating, the former): a pronoun cannot be bound by (i.e., cannot refer to) an antecedent within the same GC or CFC³. In the vast majority of

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² *Government* is a relation between a lexical head and another constituent within the same structural node: the lexical head governs all constituents within its structural node. *Governing category* and *Complete Functional Complex* are structural domains within the 'governing range' of a lexical head and including a clausal or a nominal subject.

³ Effectively: Condition B of the Binding Theory (Binding Theory).

cases, the GC/CFC of a pronoun is either the containing clause, as is the case in (1-2), or the containing noun phrase (NP), as in (3):

(3) * $[\text{John}_i\text{'s hatred of him}_i]$

The proposed reading of (1) is OK, because the pronoun and its antecedent are not in the same BD: the GC/CFC of the pronoun is the containing complement clause. The opposite is true for (2) and (3): binder and bindee are located within the same BD, which makes the proposed readings unacceptable.

It would seem reasonable to assume that in those cases in which the pronoun and its antecedent are not in a c-commanding, and respectively binding, relation, locality constraints on the distribution and interpretation of pronouns would not apply, and the pronoun and its antecedent would be able to co-refer freely. This is indeed the case in (4):

(4) The man behind John_i attacked him_i .

in which the antecedent *John* is embedded in the subject NP and consequently does not c-command the pronoun *him*. There are, however, other cases in which the pronoun and its antecedent are not in a c-commanding relation, but a coreferential reading between the two is only partially acceptable or completely unacceptable:

(5) $^{?/*}$ The news about $\text{John}_i\text{'s appointment}$ astounded him_i

The contrast in acceptability between (4) and (5) presents an interesting problem, as the two sentences are structurally identical. This would suggest that whatever it is that makes (5) partially or completely unacceptable is not structural in nature. A similar contrast can be observed in sentences involving a binding relation between the pronoun and its antecedent:

(6) * John_i is not thinking of him_i .

(7) I am not thinking of me.

Both in (6) and (7), the pronoun is coreferential with, and c-commanded by, the subject NP. (6) is unacceptable in the proposed reading while (7) is OK. As the two sentences are structurally the same, this contrast in acceptability cannot be attributed to structural/syntactic factors, i.e. this contrast cannot be regarded as the result of the operation of the Binding Conditions (with the related locality constraints). In fact, the only noteworthy difference between (6) and (7) is morphological person. It should be noted that the contrast between (6) and (7) is not exceptional; numerous other examples are found not only in English, but also in a number of other languages (incl. Bulgarian):

(8) * They_i told stories about them_i .⁴

(9) We_i told stories about us_i .

⁴ From Chomsky (1986:167).

- (10) *Lucie_i's joke about her_i.⁵
- (11) My_i joke about me_i.
- (12) *On_i uže rasskazal mne o ego_i žizni.⁶ (Russian)
He already tell me about his life
(He has already told me about his own life.)
- (13) Ja_i uže rasskazal emu o moei_i žizni
I already told him about my life
(I have already told him about my life.)
- (14) *Karel_i otrávil jeho_i kočku. (Czech)
Karl poisoned his cat
- (15) Vy_i jste otrávil vasi_i kočku?⁷
you have poisoned your cat
- (16) *Ivan_i ne misli za nego_i. (Bulgarian)
Ivan not think of him
(Ivan isn't thinking of him(self).)
- (17) Az ne mislja za mene.
I not think of me
(I am not thinking of me.)

Examples (8-17) illustrate that 1st person constructions (clauses and NPs) allow pronouns in positions from which they are banned in structurally analogous 3rd person constructions. There is no reason to assume that the Binding Theory is sensitive to distinctions in morphological person, therefore if a 1st person construction is OK in terms of the Binding Theory, then its 3rd person correspondence should also be OK in terms of the Binding Theory. This would suggest that the ungrammaticality of the 3rd person constructions above is not related to the Binding Theory. One possible way to explain the unacceptability of these constructions would be to assume that with them another factor is at play: a factor which is additional to the Binding conditions, and which is absent from corresponding 1st person constructions. What can the nature of that factor be? Obviously, this factor is sensitive to morphological person and, as suggested earlier, it cannot be structural since its operation only seems to affect 3rd person, but not structurally analogous 1st person constructions. The view taken here is that this is a discourse factor operating for the elimination of potential ambiguity in the interpretation of 3rd person pronouns, which for the purposes of the current discussion will informally be called AVOID AMBIGUITY (AA)⁸. Such an assumption seems plausible in view of the ambiguous

⁵ From Reinhart & Reuland (1993: 661).

