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On the Subject of Infinitives

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1. Introduction

This paper is concerned with 'raising to object'. In the following section, we will examine a range of phenomena motivating the existence of an operation which raises the subject of an embedded infinitival to a position in the matrix clause, i.e., an operation which has the general effects of Postal's (1974) 'raising to object.' In Section 3, we will suggest that this operation must take place prior to S(urface)-structure, and hence, cannot be directly identified with the Logical Form (LF) movement of accusative NPs to SPECifier of AGR-O, proposed in Chomsky (1989). In Section 4, we will discuss some differences between believe type and want type verbs, and suggest that only the former trigger this operation. Finally, in Section 5, we will discuss some conceptual issues surrounding 'raising to object', including certain problems that arise if such an operation indeed exists.

2. Evidence for Raising

Since the earliest detailed investigations of sentential complementation within a transformational framework, the dual nature of the immediately post-verbal (underlined) NP in examples like (1) has been noted. In some respects, that NP behaves like the subject of the lower predicate, while in other respects, it behaves like the object of the matrix verb.

(1)   I believe **John** to have convinced Bill

Rosenbaum (1967), for example, argues persuasively that at least in underlying structure, John in (1) must be a subject. He observes the synonymy between infinitival embedding and finite embedding, as in (2).

(2)   I believe that John convinced Bill

As Rosenbaum notes, this will be expected if John is the subject of the lower clause in (1) as well as in (2). He also points out the contrast between believe-type constructions, on the one hand, and clear instances of NP + S complementation, on the other hand, with respect to semantic import of active vs. passive

in the complement. (3) is synonymous with (1), but (5) is not synonymous with (4).

(3)   I believe Bill to have been convinced by John
(4)   I compelled the doctor to examine John
(5)   I compelled John to be examined by the doctor

As noted in Rosenbaum (1967) and Bach (1974), the underlying subject status of the NP in question is confirmed by the fact that the existential there and idiom chunks associated with the embedded clause can appear in this position. Thus, (6)-(7) contrast with (8)-(9), which are instances of NP + S complementation.

(6)   I believe there to be a man in the garden
(7)   I believe advantage to have been taken of John
(8)   *I forced there to be a man in the garden
(9)   *I forced advantage to have been taken of John

Alongside these arguments for lower subject status, Postal (1974) lists three "traditional arguments" for higher object status, based on passivization, reflexivization, and reciprocal marking. All three of these processes typically establish a relation between an object position and a subject position in the same clause. But they can also establish a relation between the underlying subject of the complement clause and the subject of the matrix under certain limited circumstances including, in particular, the infinitival constructions under discussion. The following examples are from Postal (1974: 40-42).

(10)a.   Jack believed Joan to be famous
     b.   Joan was believed to be famous by Jack
(11)a.   *Jack$_i$ believed him$_i$ to be immoral
     b.   Jack$_i$ believed himself$_i$ to be immoral
(12)   They believed each other to be honest

This class of arguments centrally involves the nature of the boundary separating the two linked NP positions. For Postal, any clause boundary would suffice to block the relevant relations, hence the second NP position must have become a clause-mate of the first (via 'raising to object'). Chomsky (1973) offered a somewhat different perspective on these phenomena. For Chomsky, the relevant structural property is not whether there is a clause boundary separating the two NPs, but rather what sort of clause boundary there is. Metaphorically, an infinitival

clause boundary is weaker than a finite clause boundary. While the latter is strong enough to block the relations in question, the former is not. Chomsky formulated this relative inaccessibility of material in finite clauses (and of non-subjects of infinitives) in terms of his Tensed Sentence Condition (TSC) and Specified Subject Condition (SSC).

