THE INTERPRETATION OF PREDICATE REFLEXIVE AND RECIPROCAL EXPRESSIONS IN ENGLISH

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0.   In this paper we analyze the interpretation of a predicate reflexive or reciprocal expression as a bound anaphor whose antecedent occurs as part of the modifier of the subject, as in (1). (The underlining indicates the intended reading in which the underlined elements are anaphorically identical.)[1]

1) a. Marie's sincerest admirer is herself.
   b. The person Jack likes best is himself.
   c. The only people that the men recognized were each other.
   d. It was themselves that the students liked to write about.

Examples like (1)c were discussed by Chomsky (1973: 173), where it was proposed that they be derived by moving the object of the relative clause to the predicate position of the higher clause.[2] For obvious reasons such a suggestion is problematical in the REST framework in which semantic interpretation is determined by S-structure. But then what is to be the analysis of these constructions?

1.   We begin by observing that the anaphors in (1)b through (1)d are interpreted as though they are in the position of the trace of the wh element.

2) a. Jack likes himself best.
   b. The men recognized each other.
   c. The students liked to write about themselves.

Suppose, then, that there is a rule in the component of grammar that maps S-structures onto Logical Forms that replaces a trace in the subject of the copula by the predicate complement. Such a rule is a reconstruction rule in the sense of Chomsky (1981: 345, n. 10):

> "Reconstruction rules ... interpret a phrase in the position of a trace, not necessarily its trace."

We suggest (3) as a formulation of the relevant rule. The application of (3) will derive structures like (4).

3) Predicate Reconstruction (PR)

In the structure $\ldots[_{\alpha}\ldots[_{\beta}e]\ldots]\ldots[_{\beta}Y]\ldots$,

where α and $[_{\beta}Y]$ are subcategorized by be,

replace $[_{\beta}e]$ with $[_{\beta}Y]$.

4) a. The person Jack likes himself best is e
   b. The only people that the men recognized each other were e
   c. It was e that the students liked to write about themselves

We will assume that the coindexing of reflexives and reciprocals to antecedents is effected by a free indexing or reindexing rule which applies in the derivation to LF. We will also assume for convenience the binding conditions of Chomsky (1980): the Nominative Island Condition (NIC) and the Opacity Condition. In addition, we assume that the following requirement obtains on coindexing applications:

5) The antecedent of an anaphor must either
   a. c-command the anaphor (forward anaphora), or
   b. be c-commanded by the minimal NP dominating the anaphor (backward anaphora).[3]

The well-formedness of the structures in (4) will follow. We also observe that the structures in (6) will be ill-formed, ruling out the examples in (7).

6) a. The people [who each other should talk to the men] are e
   b. The ones [who themselves to visit the women] are e

7) a. *The people who should talk to the men are each other.
   b. *The ones to visit the women are themselves.

2. In cases involving possessives and adnominals, PR also makes a very interesting prediction. Consider the contrasts in (8) and (9).

8) a. John's best friend is himself.
   b. The book's best advertisement is itself.
   c. The women's favorite pictures are of each other.

9) a. *The best friend of John is himself.
   b. *The best advertisement of the book is itself.
   c. *The favorite pictures of the women are of each other.

Suppose that possessive NP's are derived by NP movement from the object position after the head N, as illustrated in (10); this is essentially the analysis proposed by Dresher and Hornstein (1979: 71). And in fact, if PR is correctly formulated as trace replacement, then the derivation of prenominal possessives must involve preposing, if the contrasts in (8) and (9) are to be accounted for.

10) [e]'s best friend [John] →
    [John]'s best friend [e]

The explanation will be as follows. Given preposing, PR will derive (11)b from (11)a. There will, however, be no parallel derivation from a structure like (12), since there will be no trace in the NP for himself to replace. Since PR will not apply, the only reading that will be available will be the one in which the friend is himself.

11) a. [$John_i$'s best friend e_i] is himself
   b. [John's best friend (of) himself] is e

12) [The best friend of John] is himself

3. We now consider the interaction of Predicate Reconstruction with the binding conditions. Turning once again to relative clause structures, consider the examples in (13). Suppose that PR lowers the anaphor to the original argument position of the wh anaphor to the original argument position of the wh element. The application of the binding conditions should entail that the underlined NP's could not be antecedents in the structures in (14).