⁶ From Timberlake (1979, cited in Burzio 1991: 98)

⁷ From Toman (1991: 153-4)

⁸ For a discussion of this, and related phenomena, see also Moskovsky (2002, forthcoming).

nature of 3rd person pronouns which can be interpreted as referring to a range of possible antecedents, as in (18):

(18) Jane_i asked Mary_j about her_{i,j,k} husband.

in which the pronoun *her* can be interpreted as coreferential with either of the two other NPs in the sentence, and also with a range of potential (female) referents outside of the sentence. In contrast, 1st and 2nd person pronouns can only be interpreted as coreferential with a single entity:

(19) I_i asked Mary_j about my_{i*j*k} husband.

(20) You_i asked Mary_j about your_{i*j*k} husband⁹.

If the proposed AA principle is a discourse, rather than structural, principle then we can expect it to operate only insofar as there is perceived ambiguity (of the type illustrated in (18)) on the part of the speaker/listener, not in the absolute way in which a structural principle would operate. If this is indeed the case, we can expect for there to be at least some variation in speakers' sensitivity to AA in different sentences (or, overtime, even, in the same sentence). Data from an acceptability judgement task with sentences involving AA (see Appendix) seem to support such an assumption. It appears that speakers are unequivocal only in relation to sentences involving a Binding Theory violation, such as (21):

(21) *Mary_i found her_i in the library.

but become a lot more ambivalent with sentences involving AA, but not binding, such as:

(22) The man behind John_i attacked him_i.

(23) ??The news about John_i's appointment reached him_i in the early hours of the morning.

(24) ?The company's decision to sack him_i distressed John_i.

(25) ?The continuous rumours about him_i were a huge source of anxiety for John_i.

in relation to which judgements vary from 'completely acceptable' through 'partially acceptable' to 'completely unacceptable'. It should be noted though, that this variation is not completely random and that some sentences are more consistently regarded as unacceptable than others; (5), repeated here:

(5) *The news about John_i's appointment astounded him_i

is one such sentence to which most informants assigned a value of 4 "completely unacceptable" or 3 "more unacceptable than acceptable", and which no one judged

⁹ In some real-time exchanges, second person pronouns (e.g. *your*) can have a 'deictic' discourse referent, different from the clausal subject.

as “completely acceptable”. In contrast, (22) was almost invariably judged as 1 “completely acceptable”.

A closer scrutiny of the data derived through the acceptability judgement task suggests that there are several (apparently unrelated) factors which partially affect the co-indexing options of a pronoun in sentences in which pronoun and (potential) antecedent are NOT in a c-commanding relation and therefore not subject to the operation of the Binding Theory. Clearly, there are semantic factors among them. Thus sentences involving some spatial relationship between pronoun and antecedent (such as (22)) are almost always regarded as unambiguous, allowing free co-indexation between the two. While it is unclear why this should be the case, such a finding is not inconsistent with data involving the so called ‘snake sentences’, with locational and directional prepositional phrases:

(26) Max_i saw a gun near him_i.¹⁰

which allow pronominal binding that (at least apparently) violates Condition B¹¹. There have been various attempts to account for ‘snake sentences’ none of which have been completely successful. One possible reason why speakers accept coreferential reading of the pronoun and the subject is because they do not perceive such sentences as involving ambiguity.

In contrast, sentences with *Experiencer* verbs (such as (5)) are regarded, more often than not, as involving ambiguity. While it is unclear why this should be the case, there is little doubt that the factor at play is semantic in nature.¹²

Another factor that seems to play a role in relation to AA is the relative linear ordering of pronoun and antecedent in the sentence: there appears to be a general preference for a coreferential reading of pronoun and NP when the pronoun linearly precedes the NP antecedent. Thus sentences like (26)

(27) The announcement of her_i engagement to John came as a shock to Mary_i.

in which the antecedent NP follows the coreferential pronoun are usually regarded as more acceptable in the proposed reading than sentences like (28) in which the antecedent NP precedes the coreferential pronoun:

(28) The announcement of Mary_i's engagement to John came as a shock to her_i.

Please note, however, that this seems to be valid in those case in which at least some ambiguity is perceived. In sentences such as (4), repeated here

¹⁰ From Reinhart & Reuland (1993: 661).

¹¹ The fact that sentences with locational and directional prepositional phrases do not involve obligatory reflexivization of the pronoun in the prepositional phrase has long been recognised in traditional grammars (see e.g. Jespersen 1933: 112, Quirk 1972: 212, cited in Stamenov 2000: 51)

¹² It is interesting to note that sentences with *Experiencer*-verbs have been found to behave in a way which goes against (Condition A of) the Binding Theory in that the c-commanding condition on binding is violated (see e.g. Pesetsky 1987: 127):

(i) Pictures of each other_i annoy the politicians_i;

(4) The man behind John_i attacked him_i.

which are generally regarded as non-ambiguous, the relative ordering of pronoun and antecedent seems to be irrelevant with respect to the perceived level of ambiguity.

