

# LF Movement of Pronouns and Antisubject Orientation

## 1. Introduction

English and Norwegian pronouns differ with respect to what will be referred to here as *antisubject orientation*. This phenomenon was first discussed by Vikner (1985) in the context of a comparison between English and Danish, and the same phenomenon exists in Icelandic (see Thráinsson (1979), Manzini and Wexler (1987)). Norwegian is like Danish in all relevant respects. As illustration, consider the following Norwegian sentences and their English glosses. In all the cases, the English pronoun can be coreferential with the subject, whereas the Norwegian pronoun cannot:

- (1) a. John<sub>i</sub> liker hans<sub>\*i/j</sub> bil.  
John<sub>i</sub> likes his<sub>i/j</sub> car  
b. John<sub>i</sub> kikket bak ham<sub>\*i/j</sub>.  
John<sub>i</sub> looked behind him<sub>i/j</sub>

On the other hand, coreference with a subject is possible in Norwegian when another subject intervenes, as illustrated in (2).

- (2) a. John<sub>i</sub> bad Marit sparke ham<sub>i</sub>.  
John asked Mary to-kick him  
b. John<sub>i</sub> likte Marits bilde av ham<sub>i</sub>.  
John liked Mary's picture of him

Furthermore, when a tensed clause boundary intervenes between the pronoun and the next higher subject, coreference is again possible:

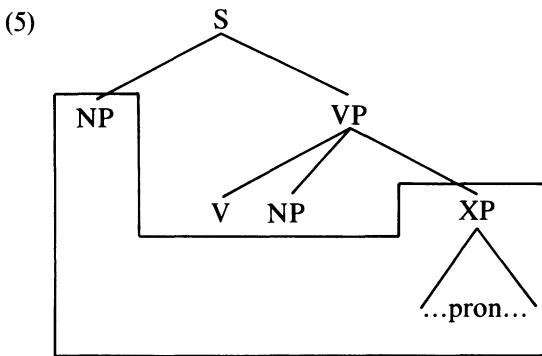
- (3) John<sub>i</sub> tror at han<sub>i</sub> er smart.  
John thinks that he is smart

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The requirement of being free from the closest subject in certain contexts differentiates Norwegian and English pronouns. The term *antisubject orientation* comes from the fact that there is no requirement of being free from a higher object, even if this object is closer than the subject, as shown in (4).

- (4) John<sub>i</sub> fortalte Per<sub>j</sub> om hans<sub>\*i/j</sub> kone.  
John told Peter about his wife

In other words, accounting for the antisubject orientation amounts to designing a theory that picks out the higher subject as part of the binding domain of the pronoun, but not the higher object. The “binding domain” of such a pronoun is effectively the boxed area in (5), where XP is not a tensed clause, and the pronoun is the highest subject in XP, if it contains a subject.



This also shows that the difference between English and Norwegian is not simply a matter of different binding domains for pronouns in the two languages: if the matrix clause is taken as the binding domain for the pronoun in (5) in Norwegian but not English, then that domain will include the higher object, which gives the wrong result (see (4)).

Previous accounts of this phenomenon (Vikner (1985), Manzini and Wexler (1987)) have invoked special conditions on the antecedent of the pronoun. In addition to subjecting the pronoun to the usual binding domain requirements, a binding-domain-independent condition on the syntactic binder of the pronoun is imposed. These proposals state that, in addition to being free in its binding domain (Condition B), the pronoun must also be “subject-free.” Vikner calls this a “binder-parameter” as opposed to a “domain-parameter,” and Manzini and Wexler call it “proper antecedent” conditions. The drawback with these proposals is that the additional “binder” conditions have no connection with the other elements of binding theory; in other words, what is required is an entirely new mechanism. Also, no principled explanation for why English pronouns differ from Scandinavian pronouns exists within those frameworks; the difference is simply stipulated.

This article will argue that no new mechanisms are necessary, and that the effect follows from the primitives of binding theory. In particular, it will be proposed that

antisubject orientation can be explained by an extension of the mechanism that explains why certain reflexives are subject-oriented and long-distance bound, namely, LF movement.

Since Lebeaux (1983) proposed that reflexives move at LF (see also Belletti (1982)), this idea has generated research and applications in a wide range of areas (see Pica (1987), Broadwell (1987), Huang and Tang (1989), Yang (1989), Battistella (1989), Cole, Hermon, and Sung (1990), Katada (1991), and others). Lebeaux suggested that reflexives move at LF because they are subject to the same rule that moves reflexive clitics at S-Structure in Romance languages (Lebeaux (1983, 726)), a suggestion that has been echoed by Chomsky (1986b, 175). This idea is appealing because the question of why reflexives move at LF is then reduced to the question of why clitics (and other pronoun types) move at S-Structure. Furthermore, the reflexive movement rule can be assimilated to the idea that rules are parameterized between levels, as with *wh*-movement (see Huang (1982), Lasnik and Saito (1984)). Under this view, the French sentence *Jean se lave* and the English sentence *John washes himself* have different representations at S-Structure but similar ones at LF. In French the reflexive moves between D-Structure and S-Structure, whereas in English it moves between S-Structure and LF:

- |        |   |               |
|--------|---|---------------|
| (6) a. | Jean <sub>i</sub> [lave se <sub>i</sub> ]                         | (D-Structure) |
| b.     | Jean <sub>i</sub> [se <sub>i</sub> [lave t <sub>i</sub> ]]        | (S-Structure) |
| c.     | Jean <sub>i</sub> [se <sub>i</sub> [lave t <sub>i</sub> ]]        | (LF)          |
| (7) a. | John <sub>i</sub> [washes himself <sub>i</sub> ]                  | (D-Structure) |
| b.     | John <sub>i</sub> [washes himself <sub>i</sub> ]                  | (S-Structure) |
| c.     | John <sub>i</sub> [himself <sub>i</sub> [washes t <sub>i</sub> ]] | (LF)          |

If this is correct, however, the following issue arises: The rule that moves reflexive clitics in Romance is an instance of a more general rule that moves all clitics, including pronominal clitics. Hence, along with (6b), French also has (8).

- (8) Jean [le<sub>j</sub> [lave t<sub>j</sub>]].  
John him washes

But if the rule that moves reflexives at LF is the same rule that moves reflexive and pronominal clitics at S-Structure in Romance, then the null hypothesis is that it should also apply to pronouns at LF. If only reflexives move, this must be stipulated, and it becomes less plausible that the LF movement of reflexives is related to the S-Structure movement of reflexives.

It is precisely this null hypothesis that will be explored in this article, namely, that not only reflexives, but also pronouns move at LF. Antisubject orientation will be argued to be a consequence of this movement, in particular as a result of Condition B being violated at LF under binding to a subject.

The article is organized as follows: Section 2 gives the theoretical background—namely, Pica's (1987) LF movement theory for reflexives and the distinction between

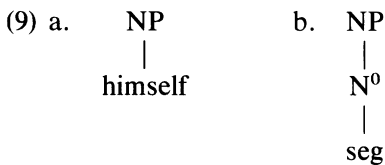
$X^0$  and XP reflexives. Section 3 generalizes this theory so that it applies to pronouns as well as reflexives, and introduces the proposal that Norwegian pronouns are  $X^0$ s whereas English pronouns are XPs. Section 4 then applies the theory to the antisubject orientation problem and shows how it explains the difference between Norwegian and English in a wide range of constructions. Section 5 shows how the generalized LF movement theory can lead to further general simplifications of the binding theory. The article concludes with some speculations about why reflexives and pronouns move at LF, along with some remarks about learnability.

## 2. Theoretical Preliminaries

Since the theory to be developed is based on ideas in Pica (1987), some details of that proposal will first be discussed, as well as the assumptions that will be made with respect to binding theory and movement theory.

### 2.1. Pica's Theory of $X^0$ versus XP LF Movement of Reflexives

Chomsky (1986b) points out that subject orientation of long-distance reflexives can be explained under the LF movement theory if such reflexives move to Infl at LF. This idea is taken up and modified by Pica (1987) (see also Pica (1991) for a recent elaboration), who proposes that differences in subject orientation between reflexives in English and Scandinavian can be traced to differences in the type of LF movement the reflexive undergoes. Under this proposal, English *himself* is an XP reflexive, whereas Norwegian *seg* is an  $X^0$  reflexive. An XP reflexive is an element that can only be analyzed as an inherent maximal projection with no internal X-bar-theoretic structure, whereas an  $X^0$  reflexive projects a structure with a head and its maximal projection. Assuming  $X = N$ , the elements are analyzed as in (9).<sup>1</sup>



As a consequence of this, it follows that *himself* can only undergo XP-movement, whereas *seg* may undergo either  $X^0$ -movement or XP-movement. If an  $X^0$  reflexive furthermore *must* undergo  $X^0$ -movement at LF, as Pica argues, it follows that  $X^0$  reflexives and XP reflexives will have different landing sites at LF. In Pica's analysis, *seg* moves to Infl, whereas *himself* adjoins to its containing XP (following Lebeaux (1983; 1985)). For example, the S-Structure representation of (10a) has the LF representation (10b).

<sup>1</sup> Alternatively, this difference can be expressed using Muysken's (1982) feature system, such that XP reflexives are defined as [+maximal, -projected], and  $X^0$  reflexives as [+maximal, +projected].

- (10) a. John<sub>i</sub> fortalte Per<sub>j</sub> om et bilde av seg<sub>i/\*j</sub>.  
 John told Peter about a picture of REFL  
 b. [John<sub>i</sub> Infl-seg<sub>i</sub> [fortalte Per<sub>j</sub> om et bilde av t<sub>i</sub>]]

Assuming Condition A to apply at LF, the reflexive cannot be coindexed with the indirect object *Per*, since Condition A requires a c-commanding antecedent.<sup>2</sup> Only coindexation with the subject yields a grammatical sentence, predicting the subject orientation of *seg*. For Pica, English reflexives, being XPs, instead adjoin to their containing XP, as illustrated in (11).

- (11) a. John<sub>i</sub> told Bill<sub>j</sub> about himself<sub>k</sub>.  
 b. John<sub>i</sub> told Bill<sub>j</sub> [<sub>PP</sub> himself<sub>k</sub> [<sub>PP</sub> about t<sub>k</sub>]]

In the position adjoined to the PP, the reflexive is c-commanded by, and can therefore be bound by, either the subject or the object. Thus, English reflexives are correctly predicted not to be subject-oriented.<sup>3</sup>

## 2.2. Binding Theory, BT-Compatibility, and LF Movement of Reflexives

Pica's analysis can also explain properties of possessive reflexives. Norwegian has a third person possessive reflexive that agrees in gender and number with its antecedent:

- (12) a. sin (3sg masc/fem)  
 b. sitt (3sg neut)  
 c. sine (3pl)

<sup>2</sup> Furthermore, Pica proposed that the X<sup>0</sup> reflexive may move successively cyclically at LF, explaining the long-distance binding possibility. In an apparent Specified Subject Condition (SSC) violation such as (i), the reflexive undergoes successive-cyclic movement from the lower Infl to the matrix Infl via C, deriving the LF representation (ii).

- (i) John<sub>i</sub> bad Marit snakke om seg<sub>i</sub>.  
 John asked Mary to-talk about himself  
 (ii) John<sub>i</sub> Infl-seg<sub>i</sub> bad Marit snakke om t<sub>i</sub>

In (ii), Condition A can then be satisfied, without any SSC violation. This raises the issue of why such a derivation is not possible for XP reflexives, that is, why XP reflexives are subject to the SSC. An explanation will be offered in section 5.

<sup>3</sup> Chomsky (1986b) and Cole, Hermon, and Sung (1990) assume that English reflexives are X<sup>0</sup> reflexives undergoing movement to Infl. Chomsky motivated this by the subject orientation in cases like (i) (from Chomsky (1986b, 174)).

- (i) They<sub>i</sub> told us<sub>j</sub> that pictures of each other<sub>i/\*j</sub> would be on sale.

However, this analysis is contradicted by the grammaticality of (ii) (Jane Grimshaw, personal communication).