13) a. The only person that John believes Bill likes is himself.
   b. The only person that John thinks can play is himself.

14) a. The only person that John believes Bill likes himself is e
   b. The only person that John thinks himself can play is e

Coindexing to John would be ruled out in (14)a by Opacity and in (14)b by the NIC. Most speakers, however, permit John to serve as an antecedent, in apparent violation of the conditions.[4] Interestingly, for some speakers, among them ourselves, binding to a higher subject is permitted only if the subject of the lower clause is itself a possible antecedent; that is, (15)a, contrasting with (13)a, is ruled out. Given the structure in (15)b, the ungrammaticality of the example would follow if the Opacity Condition were enforced. We return to this dialect below.

15)a. *The only person that John believes Mary likes
      is himself.
   b. The only person that John believes Mary likes
      himself is e

The more liberal dialect in which the anaphor may be coindexed to any c-commanding antecedent has a straightforward explanation. Suppose that, as is implicit in the formulation of PR, the reconstructed element may replace any trace in the relative clause, including a trace in COMP position. One output of PR would then be structures like (16).

16)a. The only person [that [John believes [himself
      [Bill likes e]]]] is e
   b. The only person [that [John thinks [himself
      [e can play]]]] is e

With the anaphors in the indicated positions, binding will be permitted.

To describe the conservative dialect we may add a statement to the effect that, in the grammars of certain speakers, an anaphor may only be in COMP if no "nonagreeing" subject (i.e., no subject that would have been an antecedent if the anaphor had been in the position of the argument trace or a more deeply embedded COMP) intervenes between the potential antecedent and the argument trace. This could be formulated along the lines of a filter like (17), which will ensure that PR can only lower anaphors to the argument position in the relevant constructions; the application of Opacity will then rule out structures such as (15)b.

17)[5] * ... NP^1 ... NP^2 ... e^3 ..., where
      a. 1 c-commands 2 and 2 c-commands 3,
      b. 1 is a reconstructed element, 2 is a
         subject, and 3 is a wh trace, and
      c. 1 and 2 are distinct in agreement features.

4. The treatment that we have suggested extends quite naturally to cases that involve disjoint reference. Consider the examples in (18), where the * in-

dicates that the reading in which the underlined NP's are coindexed is not available.

18)a. *The only person that John likes is him.
   b. The only person that John thinks Bill
      likes is him.
   c. *The only person that John thinks Bill
      likes is him.
   d. The only person that John thinks can play
      is him.

If we assume that PR applies to ordinary pronouns as well as anaphoric pronouns, as seems optimal, then the relative clause structures in (19) will be derived.

19)a. [that [John likes him]]
   b. [that [John thinks [e [Bill likes him]]]]
   c. [that [John thinks [him [Bill likes e]]]]
   d. [that [John thinks [e [him can play]]]]

Disjoint reference requires that pronouns be free in their minimal S, excepting the effects of the NIC and Opacity. PR, in conjunction with the binding conditions, predicts that John and him may corefer in (19)b and (19)d, due to the effects of Opacity and the NIC respectively. (19)a illustrates the usual case of disjoint reference. In (19)c disjoint reference will be due to the fact that a pronoun may not be coindexed to a nonpronominal NP that it c-commands. Consider (20).

20)a. *Him, John wanted Bill to like e
   b. *Mary told him that Bill left

Notice that there will be a contrast between the behavior of ordinary pronouns and anaphoric pronouns. Ordinary pronouns may lower to the position of the argument trace, as well as to COMP position. When they do lower to argument position, they will have the anaphoric properties that they have in simpler cases where the NIC and Opacity effects are found. Thus, it is predicted that the usual complementarity between bound anaphora and disjoint reference will be suspended in examples like the following.

21)a. The only one that John thought Bill liked
      was himself.
   b. The only one that John thought Bill liked
      was him.
   c. The only one that John thinks will win is
      himself.
   d. The only one that John thinks will win is
      him.

In (21)a and (21)c the pronouns will be reconstructed

to COMP position to yield the desired interpretations; in (21)b and (21)d the coindexed interpretations will be permitted in the derivations in which him lowers to argument position.