In addition to the much discussed phenomena alluded to above, where boundary strength at least potentially provides the needed distinctions, Postal sketches certain other arguments for raising in which the actual surface structure height of the deep structure subject is implicated. One argument is based on a scope difference between (13) and (14):

(13)   The FBI proved that few students were spies
(14)   The FBI proved few students to be spies

Postal indicates that few students can have wide or narrow scope in (13) while it can have only wide scope in (14), and that this distinction is best described in terms of the hierarchical notion 'command'. The precise semantic difference between (13) and (14) is not crystal clear, but there does seem to be some difference, and it is reasonable to assume that it has something to do with scope. Given this, it is plausible to reason, with Postal, that some sort of transformational reorganization is implicated. As Postal notes, notions of hierarchical clause membership, such as command, are independently known to play a role in describing quantifier scope.

Postal bases another similar argument on "a fundamental pronominalization constraint" due to Langacker (1969), which states that a pronoun cannot both precede and command its antecedent. There are a number of recent formulations of this constraint, including the noncoreference rule of Lasnik (1976) and Binding Condition C of Chomsky (1981). Any of these formulations can distinguish (15) from (16), but only if the embedded subject in (16) has raised into the higher clause.

(15)   Joan believes he_i is a genius even more fervently than Bob_i does
(16)   *Joan believes him_i to be a genius even more fervently than Bob_i does

Once again, hierarchical notions are known to play a

role in determining such constraints on pronominal coreference, but if him in (16) remains in the lower clause, there cannot be a difference between (15) and (16) with respect to command, c-command, etc. The structural relation between he and Bob in (15) would be the same as that between him and Bob in (16) in relevant respects.

The logic of the argument based on (15)-(16) is compelling, but there is a potentially confounding factor in the specific examples Postal presents, namely, the VP ellipsis in the adverbial clause. If the elided VP is restored in (16), arguably we have (17).

(17)   *Joan believes him_i to be a genius even more fervently than Bob_i believes him_i to be a genius

But now notice that in (17), the illicit relation could be that between Bob and the second, rather than the first, him. And this relation falls into the category of those in (10)-(12) above, where boundary strength rather than height could be the determining factor. In fact, there is reason to believe that this potential complication does not seriously interfere. The noncoreference effects that would be expected if the constraints on pronominal anaphora applied to reconstructed VPs do not materialize in any strong way. For example, (18) is far better than (19), the latter displaying a clear Condition B effect.

(18) ?Mary believes him_i to be a genius, and Bob_i does too
(19) *Bob_i believes him_i to be a genius

Similarly, (20) displays little of the Condition C effect of (21).

(20) ?Mary believes Bob_i to be a genius, and he_i does too
(21) *He_i believes Bob_i to be a genius

But to control even for the slight residual effect displayed in (18), (15)-(16) can be modified as follows:

(22)   Joan believes he_i is a genius even more fervently than $Bob's_i$ mother does
(23) ?*Joan believes him_i to be a genius even more fervently than $Bob's_i$ mother does

Postal's contrast still obtains, though in slightly weakened form. (23) does not seem quite as bad as (16). The important comparison is with (24), however, and (24) and (23) are quite close in acceptability.

(24) ?*Joan believes him$_i$ even more fervently than Bob's$_i$ mother does

Thus, as Postal indicates, the subject of the infinitival complement is patterning with objects in this regard: it seems to be approximately as high in the structure as an object.

Before exploring possible accounts of this property, we want to present several other paradigms displaying similar behavior. The first of these involves the distribution of reciprocal expressions. One aspect of this distribution constituted one of Postal's traditional arguments, as in (12) above, and was essentially neutral between a raising analysis and one in terms of boundary strength. The relative height of reciprocal and antecedent was not necessarily at issue in such constructions. But there is another aspect of the distribution where relative height is significant. Note that (25) is not significantly worse than (26).

(25) ?The DA proved [the defendants to be guilty] during each other's trials
(26) ?The DA accused the defendants during each other's trials

They both are considerably better than (27), the finite counterpart of (25).

(27) ?*The DA proved [that the defendants were guilty] during each other's trials

Given usual assumptions, the antecedent of a reciprocal must bear a command relation to the reciprocal, c-command, for example. But an embedded subject does not c-command an adverbial in the matrix clause. This indicates that at the point in the derivation relevant to the licensing of reciprocals, or anaphors in general, the structure of (25) has changed in such a way that the position of the defendants is comparable to what it is in (26).