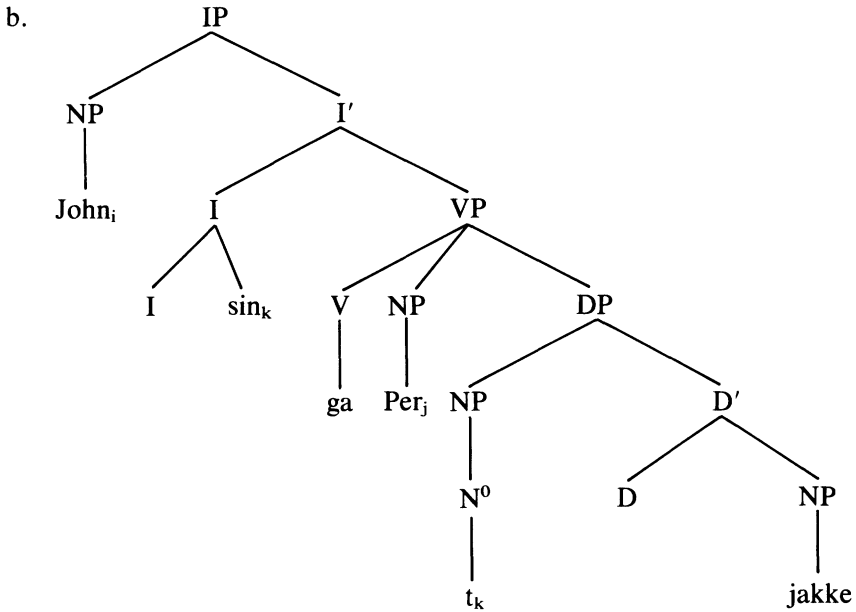
- (ii) It seemed to us<sub>j</sub> that pictures of each other<sub>j</sub> would be on sale.

If the reflexive in (ii) moved to matrix Infl, it should not be able to be bound by *us*, for lack of c-command. An alternative explanation suggested to me by Jane Grimshaw is that the type of binding illustrated in (i)–(ii) exhibits “prominence orientation” (see Giorgi (1984)); that is, the reflexive is oriented toward the most prominent argument in the higher clause. This explains why binding to the prepositional object in (ii) is possible: being the only argument in the higher clause, it is also the most prominent. In other words, the phenomenon seen in (i)–(ii) is not really subject orientation in the sense that X<sup>0</sup> reflexives like *seg* are subject-oriented. This is further supported by the fact that *seg* is impossible in contexts like (i)–(ii).

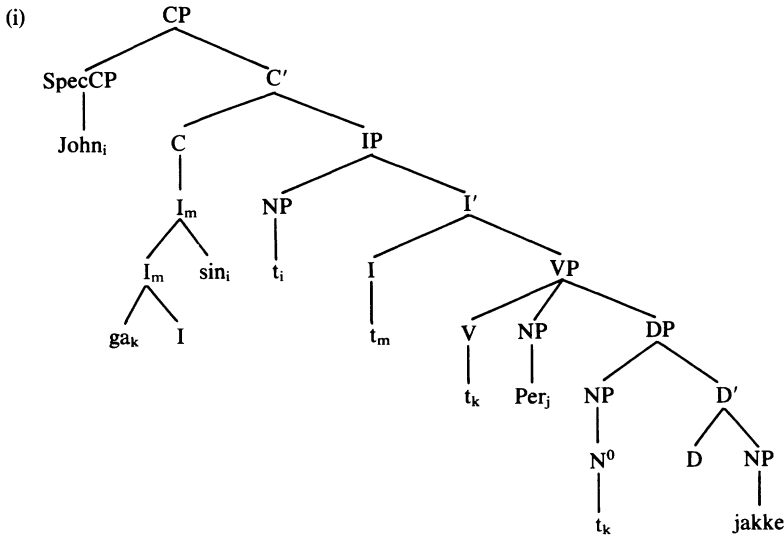
- (iii) a. \*De<sub>i</sub> trodde at bildene av seg<sub>i</sub> skulle selges.  
 they thought that the-pictures of REFL should be-sold  
 b. \*Det virket på dem<sub>j</sub> som om bildene av seg<sub>j</sub> skulle selges.  
 it seemed to them as if the-pictures of REFL should be-sold

This element is subject-oriented exactly like *seg*. Following the view of Hellan (1988) that *sin* is the genitive version of *seg*, this property can be explained in Pica’s theory since it will undergo the same LF movement as *seg*. An S-Structure representation like (13a) has the LF representation (13b).<sup>4</sup>

- (13) a. John<sub>i</sub> ga Per<sub>j</sub> [sin<sub>i/\*j</sub> jakke].  
 John gave Peter his-REFL jacket



<sup>4</sup> In the examples in the text, I abstract away from the more complex structure standardly assigned to main clauses in Scandinavian languages. The tree of (13b) with these details is (i).



In the same fashion as in the analysis of *seg*, this entails that when binding theory is checked at LF, *sin* can meet Condition A only under binding to the subject, since no other argument c-commands it.

It should be noted that this explanation of the subject orientation of possessive reflexives is in fact incompatible with the BT-compatibility algorithm of the binding theory in Chomsky (1986b), unless it is stipulated that Condition A applies at LF only.<sup>5</sup> According to the BT-compatibility algorithm, the DP in (13b) cannot be a binding domain for *sin* at S-Structure, since it contains no indexing that is BT-compatible with the reflexive. Therefore, the binding domain must be extended to S. Under the assumption that Condition A may apply at S-Structure (as in Belletti and Rizzi's (1988) theory, where it is an "anywhere principle"), Condition A can then (incorrectly) be satisfied under binding to either the subject or the object—in particular, under binding to *Per*. In other words, LF movement would then not have the effect of "singling out" the subject as the only possible binder. In order to maintain (i) that subject orientation derives from LF movement and (ii) that Condition A may apply at S-Structure, the BT-compatibility algorithm must be dropped from the binding theory. This will be the position taken here, resulting in the following theory:

- (14) a. *Condition A*  
A reflexive must be bound in its binding domain.
- b. *Condition B*  
A pronoun must be free in its binding domain.
- c. The binding domain of  $\alpha$  is the minimal complete functional complex containing  $\alpha$  and its governor.
- d. A complete functional complex (CFC) is the smallest maximal category containing all the grammatical functions compatible with its head (see Chomsky (1986b, 169)).

Given (14), Condition A is unsatisfiable for the possessive reflexive in the S-Structure representation (13a). In order to satisfy Condition A, it must move to a higher binding domain, which is effected by movement to Infl. As a result, only the subject may then bind the reflexive, explaining the subject orientation. Note that (14) does not require that the reflexive is an argument of the CFC in which it is bound. The further conse-

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That is, first the verb moves to C via Infl. The subject in turn raises to SpecCP. At LF the pronoun moves successive cyclically and adjoins to Infl in C. For simplicity of exposition, assume all representations in the text to be embedded clauses, with which the text trees are compatible.

<sup>5</sup> The BT-compatibility algorithm is a minimality requirement on the domain in which an anaphor or pronoun must satisfy its binding requirement. It can be informally defined as follows (drawing on Chomsky (1986b, 169–172)):

- (i) A reflexive or pronoun  $\alpha$  must meet its binding requirement in the smallest binding domain that contains a BT-compatible indexing for  $\alpha$ .
- (ii) An indexing I is BT-compatible for a reflexive if it is bound under I, and BT-compatible for a pronoun if it is free under I.
- (iii) The binding requirement for a reflexive is that it be bound; the binding requirement for a pronoun is that it be free.

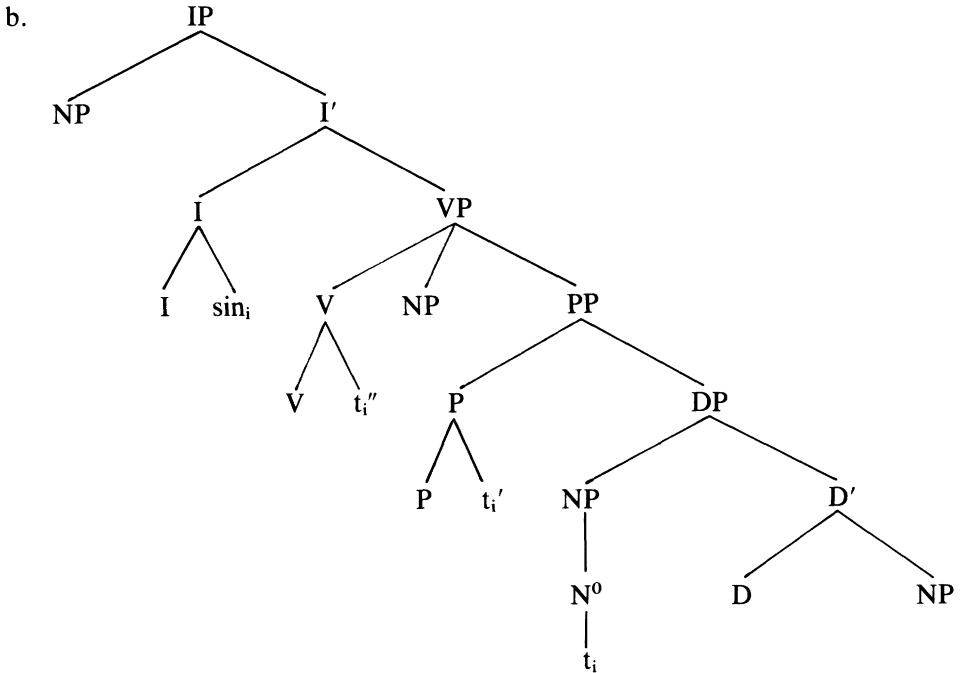
quences of removing BT-compatibility from the binding theory will be discussed in section 5.2.<sup>6</sup>

Condition B will be assumed to require satisfaction at both S-Structure and LF, in the sense that a pronoun like English *him* or Norwegian *han* must meet Condition B at both levels, that is, twice (see also Kayne (1991)). This assumption will be crucial in the explanation of antisubject orientation to be developed below.

2.3. *Empty Category Principle and Head Movement Constraint for X<sup>0</sup> Reflexive Movement*

To see how the Empty Category Principle (ECP) is satisfied for X<sup>0</sup> reflexive and pronoun movement, consider the derivation of (15a). The reflexive adjoins to the first c-commanding head, P, and then moves on, head to head, to Infl. The result is schematically shown in (15b).

- (15) a. John<sub>i</sub> fortalte Per<sub>j</sub> om [sin<sub>i/\*j</sub> kone].  
 John told Peter about his-REFL wife



<sup>6</sup> This means that Condition A can in principle be met at S-Structure if binder and bindee are in the same CFC at this level. Everything else being equal, this predicts that X<sup>0</sup> reflexives, when locally bound, should not be subject-oriented. However, a sentence like (i), in which Condition A can be met before LF movement, is ungrammatical.

- (i) \*John fortalte Per<sub>j</sub> om seg<sub>j</sub>.  
 John told Peter about REFL

But this is for independent reasons: *seg* has the additional property that it must be free in its minimal CFC (see Vikner (1985), Hellan (1988), and Hestvik (1991)), and even binding to subject is therefore ungrammatical in (i). Hence, this prediction cannot be tested for Norwegian.

This movement satisfies the Head Movement Constraint (Travis (1984), Baker (1988)), which states that a head must adjoin to a head that governs it. In other words, the movement cannot skip intervening heads. The ECP is satisfied for the initial trace by antecedent government (see Baker (1988)), and the intermediate traces will be assumed to be antecedent-governed according to the ‘‘excorporation’’ proposal of Roberts (1991), under which the head that is adjoined to does not constitute a case of an intervening head governor, because it is only a segment of the head created by the adjunction structure. (For simplicity, these details will be suppressed in the representations throughout the text.)

The movement of the possessive reflexives constitutes a case of left-branch extraction, which is usually impossible (e.g., \**Whose<sub>i</sub> do you like [t<sub>i</sub> mother]?*). However, this is not universal, in light of *combien*-extraction, as shown by the work of Obenauer (1984):

- (16) *Combien<sub>i</sub> a-t-il consulté [t<sub>i</sub> de livres]?*  
 how many did he consult of books

A further parallelism between S-Structure movement and the LF movement of possessive reflexives comes from Romance languages, in which clitics with possessive interpretation can be extracted from nominals at S-Structure. The following examples from Romanian and French illustrate this ((17a) is from Dobrovie-Sorin (1988)):

- (17) a. *I<sub>i</sub>-am vâzut [Profesorul t<sub>i</sub>].*  
 (I) him<sub>i</sub>.GEN-have seen the professor  
 (Lit.: ‘I saw his teacher.’)
- b. *J’en<sub>i</sub> ai lu [le premier chapitre t<sub>i</sub>].*  
 I of-it have read the first chapter  
 (Lit.: ‘I have read the first chapter of it.’)

Whatever allows this kind of extraction also allows the extraction at LF proposed here.<sup>7</sup>

#### 2.4. Summary

To summarize, Pica’s proposal explains the differences between Norwegian *seg/sin* and English reflexives as deriving from the assumptions that the Norwegian element is an X<sup>0</sup> reflexive, whereas the English reflexive is an XP reflexive. Nothing more needs to be stated; the differences with respect to subject orientation follow from the theory. In the next sections, the differences between English and Norwegian with respect to anti-subject orientation will be shown to follow from very much the same mechanisms.

<sup>7</sup> The status of the ECP in successive-cyclic movement of *seg* is not without problems, however. For example, *seg* may appear in adjuncts, as in *John dro uten klær på seg* ‘John<sub>i</sub> left without clothes on himself<sub>i</sub>’, and in relative clauses, as in *John trenger noen til å skrive om seg* ‘John<sub>i</sub> needs someone to write about himself<sub>i</sub>’. How the ECP is met in these cases is a problem for the LF movement analysis, which will be set aside here.

