

NOTES ON W-VERB COMPLEMENTS

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0. Introduction

This study deals with complement phenomena of what Postal (1974) calls "W-verbs": *want, desire, prefer, like, hate, wish, need, mean, intend*, etc. We will primarily be concerned with the puzzling and long-known fact that W-verbs, unlike "B-verbs" (Postal (1974)) such as *believe* and *consider*, cannot be passivized if they take the accusative and *to*-infinitive constructions as their complements, as exemplified below [1]:

- (1) a. I want/desire/prefer/like/hate/wish them to be truthful
b. *They are wanted/desired/preferred/liked/hated/wished to be truthful

(Bresnan, 1979, p. 155)

- (2) a. I believe them to be truthful
b. They are believed to be truthful

Section one will be devoted to presenting the previous analyses of "W-verb" complements and assessing their validity. Section two will propose an alternative analysis, showing that on the assumption that "W-verbs" take subjunctive complements whereas "B-verbs" indicative ones the difference in grammaticality between (1)(b) and (2)(b) would follow. Section three will argue that the subjunctive hypothesis receives further support from the fact that it correctly captures some anaphoric phenomena in "W-verb" complements.

1. Previous Studies

This section is concerned with presenting the previous analyses of "W-verb" complements, especially Chomsky's (1981), and assessing their validity.

Chomsky (1981) observes that "W-verb" complements take *for*-infinitivals as their complements, as in (3):

- (3) I prefer/wish/would like/mean/hate for John to be elected President
- Although some "W-verbs", such as *want*, cannot directly be followed by *for*-infinitivals, there is a certain amount of evidence that they are compatible with *for*-infinitivals, as illustrated in (5):

- (4) *She wants for her friends to be truthful.
- (5) a. What she wants is for her friends to be truthful
b. She wants very much for her friends to be truthful

(Bresnan, 1979, p. 154)

This exhibits a striking contrast with the fact that "B-verbs" never appear with *for*:

- (6) a. *What she believes (in) is for her friends to be truthful
b. *She believes strongly for her friends to be truthful

(Bresnan, 1979, p. 154)

These observations have led Chomsky (1981) to assume that while "B-verbs" are analyzed as Exceptional Case Marking (ECM) verbs and thus have the property of inducing *S*-deletion, "W-verbs" never induce *S*-deletion and thus take *S*-complements, i.e. *for*-infinitival complements, throughout their derivations, as schematized below:

- (7) D-structure: I believe [_S [_S them to be truthful]]

--- *S*-bar Deletion --->

S-structure: I believe [_S them to be truthful]

- (8) D-structure and S-structure:

I want [_S [_{COMP} for] [_S them to be truthful]]

A rule of *for*-deletion in the PF-component is responsible for deriving surface forms such as (1)(a) from (8).

Chomsky (1981) argues that this analysis would allow us to account for

the ungrammaticality of sentences such as (1)(b) in terms of the ECP:

- (9) ECP
A nonpronominal empty category must be properly governed.
(Chomsky, 1986b, p. 17)
- (10) Proper Government
 α properly governs β if and only if α governs β and α is lexical.
(Chomsky, 1981, p. 273)
- (11) Government
[$\beta \dots \gamma \dots \alpha \dots \gamma \dots$], where
(a) $\alpha = X^0$ or coindexed with γ
(b) where ϕ is a maximal projection, if ϕ dominates γ then ϕ dominates α
(c) α c-commands γ
In this case, α governs γ .
(Chomsky, 1981, p. 250)

- (12) C-command
 α c-commands β if and only if
(i) α does not contain β
(ii) Suppose that $\gamma_1, \dots, \gamma_n$ is the maximal sequence such that
(a) $\gamma_n = \alpha$
(b) $\gamma_i = \alpha_j$
(c) γ_i immediately dominates γ_{i+1}
Then if δ dominates α , then either (i) δ dominates β , or
(ii) $\delta = \gamma_i$ and γ_i dominates β .
(Chomsky, 1981, p. 166)

On the assumption that the rule expanding COMP (13) is optional, associated with sentence (1)(b) would be the structures in (14):

- (13) COMP \rightarrow [$+/ - WH$]_i
for
(Chomsky, 1981, p. 23)
- (14) a. They_i are wanted [\bar{S} [COMP for] [S t_i to be truthful]]
b. They_i are wanted [\bar{S} [COMP e] [S t_i to be truthful]]
Structure (14)(b) is illegitimate because the trace t_i is ungoverned; it would violate the ECP. Although the trace in (14)(a) is governed by the prepositional complementizer *for*, it is not properly governed. This is because a preposition is non-lexical and therefore is not a proper governor [2]. Notice that in both (14)(a) and (b) they_i does not govern t_i due to the intervening maximal projections, i.e. VP and S.