Negative polarity item licensing is also known to display asymmetries characteristic of c-command

determined relations. Thus, a negative subject of a simple sentence can license any in the object, but not vice versa:

(28) No one saw anything
(29) *Anyone saw nothing

Further, a negative object can, to a reasonably acceptable extent, license any in an adverbial:

(30) The DA accused none of the defendants during any of the trials

Now notice that to roughly the same extent, a negative subject of an infinitival can license any in an adverbial attached to the higher VP.

(31) ?The DA proved [none of the defendants to be guilty] during any of the trials

This is in rather sharp contrast to a corresponding finite complement:

(32) ?*The DA proved [that none of the defendants were guilty] during any of the trials

Once again, there is reason to believe that at the relevant level of representation, the subject of the infinitival complement is approximately as high in the structure as an NP complement would be.

'Binominal each', a construction presented in Postal (1974) and explored in detail by Safir and Stowell (1987), also involves c-command relations (at least for many speakers). The 'antecedent' of each must c-command it:

(33) The students solved three problems each
(34) *Three students each solved the problems (i.e., on the reading 'The problems were solved by three students each')

Postal shows that there is what we have been calling a boundary strength effect with this each, presenting the following contrast, among others.

(35) *The students proved that three formulas each were theorems (i.e., on the reading 'Each of the students proved that three formulas were theorems')
(36) ?The students proved three formulas each to be

theorems

But there is an additional finite/non-finite asymmetry displayed by binominal <u>each</u>. Safir and Stowell present the 'small clause' in (37); the full infinitival in (38) seems equally good.

(37) Jones proved the prisoners guilty with one accusation each
(38) Jones proved the defendants to be guilty with one accusation each

(37) and (38) are comparable to (39).

(39) Jones prosecuted the defendants with one accusation each

However, the finite counterpart of (37) and (38) is degraded:[1]

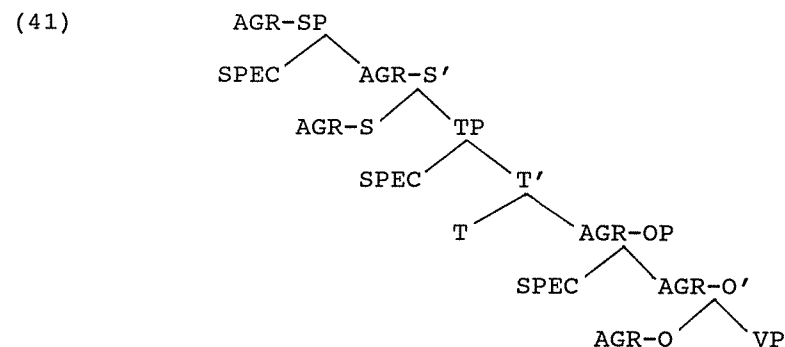(40) ??Jones proved that the defendants were guilty with one accusation each

In this paradigm, it is apparently not (just) boundary strength that is at issue, but, once again, structural height.

3. When does Raising Take Place?

The examples discussed so far indicate that the subject of the embedded infinitival has roughly the height of the matrix object at some level of representation. And the level of representation in question must be where the possibility of pronominal coreference is explained and where anaphors, negative polarity items and binominal <u>each</u> are licensed. According to Postal's (1974) 'raising to object' analysis, the relevant level is S(urface)-structure, since the subject becomes a structural object by the operation of a syntactic transformation. But there is an alternative possibility that we might consider.

Chomsky (1989) notes that structural Case assignment (or checking) appears to take place in two distinct basic configurations. Assuming that Agreement (or some related functional category) is responsible for nominative Case assignment/checking, such Case assignment can be regarded as an instantiation of SPEC-Head agreement. Accusative Case assignment, on the other hand, is standardly viewed as arising from a government relation between a verb and the accusative