### 3. A Generalized Theory of LF Movement of Reflexives and Pronouns

The proposal of this article is that not only reflexives but also pronouns move at LF. Generalizing Pica's theory, we have (18).

(18) Reflexives and pronouns divide universally into two types:  $X^0$  and XP.

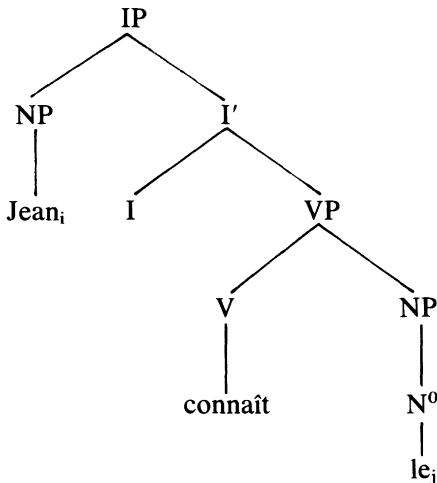
As opposed to Lebeaux (1983; 1985) and Pica (1987), who assume that XP reflexives adjoin to another XP at LF, I will assume that XP reflexives and pronouns move to a Specifier position, in particular, to the Specifier position of their governor (see section 5.3 for motivation).  $X^0$  reflexives and pronouns move to a c-commanding functional category, Infl being a special case of this. The movement is driven by the following requirements (for discussion, see section 5.4):<sup>8</sup>

- (19) At LF,
- $X^0$  pronouns and  $X^0$  reflexives must occur in a functional head.
  - XP pronouns and XP reflexives must occur in the Specifier of their governor.

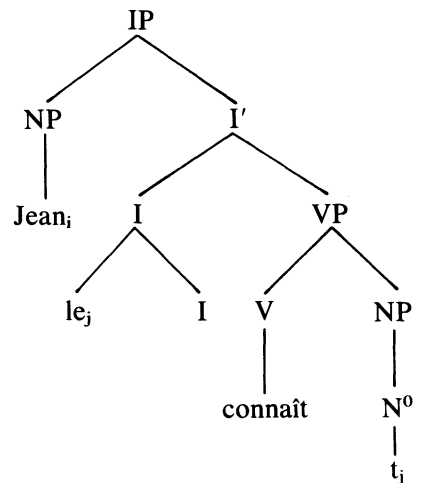
Consider now how these requirements may be satisfied. There are two options: either the element is base-generated in the position it must occur in, or it must move to this position at some stage in the derivation. The movement may be either in the mapping from D-Structure to S-Structure or in the mapping from S-Structure to LF.

Koopman (1989) argues that all pronouns in Dutch move to the Specifier position of their governor at S-Structure. If this is correct, then Dutch instantiates the case of a language with XP pronouns, in which the requirement (19b) is met at S-Structure. Romance clitics instantiate  $X^0$  systems, in which (19a) is satisfied at S-Structure. For example, French  $X^0$  object clitics are standardly assumed to move to Infl in the mapping from D-Structure to S-Structure (see Kayne (1991)):

(20) a. *D-Structure*



b. *S-Structure*



<sup>8</sup> Avrutin (1991) argues on the basis of Russian data that only pronouns that are bound variables undergo LF movement. I am unable to give full consideration to this claim here.

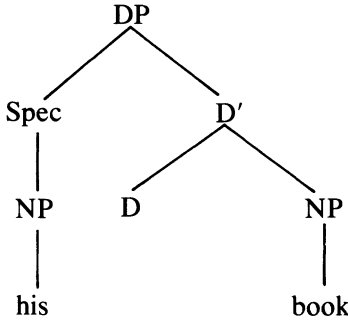
Focusing on English and Norwegian, I will propose that the two languages are like Dutch and French, but that the requirements in (19) are met at LF in some or all cases. The first proposal is that English pronouns, like English reflexives, are XPs:

(21) *Proposal 1*

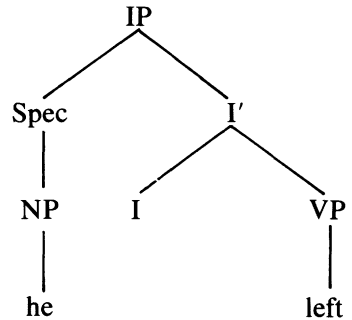
English pronouns are XPs.

A possible example where (19b) is satisfied already at D-Structure in English is the case of possessive pronouns, as in (22a), and possibly the case of English subjects, as in (22b) (I assume that a nominal  $\theta$ -role can be assigned to either DP or NP).<sup>9</sup>

(22) a.

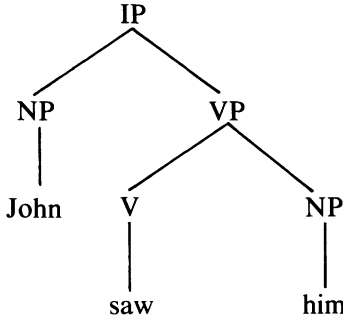


b.

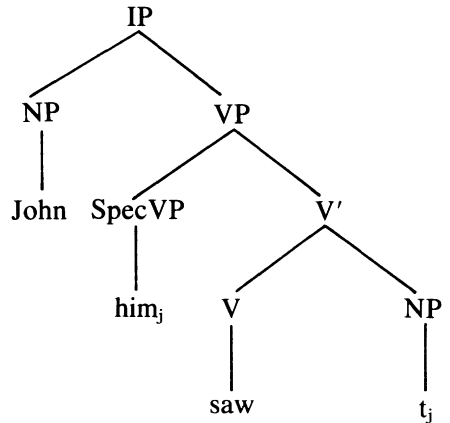


When in object position, the pronoun must move at LF, as in the derivation in (23).

(23) a. *S-Structure*



b. *LF*



English is therefore a “mixed case,” with some pronouns moving at S-Structure and some at LF.

Norwegian, on the other hand, will be assumed to be exactly like French in having X<sup>0</sup> pronouns, but with the requirement (19a) satisfied at LF:

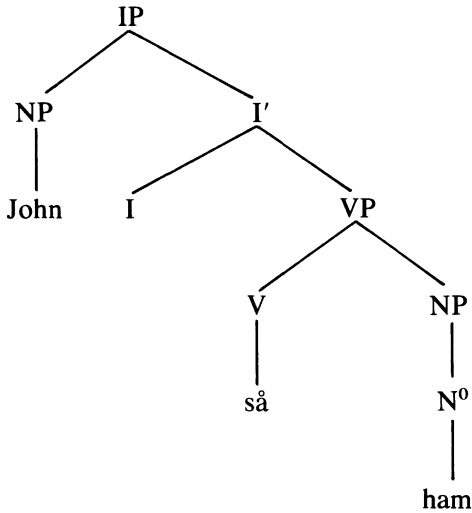
(24) *Proposal 2*

Norwegian pronouns are X<sup>0</sup> pronouns.

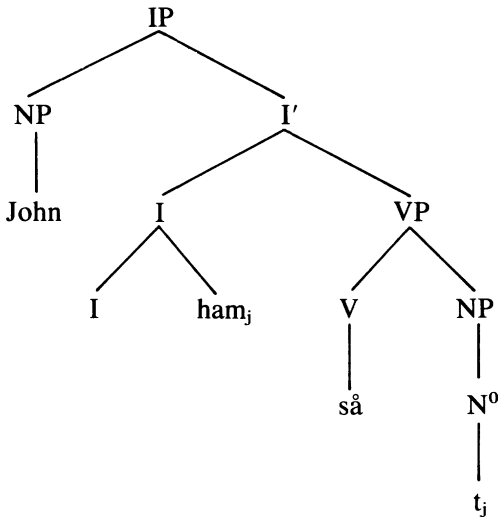
<sup>9</sup> If subjects are base-generated in VP, I assume Koopman and Sportiche’s (1988) treatment in terms of a small clause analysis.

This means that the Norwegian S-Structure representation (25a) has the LF representation (25b).

(25) a. *S-Structure*



b. *LF*



Before I discuss the consequences of the interaction between this LF movement and the binding theory, I will offer some independent evidence for the proposed X-bar-theoretic difference between English and Norwegian pronouns.

### 3.1. Independent Evidence for the Difference between Norwegian and English Pronouns

In Pica's theory, Norwegian *seg* is an X<sup>0</sup> whereas English *himself* is an XP, because the former is monomorphemic whereas the latter is a compound. Under this reasoning, both

Norwegian and English pronouns should be  $X^0$ s since they are both monomorphemic. However, the current proposal holds that Norwegian pronouns are  $X^0$ s whereas English pronouns are XPs, which implies that  $X^0$ -hood cannot be determined on morphological grounds alone.

If morphemicity is not the guiding factor, then how can the child acquiring English or Norwegian determine whether a monomorphemic pronoun is an  $X^0$  or an XP? The answer is as follows. The current proposal predicts that an  $X^0$  pronoun, projecting X-bar structure, should be able to take restrictive modifiers, that is, sisters to  $X^0$  or  $X^1$  (see Jackendoff (1977)). The XP pronoun, on the other hand, being exhaustively a maximal projection, should only be able to take appositive, nonrestrictive modifiers:

- (26) a. *Norwegian pronoun*                      b. *English pronoun*
- NP

  /  \  
 $N^0$   XP  
|      |  
han  (restrictive  
      modifier)

NP

|

him

This prediction is borne out. Norwegian pronouns can freely take restrictive modifiers, whereas this is impossible in English (for unknown reasons, the Norwegian pronoun appears in the nominative when modified):<sup>10</sup>

- (27) a. han med rød hatt  
he with red hat  
b. han uten hår på hodet  
he without hair on the-head  
c. han som går der  
he who walks there

The explanation is that since English pronouns are exhaustively dominated by NP, there is nowhere to insert a restrictive modifier, and they therefore cannot be restrictively modified. This fits well with a point often made in linguistics textbooks, namely, that English pronouns are really pro-NPs, not just pro-Ns (see Radford (1988, 79); also Emonds (1976)). On the other hand, nonrestrictive modification is expected to be possible in English, since appositives are adjoined to a maximal projection (e.g., *I like him, with the red hat!*).

Similar evidence for the  $X^0$  status of *seg* is not available; it is impossible to modify the Norwegian reflexive, even with appositives. Probably reflexives cannot be modified for independent semantic reasons.

<sup>10</sup> To illustrate this use, imagine being in the situation of identifying a mugger in a police lineup. The offender is wearing a red hat. You say to the police officer next to you, without nodding or pointing, the Norwegian expression corresponding to "It's him with the red hat," or "He with the red hat is the guilty one" or "It was he who has a red hat that did it." This is ungrammatical in English, but perfect in Norwegian.

This claim is challenged by the analysis of Postal (1969), who argues that pronouns in English are actually definite articles. As evidence, he cites data like the following (numbers indicate Postal's examples):

- (28) a. We men, you guys, . . .  
 b. You men who wish to escape. . . (= (42a))  
 c. We Americans who have been struggling here. . . (= (42b))  
 d. We who are opposing Fascism. . . (= (45a))  
 e. You who wish to survive had better shape up. (= (45b))

However, Delorme and Dougherty (1972) give syntactic and semantic arguments that examples like (28) are always derived from underlying appositive phrases such as *we, the men*.<sup>11</sup> Furthermore, these cases do not appear in the third person, as Postal himself remarks, whereas the corresponding cases are grammatical in Norwegian:<sup>12</sup>

- (29) a. \*he who she married (= (47d))  
 b. han som hun giftet seg med  
    he who she married REFL with  
 c. \*it which I ate (= (47f))  
 d. det som jeg spiste  
    it which I ate

This analysis also leads to the expectation that Romance clitic pronominals should allow restrictive modifiers, being X<sup>0</sup>s. However, this is not the case. A possible explanation is that Romance clitics are, in a sense, affixal in nature. Their affixal status then prevents them from projecting full structures with modifiers and specifiers. (Another prediction is that Chinese pronominals, which are like English in not being antisubject-oriented (see Huang (1983)), should not allow restrictive modifiers.)

To summarize so far, there is independent evidence based on restrictive modification data that Norwegian pronouns are X<sup>0</sup>s whereas English pronouns are XPs. Assuming that children must learn these facts independently of the binding theory, the generalized

<sup>11</sup> Norwegian allows expressions such as *han gutten* 'he boy-DEFINITE', *hun jenta der* 'she girl-DEFINITE over there'. But these data do not support Postal's theory that pronouns are definite articles that spell out the feature [+definite], since the definite article appears suffixed to the nominal in these cases, and cooccurs with the pronoun.