(29) The man behind him_i attacked John_i.

Given the assumptions made above about the nature of AA (particularly about the fact that its operation is limited to 3rd person sentences), it would appear logical to expect that speakers will have no problems with coreference options in the 1st and 2nd person. This was generally confirmed in the acceptability judgement task, with most informants giving sentences such as (30-31) a value of (1) 'completely acceptable':

(30) The news about my_i appointment astounded me_i.

(31) The new book about you_i will earn you_i a lot of fame.

even though there were a couple of cases in which these sentences were given values of 3 'more unacceptable than acceptable' and even 4 'completely unacceptable': a result that might be quite hard to account for in a systematic way.

The factors discussed here are in no way absolute: they have a probabilistic rather than deterministic value. For instance, while it is true that quite often sentences with *Experiencer* verbs are perceived as involving a higher level of ambiguity, there are also analogous sentences with non-*Experiencer* verbs which often attract similar judgements:

(32) ?/*The news about John_i's appointment reached him_i in the early hours of the morning.

There are also sentences with *Experiencer* verbs which are commonly judged as acceptable or close to acceptable:

(33) Mary's unconcealed desire to divorce John_i upset him_i terribly.

All these facts should not be seen as exceptional if AA is indeed a discourse rather than syntactic principle: as a discourse principle AA should not be expected to operate absolutely (the same way a syntactic principle would be expected to operate), but only so far as there is a perceived ambiguity on the part of the speaker/listener: therefore there is nothing surprising in the fact that the perceived level of ambiguity with regard to specific sentences differs among individual speakers (and over time, possibly, even with the same speaker).

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Appendix

Sentences used in the acceptability judgement task

The sentences below were given an acceptability 'value' according to the following scale:

1 = completely acceptable

2 = more acceptable than unacceptable

3 = more unacceptable than acceptable

4 = completely unacceptable

1. The new book about her_i will earn Mary_i a lot of fame.
2. The news about his_i appointment astounded John_i
3. An issue of great concern for him_i is John_i's involvement with Mary
4. Mary's refusal to accept John_i's explanation showed him_i the level of her frustration.
5. Another feminist book by John_i's wife will make him_i even more ridiculous in the eyes of his male friends.
6. The huge success of the book about her_i was a surprise for Mary_i.
7. The news about John_i's appointment reached him_i in the early hours of the morning.
8. Mary's unconcealed desire to divorce John_i upset him_i terribly.
9. The new closeness between Mary and him_i delighted John_i.
10. The news about my_i appointment reached me_i in the early hours of the morning.
11. The company's decision to sack John_i was not discussed with him_i until three days later.
12. The new book about Mary_i will earn her_i a lot of fame.
13. The man in the bed above John_i asked him_i a question.
14. The man behind him_i attacked John_i.
15. Mary_i saw her_i in the library.
16. The continuous rumours about him_i were a huge source of anxiety for John_i.
17. The news about John_i's appointment astounded him_i
18. The success of Mary_i's book took everyone in her_i office by surprise.
19. Most men at her_i workplace find Mary_i sexually attractive.
20. An issue of great concern for me_i is my_i involvement with Mary
21. The news about his_i appointment reached John_i in the early hours of the morning.
22. The announcement of Mary_i's engagement to John came as a shock to her_i.
23. The news about my_i appointment astounded me_i.
24. The new book about you_i will earn you_i a lot of fame.
25. The company's decision to sack him_i was not discussed with John_i until three days later.
26. The women in his_i life passionately love John_i.
27. The stack of Playboy magazines under John_i's bed belongs to him_i.
28. The management's agreement to offer Mary_i a position at their Vienna branch took her_i by surprise.
29. The announcement of her_i engagement to John came as a shock to Mary_i.
30. This new closeness between John_i and Mary delighted him_i.
31. Mary's unconcealed desire to divorce him_i upset John_i terribly.

32. Most men at Mary_i's workplace find her_i sexually attractive.
33. Mary's refusal to accept his_i explanation showed John_i the level of her frustration.
34. The man behind John_i attacked him_i.
35. The continuous rumours about John_i were a huge source of anxiety for him_i.
36. The company's decision to sack John_i distressed him_i.
37. An issue of great concern for John_i is his_i involvement with Mary
38. The women in John_i's life passionately love him_i.
39. The man in the bed above him_i asked John_i a question.
40. John_i suspects that Mary doesn't like him_i.
41. The success of her_i book took everyone in Mary_i's office by surprise.
42. Another feminist book by John_i's wife will deeply upset him_i.
43. The stack of Playboy magazines under his_i bed belongs to John_i.