NP. Chomsky speculates that the second type of Case assignment might be reducible to the first if, inside of the subject agreement (AGR-S) projection, there is an object agreement (AGR-O) projection. Then the structural relation necessary for accusative Case could once again be a SPEC-Head relation, this time holding between the SPEC and head of AGR-O (with the contribution of V to the Case assignment process presumably following from the amalgamation of V with AGR-O). As Chomsky indicates, in a language like English, movement to SPEC of AGR-O does not take place between D(eep)-structure and S(urface)-structure. SPECs in English are phrase initial, but the accusative direct object of a verb follows the verb, hence follows the AGR head that takes the VP as its complement. But this leaves open the possibility that the movement takes place 'later', between S-structure and LF. Chomsky thus suggests the following phrase structure for sentences:

(41)
```
        AGR-SP
       /      \
    SPEC     AGR-S'
            /      \
         AGR-S     TP
                 /    \
              SPEC    T'
                     /  \
                    T   AGR-OP
                        /     \
                     SPEC    AGR-O'
                            /      \
                         AGR-O     VP
```

Assuming that in English, NPs with accusative Case must move to the SPEC position of AGR-OP in the LF Component for the purpose of Case assignment/checking, this hypothesis, then, implies that the subject of the embedded infinitival and the matrix object are in the same position at the level of LF. Thus, a possibility arises that the subject is raised to the matrix not at S-structure but at LF.

In this section, we will explore the question of whether the raising that we have already seen evidence for takes place prior to S-structure, as Postal (1974) proposes, or after S-structure, along the lines of Chomsky's conjecture. We will find some reason to believe that the raising operation argued for in the preceding section is not LF movement to SPEC of AGR-O, but rather is an independent S-structure operation.

First, the parallelism between (23) and (24) indicates that the subject of the embedded infinitival assumes a position comparable in structural height with that of the matrix object at a level where the possibility of pronominal coreference is determined. Discussing the following examples, Chomsky (1981) argues that his Condition C must apply at S-structure:

(42)   Which book that John$_i$ read did he$_i$ like
(43) *He$_i$ liked every book that John$_i$ read

The grammaticality of (42) shows that the condition does not apply at D-structure. (43), on the other hand, indicates that LF cannot be the only level where the condition applies: After quantifier raising (QR) applies in LF, (43) has roughly the same configuration as (42). Hence, Chomsky concludes that the condition applies at least at S-structure, and possibly also at LF.

If Condition C (or whatever the relevant disjoint reference condition is) applies at LF, in addition to S-structure, the parallelism between (23) and (24) can be accounted for at this level. Thus, it is immaterial whether the raising takes place at S-structure or LF. On the other hand, if the condition applies only at S-structure, the parallelism must be accounted for at this level. This implies that the embedded subject must be raised out of the embedded clause prior to this level, and hence, that the raising must be an S-structure operation. And there is a piece of evidence (although somewhat weak) that the disjoint reference condition applies only at S-structure.

It is shown in Saito (1986, 1989) that Japanese scrambling can move a WH-phrase out of the CP where it takes scope. (45) is slightly worse than (44), but is at worst only marginal.

(44)   [$_{IP}$Kare-wa [$_{CP}$[$_{IP}$Mary-ga [$_{NP}$John-nituite-no
      he -top   -nom   -about -gen
  dono hon]-o   yonda] ka] siritagatteiru]
  which book-acc read   Q   want-to-know
        (He wants to know which book about John Mary
        read)

(45) ?[$_{IP}$[$_{NP}$John-nituite-no dono hon]-o$_i$ [$_{IP}$kare-wa
    [$_{CP}$[$_{IP}$Mary-ga $\underline{t}_i$ yonda] ka] siritagatteiru]]

In both (44) and (45), the WH-phrase, <u>John-nituite-no</u>

<u>dono hon</u>, takes embedded scope. Hence, the examples should both have the LF representation in (46).

(46)   [$_{IP}$Kare-wa [$_{CP}$[$_{NP}$John-nituite-no dono hon]-o$_i$
    [$_{C'}$[$_{IP}$Mary-ga $\underline{t}_i$ yonda] ka]] siritagatteiru]

Now, it is pointed out in Saito (1986) that there is a difference between (44) and (45) in the possibility of coreference of <u>John</u> and <u>kare</u>: It is totally impossible in (44), but not in (45).[2] This difference is unexpected if the disjoint reference condition applies at LF (as well as at S-structure), since the two examples have the same LF representation, in which the pronoun clearly c-commands <u>John</u>. On the other hand, if the condition applies only at S-structure, the two examples can be correctly distinguished. Thus, the contrast between (44) and (45) suggests that the disjoint reference condition applies only at S-structure, and not at LF.