<sup>12</sup> An apparent counterexample is the use of third person pronouns in nonreferential, generic expressions, as in *He who laughs last laughs best*, or *He who has any money these days won't even give it to his brother* (*International Herald Tribune*, October 1991). I suggest that English pronouns may exceptionally be used as generic indefinite descriptions (and Norwegian pronouns unexceptionally), and as such they *must* have a restrictive modifier, in order to provide a restriction on the domain of the generic quantifier. Using a Heim-type tripartite quantificational structure, this can be schematically illustrated as follows (where  $\Gamma$  stands for a generic quantifier):

- (i)  $\Gamma x (x \text{ laughs last}) (x \text{ laughs best})$

Informally, this means that it is generally true of an *x* such that *x* laughs last, that *x* laughs best (see Wilkinson (1991) for a recent study on generic quantifiers along these lines).

Another possible counterexample is the existence of expressions like *Mary visited them all* (Richard Kayne, personal communication). But as noted by an anonymous reviewer, this can be analyzed along the lines of Maling (1976), where *them all* is derived from an underlying form *all of them*, via deletion of the preposition and preposing of the pronoun.

LF movement will key into this independent factor and automatically lead to different LF representations for Norwegian versus English pronouns. The next section shows how this theory, when combined with the binding theory, explains the differences between the two languages.<sup>13</sup>

**4. Analysis**

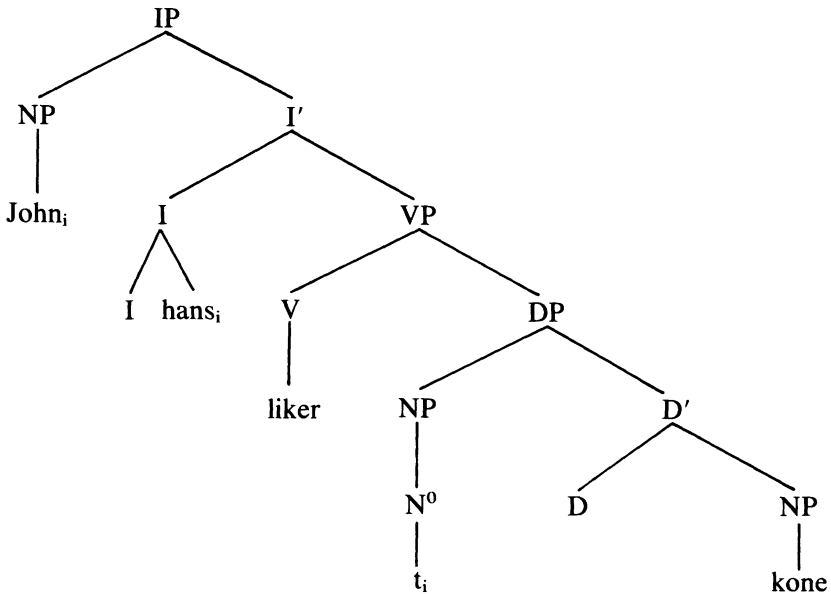
The movement theory discussed so far is independent of the binding theory. Rather, it is the way it interacts with binding theory that produces the desirable results. In the examples of LF movement given in (23) and (25), the movement of the pronoun has no consequences for binding theory application. The domain for Condition B is the same at S-Structure and LF, because the movement of the pronoun takes place within a single binding domain. The operation will have detectable consequences only when it moves the pronoun from one binding domain into another, as will be discussed next.

*4.1. Possessive Pronouns*

Consider the sentences (30a) and (31a) with possessive pronouns in English and Norwegian, respectively, and the LF representations (30b) and (31b) assigned to them.

(30) a. \*John<sub>i</sub> liker [hans<sub>i</sub> kone].  
 John likes his wife

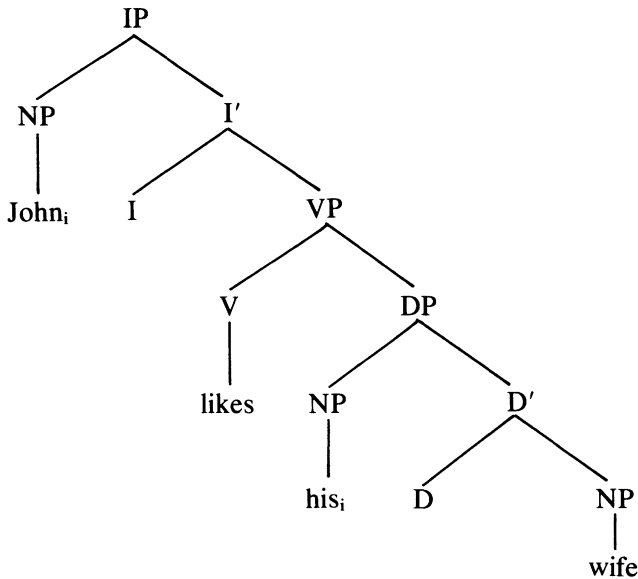
b. *Norwegian LF representation*



<sup>13</sup> Abney (1987), drawing on Postal's proposal, suggests that pronouns are DPs, headed by D. Abney suggests that this analysis explains why pronouns cannot cooccur with determiners, whereas nouns can:

- (i) a. \*The she that I talked to was nice.
- b. \*Dependable them are hard to find.

- (31) a. John<sub>i</sub> likes [his<sub>i</sub> wife].  
 b. *English LF representation*



In the English case there is no movement in the mapping from S-Structure to LF, because the pronoun satisfies the requirement that it occupy the Specifier position of its governor already at S-Structure. On the other hand, the Norwegian  $X^0$  pronoun has to move to the closest c-commanding functional category, in this case Infl. The result is that the Norwegian pronoun is in a different binding domain at LF than it was in at S-Structure; in particular, it has moved into the same binding domain as the matrix subject. At S-Structure the domain is the containing DP (as in English), but at LF it is the containing clause (unlike English). Whereas the Norwegian pronoun satisfies Condition B at S-

- (ii) a. The Mary that I talked to was nice.  
 b. Dependable Marilyn Monroes are hard to find.

As pointed out by an anonymous reviewer, this provides an alternative account of the fact that pronouns cannot be modified in English, assuming determiners to be nonmodifiable. This might suggest that English pronouns are determiners whereas Norwegian pronouns, as argued here, are nouns. But note that Norwegian pronouns also cannot cooccur with demonstrative definite articles, as opposed to nouns (recall that (iia) is grammatical without the article):

- (iii) a. \*den han som jeg snakket med  
           that he that I talked with  
 b. den mannen som jeg snakket med  
           that man-DEFINITE that I talked with

This suggests that the incompatibility of determiners and pronouns is not due to structural factors. If the incompatibility has a semantic explanation, then it carries over to (i) as well, and (i)–(ii) then do not provide evidence that English pronouns are determiners either.

Another alternative is that English pronouns are exhaustive DPs, whereas Norwegian pronouns are  $D^0$ 's heading DPs, which additionally take empty headed NP complements. I do not explore this alternative here, but believe that the core of the present analysis of subject and antsubject orientation carries over to such a framework, if necessary.

Structure under coindexation with the matrix subject, it does not at LF: *John<sub>i</sub>* and *hans<sub>i</sub>* are dominated by the same CFC, and Condition B is therefore violated. In other words, the LF movement induces a Condition B violation at LF unless the pronoun is constrained with the subject. The result is what is observed as antisubject orientation. On the other hand, in English the coindexation satisfies Condition B at LF, because the subject and the pronoun are not dominated by the same CFC. Hence, there is no antisubject orientation in English.

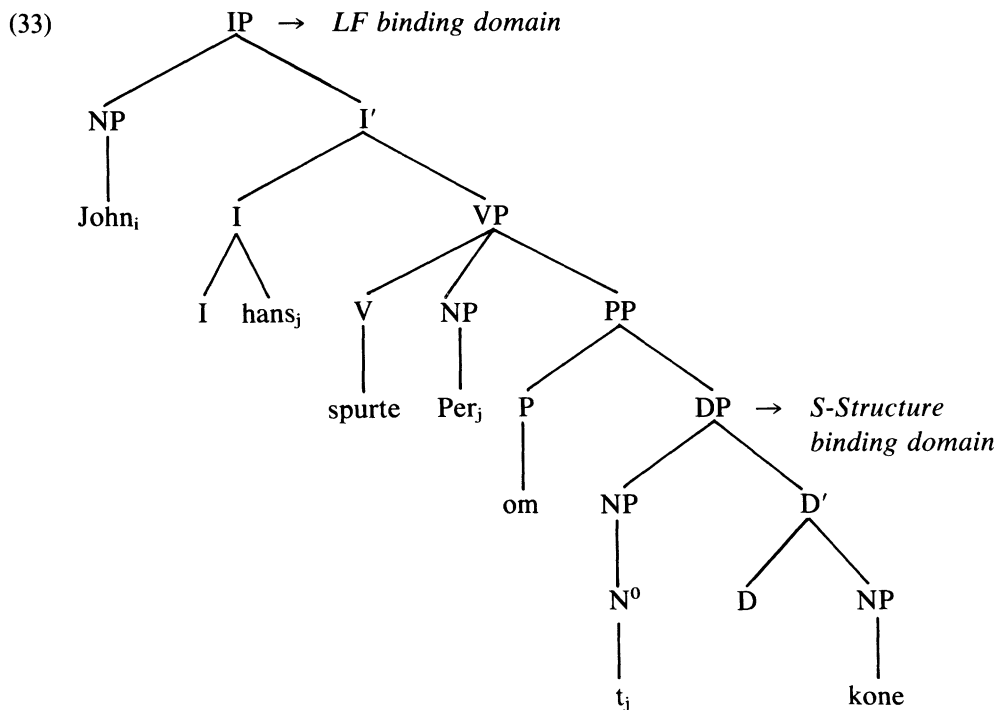
4.2. Getting Object Binding

A possible alternative explanation for the difference between (30a) and (31a) is that the binding domain for the Norwegian possessive pronoun is S, not DP as in English. But this cannot be the case, because binding to a direct object in the same S is grammatical, as pointed out by Vikner (1985):

- (32) [<sub>S</sub> John<sub>i</sub> spurte Per<sub>j</sub> om [<sub>DP</sub> hans<sub>\*i/j</sub> kone]].  
 John asked Peter about his wife

If S, not DP, was the binding domain for *hans* in (32), binding to *Per* should violate Condition B at S-Structure, but such binding is well formed.

Under the current proposal, this is explained as follows: In the S-Structure representation (32), coindexation between *hans* and *Per* does not violate Condition B, since *Per* is outside the S-Structure binding domain of the pronoun, namely, DP. At LF the pronoun moves to Infl, giving the representation schematically illustrated in (33).

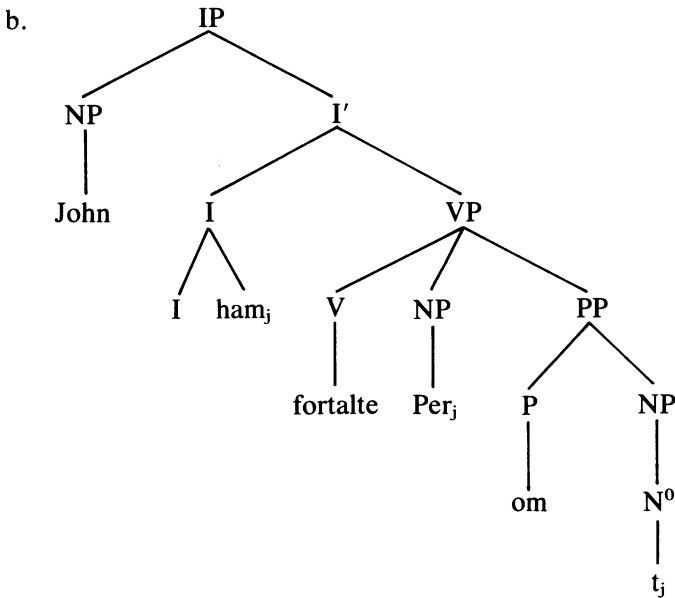


Even though *hans* is now in the same domain as the direct object, the latter does not c-command the pronoun; hence, coindexation does not violate Condition B. This explains why binding to an object is possible in (32) even though binding to the more “distant” subject (at S-Structure) is impossible: Condition B is satisfied at both S-Structure and LF. Coindexation between *hans* and the direct object also does not violate Condition C, for lack of c-command.<sup>14</sup>

#### 4.3. Why Condition B Must Apply at Both S-Structure and LF

Why require that Condition B apply at both S-Structure and LF, instead of just at LF, after LF movement? That would be compatible with the Norwegian as well as the English data discussed so far. But consider the ungrammatical (34a) and its LF representation (34b).