A special problem in the analysis of disjoint reference concerns adnominal structures like (22). In the related example in (23), PR applies, and disjoint reference obtains, as is desired. But in (22), PR may not apply (since there will be no trace); yet disjoint reference still holds.

22) *The best friend of John is him.
   (cf. The picture of John amused him.)
23) *John's best friend is him.
   (cf. John's best friend saw him.)

The explanation may, however, involve different principles than the ones we have been discussing here so far. Higginbotham (1980) has observed that disjoint reference in sentences containing copular verbs (including, but not limited to, the verb be) obtains under somewhat different conditions than in noncopular sentences. Compare (24) and (25).

24)a. *John is his cook.
   b. *His cook is John.
25)a. John saw his cook.
   b. His cook saw John.

We may assume that disjoint reference in (22) is a reflex of this independent phenomenon, which we may state as (26).

26) In the structure ... NP_1 COPULA NP_2 ..., where
   NP_1 (NP_2) is analyzed as $[NP_3]$ $\bar{N}$ or N $[P\ NP_3]$,
   NP_3 is disjoint from NP_2 (NP_1).

This is not, of course, a particularly illuminating account of what is going on. It would be desirable to explore possible connections between this extension of disjoint reference and PR. One might hope that a unified account can be given, although at this point we have no further progress to report.

5.   Finally, we note certain other instances in which reconstruction rules appear to be of utility. Consider the examples in (27), (28) and (29).[6]

27) Which pictures of $\left\{\begin{array}{l}\text{himself}\\ \text{*herself}\end{array}\right\}$ did John lose e

28) Which pictures of $\left\{\begin{array}{l}\text{himself}\\ \text{herself}\end{array}\right\}$ did John expect Mary to hide e

29) John found [pictures of himself] that $\left\{\begin{array}{l}\text{Tom}\\ \text{Sue}\end{array}\right\}$ hid e

These data suggest a more general reconstruction rule along the lines of (30).

30) In the structure ... $[_\beta Y]...[_\alpha...[_\beta e]...]...$,
   where $[_\beta Y]$ and $[_\beta e]$ are related, lower $[_\beta Y]$ to $[_\beta e]$.

We leave open any further specification of the notion of relatedness. Note that (30) appears to apply in topicalization, object deletion and pseudo-cleft paradigms as well as in relatives and questions.[7]

31) Himself, John expected Bill to like e
32) Those pictures of himself are too unflattering for John to want Bill to see e
33) What John wanted Bill to do was kill himself[8]

To conclude then, we have introduced certain special anaphoric patterns found in predicate constructions (and elsewhere as well), and we have attempted to give an initial formulation of these patterns as deriving from the reconstruction rules in the component of LF.

FOOTNOTES

[1]We observe that the examples suffer in cases where there is no restricting modifier present, as in (i). The examples also suffer when the relation of general-to-specific between the head and the embedded NP is reversed so that the head is more specific than the potential antecedent in the modifier. This is illustrated by the examples in (ii). In addition, there is an effect due to negation, shown in (iii).

i)   (?)The men's friends are themselves.
      (?)The people the women like are each other.
ii)   *The women that the people like best are each other.
      *These people that the women like best are each other.
iii)   *The only people that the women like aren't each other.
      (cf. Aren't the only people that the women like each other.)

[2]See also Chomsky (1970: 197-198; 209), where the ill-formedness of examples like (i) is observed. Examples like (ii) are also noted, and it is suggested that the "copula serves as a kind of existential operator."

i)   *The question whether John should leave is why Bill stayed.
      *The prospects for peace are for a long delay.

ii)   What John did was hurt himself.

A similar analysis is adopted by Akmajian (1970), who considers examples like the ones in (iii). As will be seen below when ordinary pronouns are considered, we disagree with Akmajian's judgments concerning examples like (iii)e and (iii)g.

iii)a. It was myself that I shaved.
   b. It was himself that John claimed had been cheated.
   c. It was himself that John wanted Bill to describe.
   d. It was himself that John wanted Bill to describe.
   e. *The one that John wanted Bill to describe was him.
   f. *The one that John wanted Bill to describe was him.
   g. *It was him that John claimed had been cheated.