The argument above for raising as an S-structure operation was based on data that require rather subtle contrastive judgement, e.g., (23), (24) and (45). But it is possible to construct the same kind of argument on the basis of the licensing of anaphors, where the relevant facts are somewhat clearer. As pointed out in Barss (1986), and Lasnik and Saito (1990), examples such as the following indicate that anaphors cannot be licensed solely on the basis of an LF configuration:

(47)   John$_i$ wonders which picture of himself$_i$ Mary
      showed to Susan
(48) *John$_i$ wonders who showed which picture of himself$_i$
      to Susan

(47) shows that an anaphor within the embedded CP SPEC can be licensed by an antecedent in the matrix subject position. Given this fact, the ungrammaticality of (48) is surprising if anaphors can be licensed solely at LF. In LF, the WH-phrase in situ, <u>which picture of himself</u>, moves to the embedded CP SPEC position, where it takes scope. Thus, at LF, the configurational relation between <u>himself</u> and its antecedent is virtually identical in (47) and (48). Hence, the ungrammaticality of (48) shows that anaphors must be licensed at a level prior to LF, e.g., S-structure (and possibly at LF as well). (48) is ruled out because the reflexive fails to be licensed at that level.

Given the fact of anaphor licensing mentioned

above, let us consider again the contrast between (25) and (26), repeated as (49) and (50), respectively.

(49) ?The DA proved [the defendants to be guilty] during each other's trials
(50) ?The DA accused the defendants during each other's trials

If the embedded subject in (49) moves to the matrix only in LF, then the anaphor, each other, can be licensed only at this level. We, then, predict incorrectly that the example has the status of (48). On the other hand, if the subject is raised to the matrix at S-structure, then the anaphor can be licensed already at this level, and we predict correctly that the example has the status of (47). Hence, (49) indicates that the raising of the subject of an embedded infinitival must take place at S-structure, as proposed in Postal (1974).

Uriagereka (1988) suggests one further test to determine the level at which anaphors must be licensed, based on Chomsky's (1986) proposal that at LF, expletives are replaced by the arguments with which they are associated. For example, S-structure (51) becomes LF (52).

(51) There arrived a man
(52) A man arrived t

Based on the acceptability of (53), Uriagereka proposes that anaphors need not be licensed at S-structure, reasoning that the required c-command relation between two knights and each other holds at LF (54) but not at S-structure (53).3

(53) There arrived two knights on each other's horses
(54) two knights arrived t on each other's horses

However, this interesting argument is not entirely conclusive, since we have seen repeatedly that direct objects do, in fact, seem to c-command certain adjuncts. We defer to a later section discussion of how this could be possible, but given that it is, the anaphor in (53) could be licensed at S-structure. However, Uriagereka's test can be applied in less equivocal fashion to our central concern – the properties of raising constructions. As seen earlier, the subject of an infinitival can serve as the antecedent of a reciprocal within an adjunct in the higher clause. (55) is an example, similar to those

above, of this phenomenon.

(55) The DA proved [two men to have been at the scene] during each other's trials

However, (56), which should be identical to (55) at LF in relevant respects, under the expletive replacement hypothesis, is severely degraded.

(56) *The DA proved [there to have been two men at the scene] during each other's trials

S-structure, rather than LF, is the level at which (55) can be appropriately distinguished from (56) with respect to anaphor licensing. Thus, this contrast implies that anaphors must be licensed at S-structure.

There is also some (slight) evidence that the licensing of negative polarity items is based on S-structure, rather than LF, configurations. May (1977) discusses the ambiguity of sentences involving subject raising to subject position, such as (57).