- (34) a. \*John fortalte Per<sub>j</sub> om ham<sub>j</sub>.  
 John told Peter about him



<sup>14</sup> An anonymous reviewer asks why there is no Condition B violation if the direct object itself is a pronoun, since it too presumably would move to Infl:

- (i) a. John viste ham [hans bilder].  
 John showed him his pictures  
 b. John [<sub>I</sub> [<sub>I</sub> Infl-ham<sub>i</sub>]-hans<sub>j</sub>] viste t<sub>i</sub> [t<sub>j</sub> bilder]]

A solution is to define c-command as follows, using the notion of *inclusion*, where *x* includes *y* iff *y* is dominated by every segment of *x* (in the sense of May (1985)):

- (ii) *x* c-commands *y* iff every node dominating *x* includes *x* and *y*, and *x* does not dominate *y*.

Informally, this definition says that a given node may only be part of a c-command relation if the first branching node dominating that node is not a segment. In the adjunction structure in (i), *hans* does not c-command *ham* since the occurrence of Infl dominating *hans* does not include *hans*. Hence, c-command is not defined between the pronouns, and binding theory does not apply.

If Condition B only applied to the LF representation (34b), then the indicated coindexation would violate nothing. On the other hand, if Condition B applies at S-Structure, then the coindexation with *Per* in (34a) will violate Condition B at S-Structure, even though Condition B will be met after LF movement. The difference between (33) and (34a) is that the pronoun in (34a) is in the same binding domain as the direct object at S-Structure, whereas this is not the case in (33). With Condition B applying at S-Structure and LF, the illegal object binding in (34a) is ruled out as an S-Structure violation of Condition B, whereas the illegal subject binding in (33) is an LF violation.<sup>15</sup>

#### 4.4. *Pronouns in Locative PPs*

In the English examples (35a–b) the pronoun may be coreferential with the matrix subject, but this is not the case in the corresponding Norwegian examples (36a–b).

- (35) a. John<sub>i</sub> looked behind him<sub>i</sub>.  
 b. John<sub>i</sub> pulled the comforter over him<sub>i</sub>.  
 (36) a. \*John<sub>i</sub> kikket bak ham<sub>i</sub>.  
 John looked behind him  
 b. \*John<sub>i</sub> trakk dynen over ham<sub>i</sub>.  
 John pulled the-comforter over him

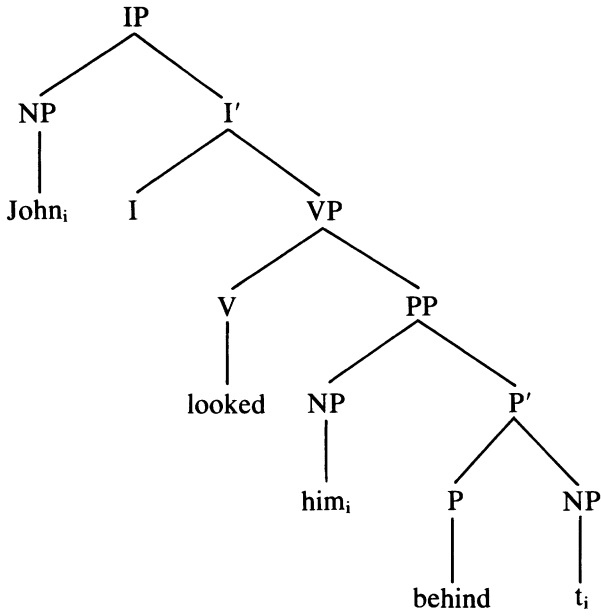
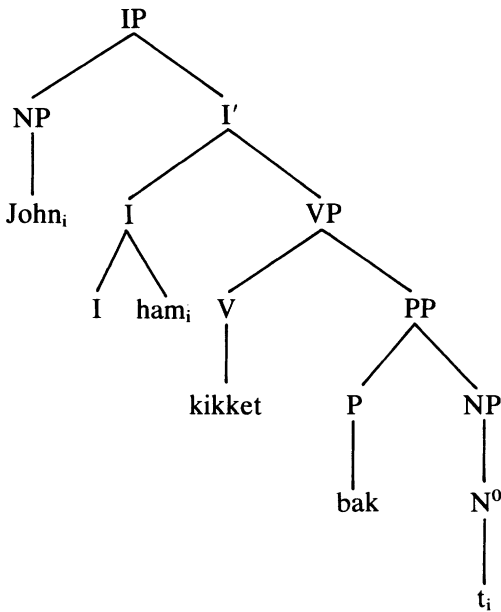
Following Hestvik (1991), it will be assumed that locative and directional PPs constitute subjectless binding domains for the containing pronoun. Therefore, Condition B is in principle satisfiable for a pronoun in such a PP. This explains why (35a–b), where the pronoun is coreferential with the matrix subject, is possible in English: Condition B is satisfied at S-Structure, and the pronoun is free to be coreferential with any c-commanding NP outside the PP at this level. At LF the pronoun moves into the SpecPP position, but it is still in the same binding domain as at S-Structure. Hence, coindexation with the subject meets Condition B at LF as well.

In Norwegian Condition B is satisfied at S-Structure for the same reason. But the pronoun must move to Infl at LF, which brings it into the same binding domain as the subject. Condition B, applying at LF, now requires disjointness. The LF representations of (35a) and (36a) are (37) and (38).

<sup>15</sup> An anonymous reviewer notes that these assumptions appear incompatible with the analysis of Norwegian *seg* in Hestvik (1990). To briefly recapitulate: *Seg* must be free in its local domain. In Hestvik (1990), this follows from *seg*'s being, in effect, an overt pronominal anaphor. A PRO Theorem-type contradiction is avoided by *seg*'s satisfying Condition B in its S-Structure domain, illustrated by  $\beta$  in (i), and satisfying Condition A after LF movement into the higher binding domain  $\alpha$ , as in (ii).

- (i) [ $\alpha$  John<sub>i</sub> bad [ $\beta$  Marit snakke om seg<sub>i</sub>]].  
 John asked Mary to-talk about REFL  
 (ii) [ $\alpha$  John<sub>i</sub> Infl-*seg*<sub>i</sub> bad [ $\beta$  Marit snakke om t<sub>i</sub>]]

The question is, If Condition B applies at LF as well, how is it met in (ii), if *seg* is a pronominal anaphor? The solution given in Hestvik (1990) is that the binding feature system of anaphors and pronouns contains specifications for which binding condition is to be met at S-Structure and LF. In that system, *seg* is specified to meet Condition B at S-Structure and Condition A at LF, whereas pronominals must meet Condition B at both S-Structure and LF. In this sense, Condition B does not apply absolutely at both S-Structure and LF, but instead applies depending on the element's specification. For further details, see Hestvik (1990).

(37) *English*(38) *Norwegian*

Therefore, (36a–b) are ungrammatical because Condition B is violated at LF, although it is met at S-Structure.<sup>16</sup>

As expected, the difference between Norwegian and English disappears under binding to a more distant subject. (39a) is just as grammatical as its English counterpart (39b).

- (39) a. John<sub>i</sub> bad Marit kikke bak ham<sub>i</sub>.  
 John asked Mary to-look behind him  
 b. John<sub>i</sub> asked Mary to look behind him<sub>i</sub>.

The explanation is that at LF the coindexed subject in (39a) is still outside the binding domain of the pronoun, despite the fact that movement has taken place. The LF representation of (39a) is (40).

- (40) John<sub>i</sub> bad Marit [PRO Infl-ham<sub>i</sub> kikke bak t<sub>i</sub>]

Therefore, Condition B is not violated at LF, and the sentence patterns with the English example.<sup>17</sup>

#### 4.5. An Argument against ‘‘Elsewhere Principle’’ Accounts

The discussion of locative PPs also provides an argument against a plausible alternative to the theory proposed here, namely, that antisubject orientation of pronouns is a kind

<sup>16</sup> A further prediction is that coreference with a higher direct object should be possible in the Norwegian structure (i), since after movement to Infl, the direct object does not c-command the pronoun and hence Condition B is met at both S-Structure and LF.

- (i) John plaserte Per<sub>j</sub> foran ham<sub>j</sub>.  
 John placed Peter in-front-of him  
 (ii) John Infl-ham<sub>j</sub> plaserte Per<sub>j</sub> foran t<sub>j</sub>

However, (i) is pragmatically odd to such a degree that it makes grammaticality judgments difficult to obtain. The only possible reading is where *ham* ‘him’ is taken to mean ‘a picture of Per’ or ‘a statue of Per’ (see Jackendoff (1990) for related discussion). Under this interpretation, I find (i) grammatical, although the judgment is subtle.

<sup>17</sup> This is a point where Norwegian and Danish differ from Icelandic. In Icelandic an object pronoun in an embedded infinitival clause must be disjoint from the higher subject (see Manzini and Wexler (1987) and references therein):

- (i) Jón<sub>i</sub> skipaði mér að raka hann<sub>\*i/j</sub>.  
 John ordered me to shave him

An ad hoc solution to this problem would be to say that in Icelandic the pronoun must move to the first *finite* Infl; in other words, the Infl of the infinitival clause is not sufficient. This would correctly predict that the pronoun may be coreferential with a higher object but not a higher subject, as in (ii), because it would have the LF representation (iii).

- (ii) Ég lofaði Jón<sub>i</sub> að raka hann<sub>i</sub>.  
 I promised John to shave him  
 (iii) ég Infl-hann<sub>i</sub> lofaði Jón<sub>i</sub> að raka t<sub>i</sub>

of “elsewhere” effect in the syntax (see Hellan (1988) and Burzio (1989); the notion comes from phonology, see Kiparsky (1973)). That is, this proposal informally says that the pronoun cannot be used in (41) because it is possible to use a reflexive in the same context.

- (41) a. \*John<sub>i</sub> kikket bak ham<sub>i</sub>.  
           John looked behind him  
       b. John<sub>i</sub> kikket bak seg<sub>i</sub>.  
           John looked behind REFL

The same could be argued for possessive pronouns. In (42a) the possessive reflexive can only be bound to the subject; hence, the nonreflexive possessive can only be bound to the object.

- (42) a. John<sub>i</sub> fortalte Ola<sub>j</sub> om [sin<sub>i/\*j</sub> kone].  
           John told Ola about REFL wife  
       b. John<sub>i</sub> fortalte Ola<sub>j</sub> om [hans<sub>\*i/j</sub> kone].  
           John told Ola about his wife

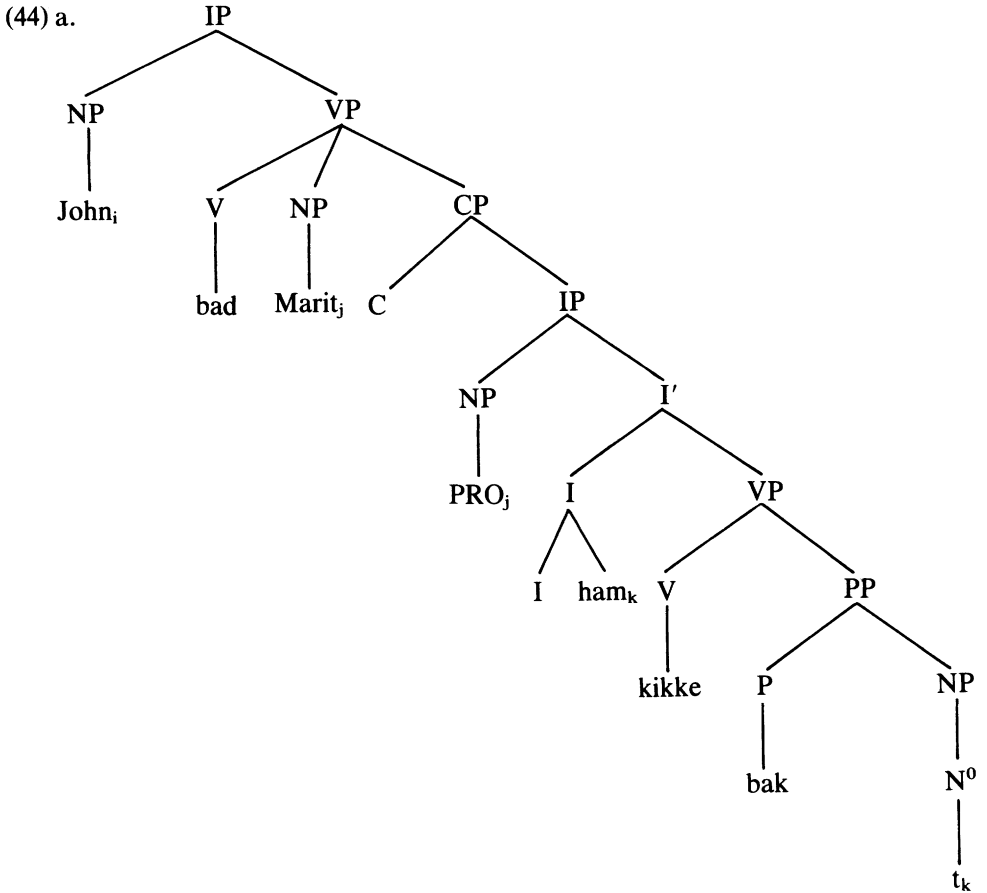
Apart from the problem posed for this analysis by the lack of complementarity in comparable cases in English (cf. *John<sub>i</sub> looked behind himself<sub>i</sub>/John<sub>i</sub> looked behind him<sub>i</sub>*, both well formed), such an account of the Norwegian facts cannot be right, since in (43) both the pronoun and the reflexive may be used.