[3]Notice that the conditions on forward and backward anaphora are sometimes in conflict.

i)   John believes [pictures of himself] to amuse Bill.

Consider the pattern with an infinitival copula:

ii) a. John expected himself to be who Bill liked best.
    b. *Mary expected himself to be who Bill liked best.
iii)a. John expected [pictures of himself] to be what Bill liked best.
    b. Mary expected [pictures of himself] to be what Bill liked best.

Examples like (ii)b seem rather worse than (iii)b. How is this to be explained? One possibility, suggested to us by Robert May, would be the following. Suppose we invoke a condition that the trace left by a reconstruction rule may not c-command the position to which it is reconstructed. This will rule out the structure in (iv).

iv)   Mary expected [e] to be who Bill liked [himself] best

To permit reconstruction in cases like (iii), we need to allow that there will be cases where only the pronoun will be reconstructed, not the entire NP; this will yield structures like (v).

v)   Mary expected [pictures of [e]] to be what Bill liked [himself] best

We also wish to note a problem that arises with sen-

tences like (vi).

vi)   Bill believed that it was himself that Mary liked best.

Opacity may be violated, permitting the matrix subject to bind the anaphor. It is unclear whether this property is preserved when there is a nonexpletive subject in the second clause.

vii)a. *Bill believed that the one that John liked best was himself.
    b. Bill believed that the murderer was himself.

[4]These facts were first noted by Akmajian (1970).

[5]The stipulation in (17)b that "2 is a subject" is required in order to account for the well-formedness of (i).

i)   The only person that Jack wanted to recommend Mary to was himself.

It is rather difficult to come up with an explanation for the conservative dialect that is based on any "minimal difference" with the grammar of the more liberal dialect. The problem is that there is no convincing way of entailing and/or subverting the effects of Opacity. A possibility other than (17) is the following.

Suppose that there is some (ad hoc) condition ensuring that PR lowers elements into the argument trace position in the relative clause. Given this, the appearance of a reconstructed element in COMP position might be taken to result from a second reconstruction rule raising anaphors that have undergone PR. (We would assume that anaphors that have undergone PR could be distinguished from those not having undergone the rule in that the former would be "doubly indexed" in some sense.) The rule raising to COMP (and in some instances from COMP to COMP) might be considered the reconstruction rule analogue of wh movement. It would remain, however, to prevent the application of this rule in structures like (ii) in the conservative dialect, while permitting application in cases like (iii).

ii)   The only person John believed Mary to like himself was e
iii)   The only person John believed Bill to like himself was e

The technical execution of this stipulation seems to be unilluminating. The best possibility seems to be to state the raising rule as (iv). A crucial assumption here would be that reindexing (between the subject and the anaphor) may apply in (ii) but not in

(iii).

iv)   Move a doubly indexed anaphor to COMP of $\bar{S}$ unless it is referentially distinct from the subject of $\bar{S}$.

Movement into COMP will also permit the NIC to be skirted, since structures like (v) will yield ones like (vi).

v)   The only person that John thinks [[himself can win]] is e

vi)   The only person that John thinks [himself [e can win]] is e

While this approach is not without interest, it still remains to account for the centrality of the notion subject that plays a part in the Opacity condition and in rule (iv).

[6]The examples in (27) and (28) were pointed out to us by Jacqueline Guéron. See also Fiengo (1980: 182).

[7]Notice that the presence of a "resumptive pronoun" blocks the application of PR'.

i)a. *Bill wants a picture of himself such that John will like it.

  b. *Those pictures of himself are too unflattering for John to want Bill to see them.

  c. *Himself, John wants Bill to like him.

Another interesting point concerns the distinction between trace and PRO. Consider the contrast in examples (ii) and (iii). If PR' lowers an anaphor onto trace, but not onto PRO, then the contrast will follow.

ii)   [Friends of each other] seemed [e to amuse the men]

iii) *[Friends of each other] wanted [PRO to amuse the men]

[8]Notice that in (33) coindexing is precluded between John and himself. This will follow if we assume the reconstruction may only lower the complement of the predicate to the position that it would occupy in a simple sentence, not to COMP. One possible explanation would be that (contra note 3) the entire VP kill himself is reconstructed, and that VP's may not be reconstructed to COMP position.

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