(57) Some politician is likely to address John's constituency

He points out that the quantifier in subject position can have either wide or narrow scope with respect to the predicate likely. On the narrow reading, (57) is roughly synonymous with (58).

(58) It is likely that some politician will address John's constituency

May proposes that this reading of (57) is derived via the LF lowering of the quantifier to the embedded clause. Next, notice that while a negative raising predicate in a configuration like that in (58) can license any, as in (59), any is none-the-less impossible as the surface subject of the negative predicate, as shown in (60).

(59) It is unlikely that anyone will address the rally
(60) *Anyone is unlikely to address the rally

(59) is unsurprising: the negative predicate c-commands anyone. (60) is also unsurprising based on its S-structure configuration: unlikely does not c-command anyone. However, if quantifier lowering is possible, the LF of (60) should be like (59) in relevant respects. Thus, this is potentially a strong argument

that such licensing must take place at S-structure, and consequently, that the licensing negative in examples like (31) above must have already raised by S-structure.

The one weakness in the argument above is that, for reasons that are unclear, quantifier lowering across a negative predicate is degraded. Thus, (61) does not readily permit the narrow scope interpretation.

(61) Someone is unlikely to address the rally

But if such lowering is barred, then even at LF anyone in (60) will not be in a licit configuration. The relevant factual question, then, is whether (60) is even worse than the narrow scope reading of (61). While the judgement is not as clear as one might hope, (60) does, in fact, seem to be worse. And just to the extent that it is worse, we have evidence that negative polarity items must be licensed at S-structure, and, hence, that raising must take place by S-structure.

4. Postal's B-Verbs vs. W-Verbs

Postal argues that despite the several differences between B(elieve) type verbs and W(ant) type verbs, raising to object position is equally applicable with both. Bach (1977) questions this, suggesting, with Bresnan (1972), that raising is limited to B-verb constructions. One of his arguments is of particular relevance to us since it belongs to the class of arguments implicating height of the subject of the infinitival complement. In particular, Bach indicates that the effects of the pronominalization constraint illustrated in (16) above are less clear with want than with believe. Continuing to control for potential interference from reconstruction of the elided VP, we can compare (62) with (23) above, repeated here as (63):

(62) ?Joan wants him$_i$ to be successful even more fervently than Bob's$_i$ mother does
(63) ?*Joan believes him$_i$ to be a genius even more fervently than Bob's$_i$ mother does

As Bach implies, there does seem to be at least something of a contrast.

Given the contrast between (62) and (23), it might

be informative to insert want into other configurations examined above. In these, too, there is a consistent, though small, distinction. The reciprocal in (64) is slightly worse than the one in (65).

(64)??*I wanted [those men to be fired] because of each other's statements
(65) ?I believed [those men to be unreliable] because of each other's statements

Similarly for the licensing of negative polarity any:

(66)??*I wanted [none of the applicants to be hired] after reading any of the reports
(67) ??I believed [none of the applicants to be qualified] after reading any of the reports

Binominal each shows a similar pattern.

(68)??*I wanted [them to be fired] for three reasons each
(69) ??I believed [them to be incompetent] for three reasons each

Note that, as would be expected under any existing account of raising phenomena, when the complement of want is introduced by the complementizer for, the subject of that complement does not behave at all like an object of want:

(70)?*I wanted very much [for those men to be fired] because of each other's statements
(71) *I wanted very much [for none of the applicants to be hired] after reading any of the reports
(72)?*I wanted very much [for them to be fired] for three reasons each

In (70)-(72), it is clear that no syntactic raising has taken place, just as assumed by Postal. Evidently the presence of the complementizer for blocks raising, as suggested by Bresnan (1972). Even under Chomsky's LF approach (if a way can be found to maintain it), raising to higher SPEC of AGR-O will presumably not take place here, since want, the verb associated with that AGR-O, is not involved in Case assignment to the lower subject. Rather, it is for that determines the assignment of Case in this configuration. The situation is less straightforward for (64), (66), and (68), where there is no for. If we are to assimilate these to (70)-(72), we must postulate either that for is actually present at the point in the derivation

where NP raising would take place, and is deleted later (as suggested in another context by Chomsky (1981)), or that there is a null version of the <u>for</u> complementizer that occurs with the W-verbs whenever <u>for</u> itself is absent.