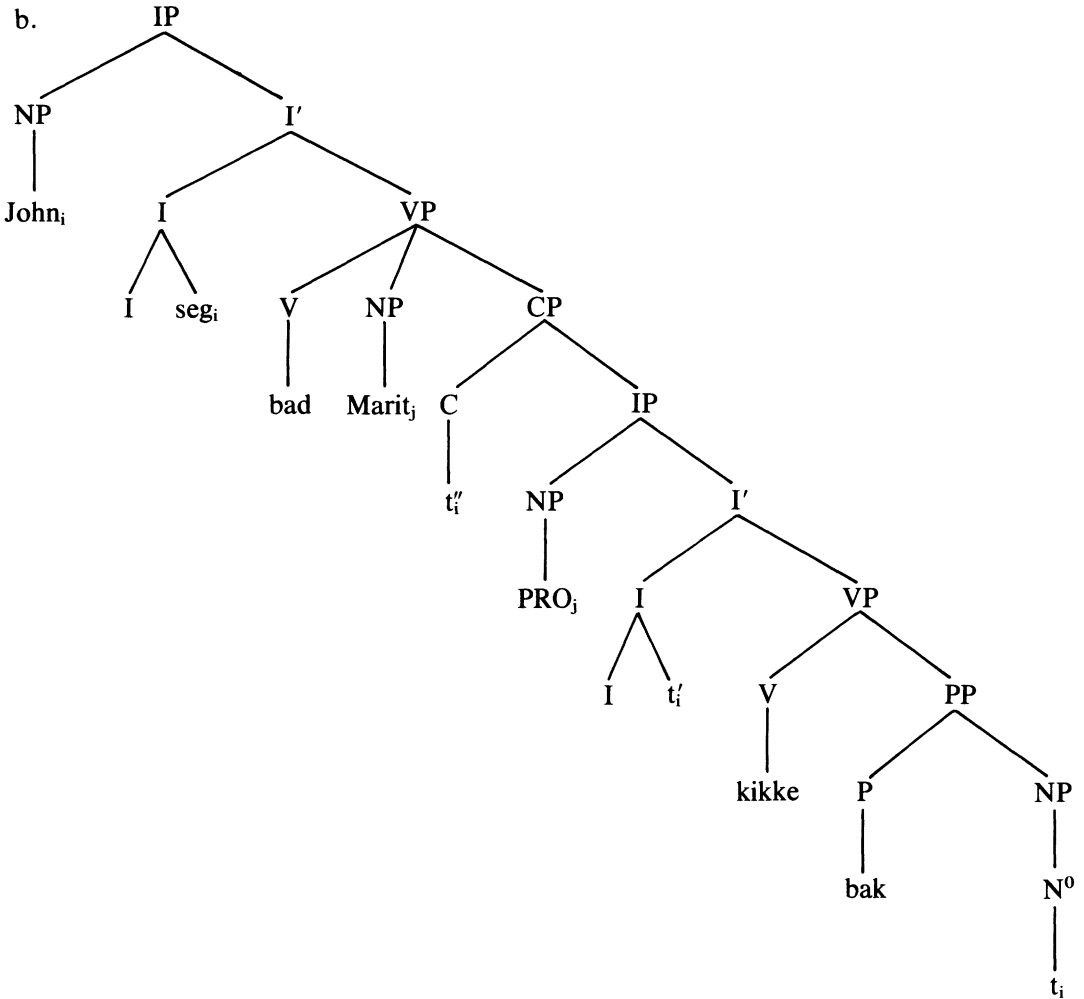
- (43) a. John<sub>i</sub> bad Marit kikke bak ham<sub>i</sub>.  
           John asked Mary to-look behind him  
       b. John<sub>i</sub> bad Marit kikke bak seg<sub>i</sub>.  
           John asked Mary to-look behind REFL

The Elsewhere Principle account would incorrectly predict that (43a) should be ungrammatical, since a reflexive can be used in the same configuration.

On the other hand, under the current analysis, the noncomplementarity in (43) is explained as follows: The pronoun in (43a) moves to the Infl of the embedded clause to satisfy (19a) (cf. (40)). The reflexive in (43b) does the same, but is then forced by Condition A to move successive cyclically to the matrix Infl, in order to occur in the same CFC as its binder. The two LF representations are given in (44). Therefore, what looks

like noncomplementary distribution at S-Structure is restored as complementary distribution at LF, and no appeal to elsewhere principles is necessary (see section 5.2 for further discussion on noncomplementarity).





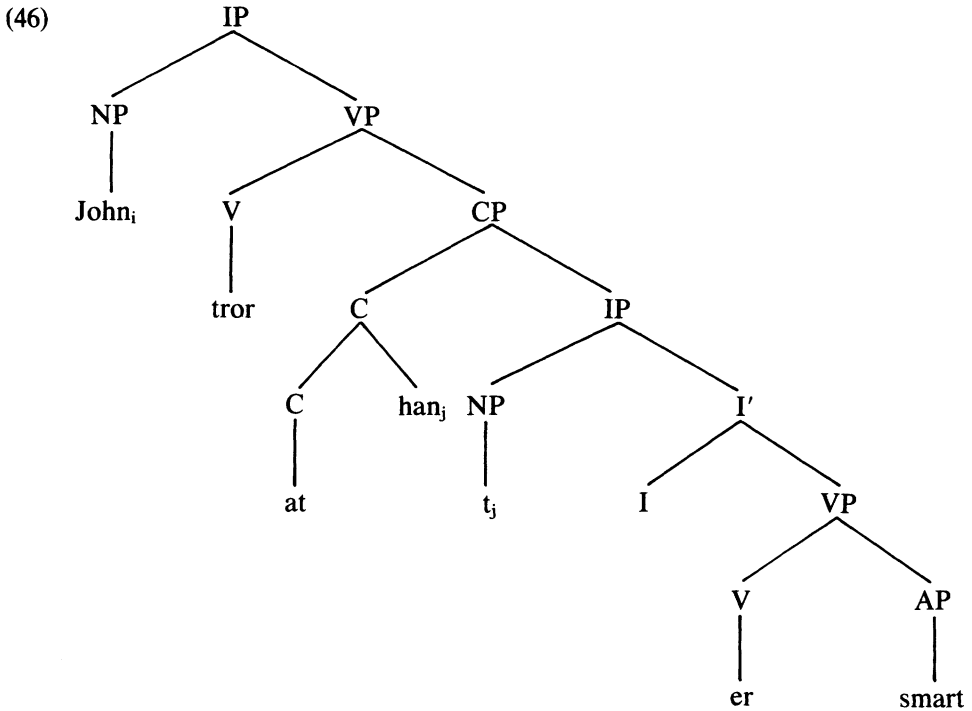
#### 4.6. Cancellation of the Antisubject Orientation Effect

As mentioned in the introduction, a pronoun in the subject position of a tensed clause is not antisubject-oriented:

- (45) John<sub>i</sub> tror [CP at [IP han<sub>i</sub> er smart]].  
 John thinks that he is smart

This is explained as follows: The pronoun must occur in the head of a functional projection. When in the subject position of a tensed clause, it cannot lower to its own Infl, assuming lowering operations to be illegitimate if raising is possible.<sup>18</sup> The pronoun therefore satisfies its LF requirement by moving to C at LF, as shown in (46).

<sup>18</sup> As pointed out to me by Sergey Avrutin (personal communication), when a pronoun is a matrix subject, as in *Han dro* 'He left', raising is not an option, there being nothing to raise to. I assume that lowering to the local Infl is allowed as a "last resort," and that this is comparable to subject cliticization in Romance languages.



This analysis is supported by the fact that such cliticization may apply even at S-Structure in Norwegian:

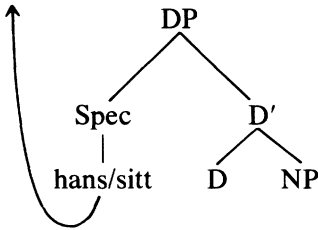
- (47) a. *PF*  
 John trodde at'n var smart.
- b. *S-Structure*  
 John trodde [<sub>CP</sub> at-n<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> var smart]].  
 John thought that-he was smart

Since the pronoun is still inside the CFC of the embedded clause in (46) (assuming CP to be part of the CFC projected by the embedded verb, along with IP), this representation satisfies Condition B at LF under coindexation with the higher subject. This correctly predicts that there is no antisubject orientation in this case.

#### 4.7. A Loose End: Binding into Nominals and the Specificity Effect

For DP-internal reflexives and pronouns, the discussion has focused on cases where a pronoun or a possessive reflexive is in the Specifier position of a DP and (as a result of the requirement that it associate with a functional category) moves out of DP, schematically illustrated in (48).

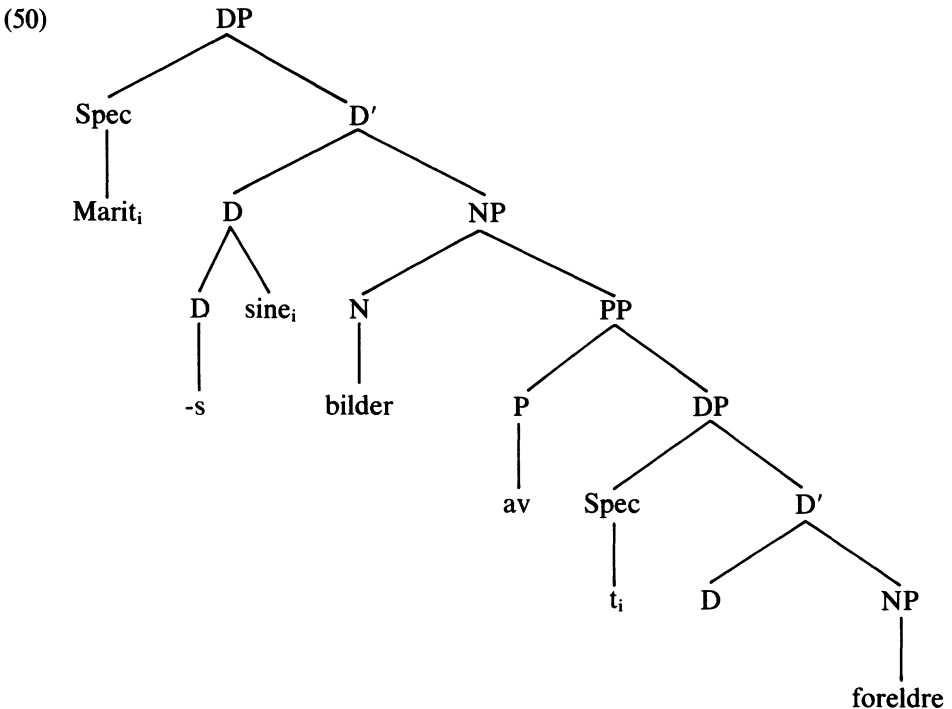
(48) *LF movement of possessives*



But movement of  $X^0$  pronouns must also take place within DP under the current theory. One reason for this is that in (49), the possessive reflexive may be bound by the DP-internal possessive.

- (49) John likte [<sub>DP1</sub> Marit<sub>i</sub> bilder [av [<sub>DP2</sub> sine<sub>i</sub> foreldre]]].  
 John liked Mary's pictures of her-REFL parents

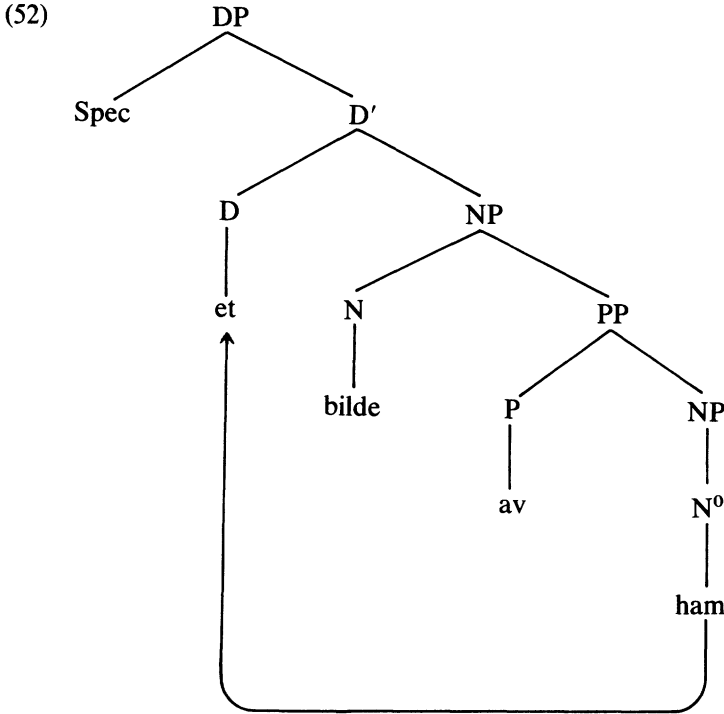
Since the reflexive is bound inside the DP, it must be able to move to a DP-internal functional category in order to meet both the LF requirement (19a) and Condition A. Assuming that this functional category is D, the LF representation of the nominal in (49) is (50).



Consider now a DP-internal pronoun that is not in the Specifier position, as in (51).

- (51) et bilde av ham  
 a picture of him

Along the lines discussed for the reflexive, the pronoun should also be able to satisfy (19b) by moving to D, as shown in (52).



If the DP in (52) is a CFC and a binding domain for the pronoun, the prediction is that there should be no antisubject orientation with respect to arguments outside the DP. In other words, binding to either the subject or the object in (53a) should meet Condition B in the LF representation (53b).

- (53) a. *S-Structure*

John fortalte Per om [<sub>DP</sub> et bilde av ham].  
 John told Peter about a picture of him

- b. *LF*

John fortalte Per om [<sub>DP</sub> Det-ham<sub>i</sub> bilde av t<sub>i</sub>]

However, before this prediction can be examined, a factor that interferes with binding into nominals must be considered, namely, the specificity effect.

As first observed by Fiengo and Higginbotham (1981), the possibility of binding into nominals depends on the specificity of the nominal. The gradation in ‘‘Condition B domain’’-ness varying with specificity can be illustrated with the following English examples:<sup>19</sup>

- (54) a. \*John<sub>i</sub> sought a picture of him<sub>i</sub>.  
 b. \*John<sub>i</sub> sought pictures of him<sub>i</sub>.  
 c. ??John<sub>i</sub> found the picture of him<sub>i</sub>.  
 d. ??John<sub>i</sub> found those old pictures of him<sub>i</sub>.  
 e. ??John<sub>i</sub> wanted at most three pictures of him<sub>i</sub>.  
 f. ?John<sub>i</sub> sought certain pictures of him<sub>i</sub>.  
 g. John<sub>i</sub> sought that new picture of him<sub>i</sub>.  
 h. John<sub>i</sub> found a picture of him<sub>i</sub> that Mary took last year.  
 i. John<sub>i</sub> found Mary’s pictures of him<sub>i</sub>.

The more specific an NP is, the more it is a binding domain, so to speak. This generalization can be roughly expressed as in (55).

- (55) If a nominal is specific, it is a CFC. If a nominal is nonspecific, it is not a CFC.

I will not attempt to explain how a semantic notion such as specificity can influence whether a nominal is a CFC (but see Sells (1991) for a proposal), and (55) will be assumed as an ad hoc principle. This means that in an example like (54a), the NP is nonspecific and not a CFC. The smallest CFC containing the pronoun is therefore S, and coindexation with the subject violates Condition B (at S-Structure as well as LF). In an example like (54g), on the other hand, the NP is specific and a CFC; hence, the pronoun is free in its domain at both levels and may be coindexed with the subject.

Assuming (55), the predictions for Norwegian are as follows: An object pronoun inside a nominal moves to D, satisfying (19a). Binding of a pronoun in a specific DP by a higher subject or object outside DP should be grammatical, since DP is the binding domain for the pronoun at both S-Structure and LF. If the DP is nonspecific, the containing S should be the binding domain at both levels (as in (54a–f)), and binding by either subject or object should be ungrammatical. In other words, there should be no antisubject orientation effect.

The data reported here represent an average of the speakers polled. Consider first binding to subject. If the pronoun is in a nonspecific nominal, subject binding is judged ungrammatical, as predicted. However, subject binding out of a specific nominal is not judged perfect, contrary to expectation. Compare (56) with (57).

- (56) a. \*John<sub>i</sub> så mange/noen/∅ bilder av ham<sub>i</sub>.  
 John saw many/some/∅ pictures of him

<sup>19</sup> It should be noted that binding into nominals is a notoriously difficult area, and speaker judgments may vary within the range reported in (54).

- b. \*John<sub>i</sub> fortalte om mange/noen/Ø bilder av ham<sub>i</sub>.  
 John told about many/some/Ø pictures of him
- (57) a. ?John<sub>i</sub> så det nye bildet/alle bildene av ham<sub>i</sub>.  
 John saw the new picture/all the-pictures of him
- b. ?John<sub>i</sub> fortalte om det nye bildet/alle bildene av ham<sub>i</sub>.  
 John told about the new picture/all the-pictures of him

Consider next binding by an object outside the pronoun-containing DP. Again, the match between data and predictions is not perfect: binding by an object into a nonspecific nominal was generally judged only weakly ungrammatical, rather than fully ungrammatical, as predicted. However, object binding into a specific nominal was judged grammatical, as predicted. Compare (58) with (59).

- (58) a. ?John viste Ole<sub>j</sub> bilder av ham<sub>j</sub>.  
 John showed Ole pictures of him
- b. ?John viste Ole<sub>j</sub> mange bilder av ham<sub>j</sub>.  
 John showed Ole many pictures of him
- c. ?John fortalte Ole<sub>j</sub> om bilder av ham<sub>j</sub>.  
 John told Ole about pictures of him
- d. ?John fortalte Ole<sub>j</sub> om mange bilder av ham<sub>j</sub>.  
 John told Ole about many pictures of him
- (59) a. John viste Ole<sub>j</sub> alle bildene av ham<sub>j</sub>.  
 John showed Ole all the-pictures of him
- b. John viste Ole<sub>j</sub> det nye bildet av ham<sub>j</sub>.  
 John showed Ole the new picture of him
- c. John fortalte Ole<sub>j</sub> om alle bildene av ham<sub>j</sub>.  
 John told Ole about all the-pictures of him
- d. John fortalte Ole<sub>j</sub> om det nye bildet av ham<sub>j</sub>.  
 John told Ole about the new picture of him

Contrary to the prediction, antisubject orientation seems to manifest itself even in this case.

However, the data do show that specificity has the same systematic effect as in English. Given the rough generalization for pronouns that binding to object is grammatical and binding to subject ungrammatical, specificity contributes by weakening or sharpening this effect. If the nominal containing the pronoun is nonspecific, binding to subject is totally ungrammatical, whereas binding to object is slightly deviant (as opposed to perfect). If the nominal is specific, binding to object is grammatical, but binding to subject is weakly ungrammatical (as opposed to ungrammatical). In other words, a specific nominal weakens the antisubject orientation effect, and a nonspecific nominal makes binding to object less grammatical than normal. Still, the paradigm presents a problem for the theory proposed here, which I leave for future investigations.

#### 4.8. Summary

To summarize, this section has shown that the antisubject orientation property of Norwegian personal and possessive pronouns follows from a generalized theory of LF movement. This is explained by exactly the same mechanism that explains subject orientation of monomorphemic reflexives in the same language. English pronouns move at LF as well, but since they are XPs, the LF movement is more limited and does not carry the pronoun into a new binding domain (although this is not always the case, as will be shown below). Some problematic data from binding into nominals were then discussed.

The next section explores some further consequences of LF movement of pronouns and reflexives for binding theory in general.

### 5. Further Consequences of Generalized LF Movement

#### 5.1. Exceptional Case-Marking Constructions and the Governor Requirement

In all the cases discussed so far, the English pronoun, being an XP, does not move from its S-Structure binding domain into a different binding domain at LF, and it always has the same binding requirements at both levels. Apparently, then, there are no direct empirical consequences of the XP-movement of pronouns in English. However, there is a theoretical consequence, concerning the definition of binding domain.

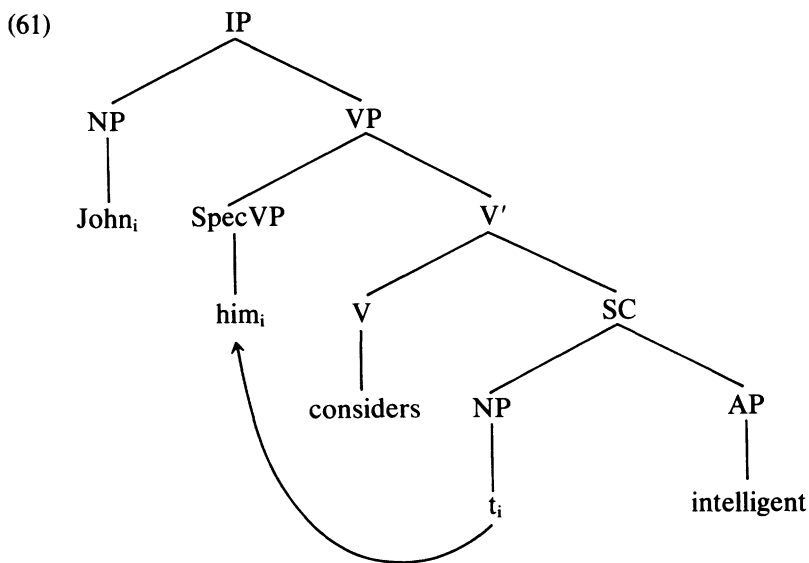
Chomsky (1981, 220) points out that in the theory presented there, the governor requirement in the definition of binding domain is redundant for governed elements, that is, overt reflexives and pronouns. However, in Chomsky (1986b), the governor requirement actually plays a crucial role for overt pronouns in exceptional Case-marking (ECM) constructions. Consider the S-Structure representation (60).

(60) \*<sub>[S<sub>1</sub> John<sub>i</sub> considers [<sub>S<sub>2</sub> him<sub>i</sub> intelligent]].</sub></sub>

In Chomsky (1981), the accessible SUBJECT requirement extends the binding domain of the pronoun to S<sub>1</sub>. But in Chomsky (1986b), where this requirement in effect has been dropped for pronouns, only the governor requirement ensures that the binding domain is extended to S<sub>1</sub>. This provides an argument for keeping the reference to governor in the binding domain definition of Chomsky (1986b).

A consequence of the theory proposed here is that the governor requirement is no longer necessary to get this result. Recall that (as illustrated in (61)) the pronoun must move to the Specifier of its governor, which in (60) is the higher verb. Since the pronoun at LF is in the same binding domain as the matrix subject, and since Condition B applies at LF, it must be disjoint from the subject at this level. This means that the disjointness requirement can be predicted even if binding domain is defined without reference to governor: Condition B would then be met at S-Structure, but violated anyway at LF. In other words, this is “antisubject orientation” in English.<sup>20</sup>

<sup>20</sup> This analysis of antisubject orientation of XP pronouns can be extended to another domain, namely, Romance subjunctive obviation. In some respects, this phenomenon bears a striking resemblance to Scandi-



Under the current proposal, the governor requirement is therefore redundant for pronouns as well as for reflexives and is only needed for the purposes of deriving the PRO Theorem. This redundancy of the governor requirement in the computation of binding domains again suggests, as Chomsky (1981, 221) remarks, that “its effects are so narrow as to suggest that an error may be lurking somewhere.” This raises the issue of whether the distribution of PRO can be derived without reference to government, completely removing the governor requirement from the binding theory. For an argument to this effect, see Hestvik (1990).

5.2. *Deriving Noncomplementary Distribution without BT-Compatibility*

In the discussion of possessive reflexives, the BT-compatibility algorithm was dropped from the binding theory in order to maintain Condition A as an “anywhere” principle, and still explain subject orientation as a result of LF movement. This raises the question of how the desirable effects of BT-compatibility—namely, noncomplementary distri-

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navian antisubject orientation: a pronoun that is the subject of an embedded subjunctive clause must be disjoint from the subject of the higher clause, but it may be coreferential with a higher direct object, as pointed out by Picallo (1985) and Kempchinsky (1986) (data from Kempchinsky (1986)):

- (i) a. Le permiti Elena<sub>i</sub> [<sub>CP</sub> que [<sub>IP</sub> pro<sub>i</sub> usara mi coche]].  
(I) permitted Helen that she use-SUBJUNCTIVE my car
- b. María<sub>i</sub> convenció a Elena<sub>j</sub> [que ella<sub>j</sub> usara mi coche].  
Mary convinced Helen that she use my car

In Hestvik (1990), an analysis is given in which the embedded subject pronoun undergoes XP-movement at LF to matrix Spec VP. In that position, it must be disjoint from the subject but may be coreferential with the object. The explanation parallels that given for Norwegian antisubject orientation, thus providing a unified explanation for the two phenomena.

bution of reflexives and pronouns in certain contexts—can be derived. This section argues that these effects in fact follow from the LF movement proposed here.

BT-compatibility was partially motivated by the type of noncomplementarity illustrated in (62) (see Huang (1983)).

- (62) a. They<sub>i</sub> like their<sub>i</sub> pictures.  
 b. They<sub>i</sub> like each other<sub>i</sub>'s pictures.