5. Raising Questions

We have seen several pieces of evidence for the existence of raising between D-structure and S-structure. The evidence was, if not overwhelming, at least suggestive. On the other hand, there are conceptual arguments in the literature to the effect that raising is not a possible operation. Chomsky (1981), for example, proposes that "each lexical element α assigns a θ-role to every NP or clause in its complement..." [p.93] This would forbid an empty NP in the complement of <u>believe</u> into which the subject of the infinitival could raise. However, as noted by McCawley (1988), this constraint is not obviously crucial to Chomsky's theory. Chomsky further argues that if there is S'-deletion (a process weakening the strength of the clausal boundary) in these infinitival complements, then raising is superfluous [p.146]. Note that while raising might indeed be superfluous with respect to boundary strength phenomena, the same is not true for height effects, as discussed above.

Thus far, then, there is no clearly compelling reason to reject syntactic raising. Chomsky (1986) pursues this issue further. Based on proposals of Pesetsky (1982), he suggests that 'c-selection' (subcategorization) might be eliminable, its effects deduced from 's(emantic)-selection'. He then continues,

> If we succeed in eliminating recourse to c-selection as well as phrase structure rules, thus reducing syntactic representations at D-structure to projections of semantic properties of lexical items, it will follow that the complement of any lexical head in a syntactic representation must be s-selected by it, because there is no other way for the position to exist. For example, there cannot be such sentences as (68), where V is a verb that does not s-select an object and <u>there</u> is a pleonastic element...lacking any semantic role...

John [$_{VP}$ V there]   (68)

...Similarly, we cannot have "raising to object" to yield (70ii) (with <u>e</u> the trace of <u>Bill</u>) from the D-structure (70i):

                                                          (70)
i John [$_{VP}$believes <u>e</u> [$_s$Bill to be intelligent]]
ii John [$_{VP}$believes Bill [$_s$<u>e</u> to be intelligent]]

The verb <u>believe</u> s-selects only a proposition. Therefore, in (70i) the position occupied by <u>e</u> cannot exist at D-structure, because it is not s-selected by <u>believe</u>.   [pp.90-91]

This line of reasoning is part of the more general theory outlined in Chomsky (1986;1989) emphasizing the importance of 'economy of representation' and 'full interpretation'. The leading idea of this approach is that symbols cannot appear in a representation at a linguistic level unless they have significance at that level of representation. It was this concept that formed the background for the expletive replacement analysis discussed above with respect to Uriagereka's (53)-(54). The pleonastic element <u>there</u> is replaced at LF because it has no significance at this level, being semantically empty. Now given that D-structure is "an abstract representation of semantically relevant grammatical relations..." [Chomsky (1986,p.67)], Chomsky's conclusion about raising would seem to follow. The empty NP in his (70)ii above is not s-selected, has no semantic import, and therefore cannot appear at a level of representation that is devoted to representing s-selection relations. Ultimately, though, there is an asymmetry that must be stipulated, since this line of reasoning would lead to the conclusion that not only non-thematic objects, but also non-thematic subjects, are precluded at D-structure. That is, it would disallow even subject raising into subject position, or the NP preposing portion of passive, or, for that matter, D-structures with pleonastic <u>it</u> or <u>there</u>, all of which are well-motivated internal to Chomsky's theory. Since there is no evident semantic difference between pleonastic subject positions and pleonastic object positions, we are in the position of essentially stipulating either that the former are allowed or that the latter are disallowed. And the principled nature of Chomsky's recent theory makes such a stipulation rather difficult.

Postal and Pullum (1988) consider some of these same conceptual questions, and a related empirical question: Are pleonastic objects in fact impossible? They cite a variety of examples, including the following ones, indicating that expletives are possible in object position.