But if the analysis of Lebeaux (1983) is assumed (see also Heim, Lasnik, and May (1991)), note that *each* must move out of the nominal at LF:

- (63) they<sub>i</sub> [each<sub>i</sub> [[like [t<sub>i</sub> other pictures]]]]

The result is that at LF, then, there is no noncomplementary distribution (compare (63) with (62a); the latter is the same at S-Structure and LF). That is, it is only when the S-Structure representations in (62) are inspected that there appears to be noncomplementarity. Since complementarity is restored at LF, BT-compatibility is no longer needed to explain the data in (62).

Consider also the noncomplementary distribution in (64a). In Hestvik (1991), this noncomplementarity is shown to follow from BT-compatibility. But under the current proposal, it follows from LF movement: both the pronoun and the reflexive must move to the Specifier of the PP, by (19b). But the reflexive is then forced to move successive cyclically to SpecVP, since Condition A cannot be satisfied in the PP, yielding the LF representation (64c).

- (64) a. John<sub>i</sub> looked behind him<sub>i</sub>/himself<sub>i</sub>.  
 b. John<sub>i</sub> looked [<sub>PP</sub> him<sub>i</sub> [<sub>P'</sub> behind t<sub>i</sub>]]  
 c. John<sub>i</sub> [<sub>VP</sub> himself<sub>i</sub> [<sub>V'</sub> looked [<sub>PP</sub> t'<sub>i</sub> [<sub>P</sub> behind t<sub>i</sub>]]]]]

Again, complementary distribution is restored at LF, and BT-compatibility is dispensable.

Removing the BT-compatibility algorithm also avoids the incorrect prediction that (65a–b) should be grammatical on a par with (62a–b).

- (65) a. \*They<sub>i</sub> like themselves<sub>i</sub>' pictures.  
 b. \*John<sub>i</sub> likes himself<sub>i</sub>'s pictures.

Under the current proposal, the reflexives must move out of the SpecDP position to the higher SpecVP at LF, to meet Condition A. If we follow Lebeaux (1983), this should result in an ECP violation, explaining the ungrammaticality.<sup>21</sup>

<sup>21</sup> However, X<sup>0</sup> possessive reflexives must be allowed to move out of the SpecDP position (cf. the discussion of Norwegian *sin* in section 2.3). Essentially, this shows that head movement at LF must be freer than XP-movement. This requires some nontrivial refinement of the ECP, but the issue will be put aside here.

### 5.3. Deriving the Tensed-S Condition and Specified Subject Condition for XP Reflexives

The view that LF movement of reflexives is partially motivated by Condition A provides an explanation for why LF movement is forced in (66), resulting in ungrammaticality.

(66) \*John<sub>i</sub> thinks that himself<sub>i</sub> is happy.

According to Chomsky (1986b), (66) satisfies Condition A (by BT-compatibility), and the ungrammaticality is derived by the ECP, as illustrated by the derivation in (67).

(67) John [himself<sub>i</sub> [thinks that [t<sub>i</sub> is happy]]]

But the derivation of the Tensed-S Condition (TSC) by the ECP on the basis of parallelism with *wh*-movement is problematic, since there is no *that-t* effect, as observed by Kitagawa (1986) (that is, (66) is still ungrammatical without *that*).

The current proposal provides a different answer to why LF movement of the reflexive in the derivation of (66) results in ill-formedness. Recall that the assumption here is that reflexives must be A-bound after LF movement. A corollary of this is that the reflexive must move to another A-position at LF. It will be assumed here that SpecVP is an A-position (see Rizzi (1991)) (and that VP-internal subjects are adjoined to VP, as in Koopman and Sportiche (1988)). The matrix SpecVP is therefore the closest A-position that the reflexive can move to in (66), which yields the LF representation in (68).

(68) John<sub>i</sub> [<sub>SpecVP</sub> himself<sub>i</sub> [<sub>V'</sub> thinks [<sub>CP</sub> t'<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> is happy]]]]]

In this configuration, Condition A is met. However, the movement itself leads to an *improper movement* configuration: in order to escape the lower clause, movement must proceed through Comp, an  $\bar{A}$ -position, and down to SpecVP in the higher clause, an A-position. Such movement is always illegitimate (see Lasnik (1985)).<sup>22</sup>

The same considerations also derive the Specified Subject Condition (SSC) for XP reflexives. Consider (69a) and its LF representation (69b).

(69) a. John believes Mary to like himself.

b. John<sub>i</sub> [<sub>SpecVP</sub> himself<sub>i</sub> [<sub>V'</sub> believes [<sub>IP</sub> Mary to [<sub>VP</sub> t'<sub>i</sub> [<sub>VP</sub> like t<sub>i</sub>]]]]]]]

In order to escape the barrierhood of the embedded VP (see Chomsky (1986a)), the reflexive must adjoin to it, creating an  $\bar{A}$ -position. The further movement to the higher SpecVP again results in an illicit A- $\bar{A}$ -A chain.

Note that this solution is unavailable if one assumes that XP reflexives adjoin to another XP at LF, as in Lebeaux (1983) and Pica (1987), since a VP-adjoined position

<sup>22</sup> This leaves several questions unanswered for X<sup>0</sup> reflexives. For example, how is the TSC derived for X<sup>0</sup> reflexives? With the A/ $\bar{A}$ -distinction extended to X<sup>0</sup> positions (as in Roberts (to appear); see also Li (1990) for a proposal in the same spirit), it could be derived as improper movement if the C<sup>0</sup> position (but not Infl) of a tensed clause counts as an A-position. Well-formed successive-cyclic movement of X<sup>0</sup> reflexives out of infinitival clauses would then require that the C<sup>0</sup> of an infinitival be an A-position. The development of these ideas will be left for future work.

is an  $\bar{A}$ -position. Furthermore, XP-adjunction in conjunction with the ECP solution to the TSC leads to the expectation that the derivation in (70) should be well formed.

(70) John<sub>i</sub> [<sub>VP</sub> himself<sub>i</sub> [<sub>VP</sub> believes [<sub>IP</sub> Mary to [<sub>VP</sub> t'<sub>i</sub> [<sub>VP</sub> like t<sub>i</sub>]]]]]

The movement would be exactly part of what is required of successive-cyclic *wh*-movement from the lower object position. In other words, that analysis incorrectly predicts that there should be no SSC effect for XP reflexives. On the other hand, the current theory that reflexives undergo A-movement at LF explains the SSC.<sup>23</sup>

#### 5.4. *Why Do Pronouns and Reflexives Move?*

This article has focused on showing what the consequences are if indeed pronouns and reflexives move at LF. I have not attempted here to explain why such movement might take place. The following are some speculations.

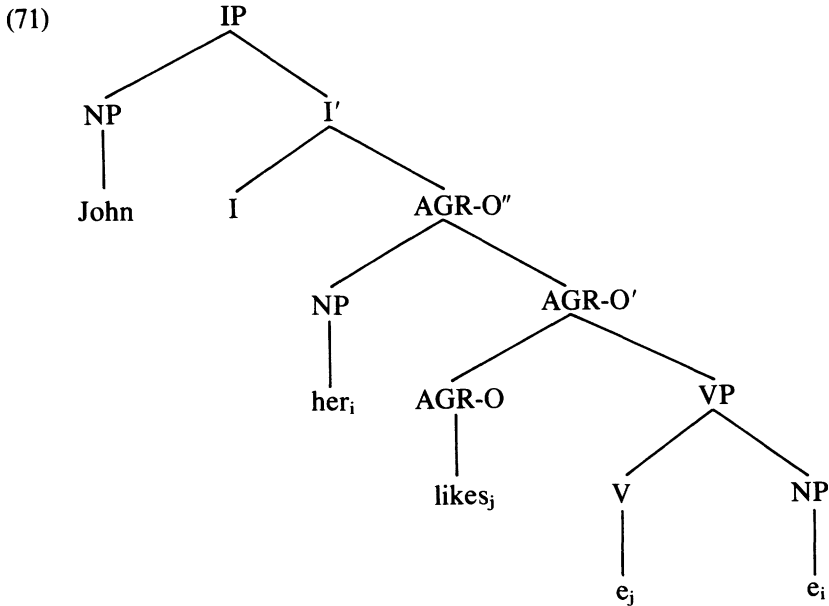
The answer to this question will have to be different from the ones proposed earlier for why reflexives move, which were motivated by appealing to binding-theoretic properties specific to reflexives. For example, Chomsky (1986b) proposes that reflexives move in order to be governed by their antecedents. However, this cannot be the force behind pronoun movement, since a pronoun need not have a sentence-internal antecedent. Similarly, Pica (1987) proposed that reflexives move in order to saturate an open position in their argument structure, which presumably would not be a requirement of pronominals.

One possibility is that it is driven by Case considerations. Chomsky (1991), drawing on work by Hilda Koopman, suggests that structural Case is an agreement relation between the Case assigner and its object. Assuming that agreement relations between a head and an XP are uniformly represented at LF as Spec-head agreement, this means that the NP receiving Case from a Case assigner at S-Structure must move into the Specifier of the Case assigner at LF, in order to occur in the appropriate Spec-head agreement configuration (with Case realization and Case checking disassociated). This idea is compatible with the analysis pursued here. Alternatively, a more complex structure also discussed by Chomsky could be assumed, with accusative Case being a reflection of Spec-head agreement with AGR-O, and the verb moved into Agr-O itself, as shown in (71). Reflexives may in addition move successive cyclically in order to satisfy Condition A; in this case only the initial movement is caused by Case considerations.

<sup>23</sup> This analysis admittedly does not cover all cases of English reflexives, in particular certain acceptable cases where the reflexive is bound across a tensed clause boundary, as in (i) (examples like (ib)–(ic) are discussed in Keenan (1988), Safir (1992), and references therein).

- (i) a. John thinks that the pictures of himself are on sale.
- b. John thinks that physicists like himself are a godsend.
- c. John thinks that Mary hates even himself.

A similar derivation of these examples would result in improper movement as well. To maintain the analysis in the text, the binding here must be mediated by different factors.



Similar considerations could provide motivation for why  $X^0$  pronouns move. Rizzi and Roberts (1989), drawing on Baker (1988), suggest that there are two ways for an argument to satisfy its Case requirements: either by being assigned Case by the Case assigner, or by incorporating into the Case assigner, by  $X^0$ -movement. If one assumes that the  $X^0$  option must be chosen if possible, it follows that all  $X^0$  pronouns will choose the incorporation option. The requirements in (19) for  $X^0$  elements can then also be explained by Case theory (although it is not clear how this idea would extend to possessive pronouns moving to Infl).

### 6. Conclusion

To summarize, the main evidence for LF movement of pronouns is that it explains the antisubject orientation effect of Norwegian pronouns, and its absence in English. The difference follows from the X-bar-theoretic difference between the pronouns in the two languages, and it is explained by the same mechanism that explains subject orientation of monomorphemic reflexives in Scandinavian and other languages: movement to a functional category at LF. Furthermore, antisubject orientation is not a stipulated property of Norwegian versus English pronouns, or  $X^0$  versus XP pronouns. Rather, it is the movement of  $X^0$  pronouns into a higher CFC that yields the effect. XP pronouns, except in ECM constructions, only move within the CFC in which they are base-generated and therefore typically are not antisubject-oriented. The generalized movement theory furthermore allows the governor requirement to be removed from the definition of binding domain for overt elements, explains noncomplementary distribution as an S-Structure epiphenomenon, and derives the TSC and SSC effects for XP reflexives.

The current analysis appears to have some advantages with respect to learnability. In the last few years the hypothesis has been developed that language variation has its source in lexical variation and that parameters are strictly related to properties of lexical items—the *lexical parameter hypothesis* (Borer (1983), Manzini and Wexler (1987)). The current proposal fits this hypothesis: the only relevant property that the child has to learn is whether the pronouns are X<sup>0</sup>s or XPs. The antisubject orientation property in Norwegian and its absence in English follow directly as a function of this difference in combination with the innate computational system. Hence, antisubject orientation (along with subject orientation of monomorphemic reflexives) does not have to be “learned” by the child, but is a derived phenomenon.

The theory presented here therefore differs from earlier attempts at parameterization of binding theory, such as Manzini and Wexler (1987). There, variation among languages is assumed to arise from selection of different values for the “size” of a binding domain, and this value is proposed to be a lexical property of the reflexive or pronoun. However, stating that the size of the binding domain in a language is a lexical property of a word makes the lexical parameter hypothesis virtually empty, since anything can in principle be encoded as a lexical property. The current theory appears to be more true to the intent of the lexical parameter approach in that a single, truly lexical/morphological difference between Norwegian and English pronouns is the underlying cause of more abstract differences between the two languages. The X-bar-theoretic difference can be considered a “parameter” in a descriptive sense, but it is different from the standard type of parameter, since it has no theoretical status on its own and has no value to be “set” by the language learner. This picture points to a model, as in Pica (1987), where there are no parameters specific to binding theory, but only principles.

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