(73) I dislike it that he is so cruel
(74) I didn't suspect it for a moment that you would fail
(75) I regret it very much that we could not hire Mosconi
(76) I resent it greatly that you didn't call me
(77) I don't mind it very much that he did that

All of these are fully acceptable, and in all of them, the it is reasonably regarded as an expletive. And if pleonastic objects are allowed, Postal and Pullum argue, there is no principled basis for rejecting raising to object position. This reasoning seems sound, but the actual patterning of facts is surprisingly discordant. In particular, there is very little correlation between the verbs that take expletive objects and those that take infinitival complements with overt subjects. The verbs in (73)-(77), for example, range from marginal to completely unacceptable in 'raising' contexts:

(78) ??I dislike him to be so cruel
(79) ?*I didn't suspect you to have failed
(80) *I regret them not to have hired Mosconi
(81) *I resent you not to have called me
(82) *I don't mind him to have done that

Conversely, Postal's best instances of B-raising verbs, believe, prove, find, and show, are not particularly comfortable with it objects:

(83)   I believe (??it) that John left
(84)   I will prove (?*it) that Mary is the culprit
(85)   They have found (*it) that there is a prime number greater than 17
(86)   I will show (*it) that the Coordinate Structure Constraint is valid

Given that only some verbs allow expletive objects, and given that only some verbs appear in raising configurations, by Postal and Pullum's argument one would expect these two classes of verbs to converge. But it is clear that they do not. In fact, most of the best instances of expletive objects occur with factive

verbs, in the sense of Kiparsky and Kiparsky (1970), while, as the Kiparskys observed, raising is generally not permitted with factives. Thus, while Postal and Pullum's examples of expletive objects potentially provide a conceptual basis for allowing raising to object, they provide little if any empirical basis.

There are two further theoretical questions that must be addressed. The first specifically involves the Condition C effect in (17) and (23) above. Since in this instance, the relevant phenomenon is a filtering effect, rather than a licensing effect as with polarity any, binominal each, reciprocals, it is crucial that the raising process be obligatory. If it were optional, it could simply refrain from applying, and there then should be no detectable noncoreference phenomenon. This is significant since we assume, following Chomsky and Lasnik (1977), that obligatoriness is not simply a stipulated property of transformational operations, but rather, must follow from deeper principles. Note that under Chomsky's approach, while the level of application was argued to be wrong, obligatoriness is straightforward. The Case of an accusative NP would not be appropriately licensed if it did not raise to SPEC of AGR-O. It is less clear under the classic transformational account. Interestingly, Postal and Pullum suggest an answer that is Case based, much like the one we just sketched, conjecturing that raising is necessary in order for the accusative NP to be close enough to the verb that assigns Case to it:

...the transclausal boundary Case-marking alternatives to Raising-to-Object analyses violate what would otherwise be a possible restrictive constraint on Case marking.   [p.666]

The final theoretical question was alluded to earlier. We noted that with respect to all of the paradigms considered, the subject of the infinitive was behaving like an object of the higher verb. We further observed that it was unclear why even true objects were behaving the way they were, since all of the paradigms involved c-command phenomena, and objects do not obviously c-command adjuncts. Here, again, an approach in terms of SPEC of AGR-O could (apart from the question of level of applicability) give exactly the right structural relations. The SPEC of AGR-O c-commands everything in, or adjoined to, VP.

In summary, we have seen empirical evidence that

raising takes place by S-structure. But, at the same time, some of the specific formal properties of raising seem more readily explicable under the LF SPEC of AGR-O approach. It remains to be seen how this conflict can be resolved.

Footnotes

1. We are, frankly, puzzled by the fact that these finite complement are as good as they are. As far as we know, under no analysis do subjects of finite clauses undergo raising, so one would expect all such examples to be completely impossible.

2. It should be noted here that not all speakers agree on the improved status of (45) compared with (44). But the contrast between the two examples seems to us to be clear.

3. Actually, according to the specific analysis of expletive-argument pairs in Chomsky (1986), (53) would straight-forwardly satisfy the binding requirement of the anaphor at S-structure, since Chomsky claimed that throughout the derivation expletives are coindexed with their associated arguments. But see Lasnik (in press) for arguments against this position.

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