Chomsky (1981) claims that further support for this analysis is supplied by the fact that "W-verbs" are much more resistant to Heavy-NP Shift than "B-verbs", as illustrated in (15):

- (15) a. *They'd want [e] to win any candidate who would take the trouble to run in every primary
b. They'd believe [e] to be foolish any candidate who would take the trouble to run in every primary
(Chomsky, 1981, p. 70)

On the supposition that the trace of Rightward Movement is also subject to the ECP, the ungrammaticality of sentences like (15)(a) would be an automatic consequence. The trace in (15)(a) is not properly governed; it would fall foul of the ECP. The one in (15)(b), on the other hand, is properly governed by the matrix verb *believe*; it would satisfy the ECP [3].

There are, however, a number of compelling syntactic arguments which undermine Chomsky's (1981) analysis. One such argument might be formulated in relation to syntactic WH-movement facts. Under Chomsky's (1981) analysis, we could not account for the difference in grammaticality between (16)(a) and (16)(b); it would wrongly predict that sentences such as (16)(a) are ungrammatical:

- (16) a. Who do you want to win
b. *Who do you want for to win
Sentence (16)(a) would be assigned structure (17)(a) or (17)(b) and sentence (16)(b) structure (17)(a) under Chomsky's (1981) framework:
(17) a. Who_i do you want [\bar{S} [COMP t_i] [COMP for] [S t_i to win]]
b. Who_i do you want [\bar{S} [COMP t_i] [S t_i to win]]
The trace t_i in structure (17)(a) violates the ECP; it is not properly governed although it is governed by the prepositional complementizer *for*, which is non-lexical. Notice that the trace in COMP t_i does not govern t_i , since the former does not c-command the latter due to the branching COMP. In structure (17)(b), the trace t_i , which is a variable, is not assigned any Case; it would violate the condition that variables must be Case-marked. Even under the "Barriers" framework proposed in Chomsky (1986b), we would wrongly predict that sentences such as (16)(a) are ungrammatical. Under the "Barriers" framework, associated with sentence (16)(a) would be structure (18)(a) or (18)(b) and associated with sentence (16)(b) structure (18)(a):
(18) a. Who_i do you want [CP t_i] [\bar{C} [COMP for] [IP t_i to win]]
b. Who_i do you want [CP t_i] [\bar{C} [COMP e] [IP t_i to win]]
(19) Proper Government
 α properly governs β iff α θ -governs or antecedent-governs β .
(Chomsky, 1986b, p. 17)
- (20) Government
 α governs β iff α m-commands β and there is no γ , γ a barrier for β , such that γ excludes α .
(Chomsky, 1986b, p. 8)
If α governs β , it also governs the head of β [4].
- (21) M-command
 α m-commands β iff α does not dominate β and every γ , γ a maximal projection, that dominates α dominates β .
(Chomsky, 1986b, p. 8)
- (22) Exclusion
 α excludes β if no segment of α dominates β .
(Chomsky, 1986b, p. 9)
- (23) Domination
 α is dominated by β only if it is dominated by every segment of β .
(Chomsky, 1986b, p. 7)
- (24) Barrier
 γ is a barrier for β iff (i), (ii), or (iii):
(i) γ immediately dominates δ , δ a BC for β
(ii) γ is a BC for β , $\gamma = IP$
(iii) γ is the immediate projection of δ , a zero-level category distinct from β
(Chomsky, 1986b, p. 14, 42)
- (25) Blocking Category (BC)
 γ is a BC for β iff γ is not L-marked and γ dominates β (where γ is a maximal projection).
(Chomsky, 1986b, p. 14)
- (26) L-marking
 α L-marks β iff α is a lexical category that θ -governs β .
(Chomsky, 1986b, p. 15)
- (27) θ -government
 α θ -governs β iff α is a zero-level category that θ -marks β , and α , β are sisters.
(Chomsky, 1986b, p. 15)

The trace t_i in (18)(a) violates the ECP; it is not θ -governed or antecedent-governed. Notice that the trace in the SPEC of COMP t_i cannot antecedent-govern t_i due to the intervening barrier \bar{C} . The trace t_i in (18)(b) vio-

lates the condition that variables must be Case-marked as the trace t_i in (17)(b).

The difficulty for Chomsky's (1981) analysis is further compounded by the fact that small clause complements to "W-verbs" show exactly the same restriction on passivization that we saw in *to*-infinitival complements, as exemplified below [5]:

- (28) a. I desire [you [home by midnight]]
 b. *You_i are desired [t_i [home by midnight]]
 (29) a. We need [this car [fully overhauled]]
 b. *This car_i is needed [t_i [fully overhauled]]
 (30) a. I prefer [it [clear from the start that we will not elect John]]
 b. *It_i is preferred [t_i [clear from the start that we will not elect John]]

(Pesetsky, 1982, p. 679)

This restriction does not obtain with the small clause complements of "B-verbs":

- (31) a. I consider [this car [fully overhauled]]
 b. This car_i is considered [t_i [fully overhauled]]

It is not entirely impossible to suppose that the small clause complements of "W-verbs" are assigned the categorial status of S(=CP). The complementizer *for* is obligatorily deleted in all contexts (though the need to make *for*-deletion obligatory might argue against such an analysis). However, this possibility is negated because, as in the case of sentence (16)(a), it would wrongly predict that sentences such as (32) are ungrammatical:

- (32) Who do you desire home by midnight

All of these difficulties, however, would be resolved by the adoption of Aoun's (1985a;1985b) analysis. Following Chomsky (1981), Aoun (1985a;1985b) would assign the structures in (14) (repeated here as (33)) to sentence (1)(b) and those in (34) to sentence (28)(b):

- (33) a. They_i are wanted [\bar{S} [COMP for] [S_t to be truthful]]
 b. They_i are wanted [\bar{S} [COMP e] [S_t to be truthful]]
 (34) a. You_i are desired [\bar{S} [COMP for] [S_t home by midnight]]
 b. You_i are desired [\bar{S} [COMP e] [S_t home by midnight]]

He argues that on the assumption that S breaks an A-chain, the structures in (33) and (34) would be ruled out by the θ -criterion without recourse to the ECP:

- (35) θ -criterion

Given the structure S , there is a set K of chains, $K = \{C_i\}$, where $C_i = (\alpha_1^i, \dots, \alpha_n^i)$, such that:

- (i) if α is an argument of S , then there is a $C_i \in K$ such that $\alpha = \alpha_j^i$ and a θ -role is assigned to C_i by exactly one position P .
 (ii) if P is a position of S marked with the θ -role R , then there is a $C_i \in K$ to which P assigns R , and exactly one α_j^i in C_i is an argument.

(Chomsky, 1981, p. 335)

In (33) (a) and (b), *they* and t_i are in separate chains. The chain containing *they* will not receive a θ -role because it is not in a context of θ -role assignment; it would violate the θ -criterion. Similarly, in (34)(a) and (b), *you* will not receive a θ -role. Thus the structures in (34) would be ruled out by the θ -criterion. Furthermore, under his analysis we could correctly predict that while sentences such as (16)(a) and (32) are grammatical, sentences such as (16)(b) are not. Aoun (1985a;1985b) claim that the binding theory should be generalized from a theory of A-binding - that is, from a theory constraining A-anaphors - to a theory of A- and \bar{A} -binding - that is, to a theory constraining \bar{A} -anaphors as well as A-anaphors. Given the assumption that variables are \bar{A} -anaphors, the role that the ECP plays with respect to these elements would be derived from the binding requirement that variables

are subject to the principles (A) and (B) of the Generalized Binding Theory:

- (36) Generalized Binding Principles (GBP)

- A. An anaphor must be X-bound in its governing category.
 B. A pronominal must be X-free in its governing category.
 C. A name must be A-free. (where X = A or A-bar)

(Aoun, 1985a, p. 28)

- (37) a. α is X-bound by β iff α and β are coindexed, β c-commands α , and β is in an X-position.
 b. α is X-free iff it is not X-bound.

(Aoun, 1985a, p. 27)

- (38) Governing Category

β is a governing category for α iff β is the minimal maximal projection containing α , a governor of α , and SUBJECT accessible to α .

(Aoun, 1985a, p. 33)

- (39) α is accessible to β iff β is in the c-command domain of α and coindexing of (α , β) would not violate the i-within-i condition.

(Aoun, 1985a, p. 25)

Aoun (1985a;1985b) would assign the structures in (41) to sentence (32), those in (40) to sentence (16)(a) and structure (40)(a) to sentence (16)(b):

- (40) a. Who_i do you want [\bar{S} [COMP for] [S_t to win]]
 b. Who_i do you want [\bar{S} [COMP e] [S_t to win]]
 (41) a. Who_i do you desire [\bar{S} [COMP for] [S_t home by midnight]]
 b. Who_i do you desire [\bar{S} [COMP e] [S_t home by midnight]]

He argues that given the Visibility Convention that states informally that an element is visible for θ -marking only if it is assigned Case, structures (40)(b) and (41)(b) would be ruled out by the θ -criterion. This is because the trace in (40)(b) and in (41)(b) are not Case-marked or cannot bear the θ -role assigned by the VP *to win* and the one assigned by the PP *home by midnight*, respectively. Turning now to (40)(a) and (41)(a), the traces in (40)(a) and (41)(a) do not have an accessible SUBJECT and therefore they do not have a Governing Category. This is because on the assumption that the matrix AGRs are coindexed with the matrix subjects, coindexing of these AGRs with the traces would violate the principle (C) of the Generalized Binding Theory. As a consequence, the Binding Theory will be irrelevant. In representations such as (40)(a) and (41)(a), the only requirements that must be satisfied are those preventing vacuous quantification and free variables. Since these requirements are satisfied in (40)(a) and (41)(a): the traces, i.e. variables, are operator-bound by *who*, representations (40)(a) and (41)(a) would be ruled in. *[For-to] Filter would make a rule of *for*-deletion in the PF-component obligatory, thus ruling out sentences such as (16)(b). Thus, if we assume Aoun's (1985a;1985b) analysis, syntactic WH-movement facts do not constitute an argument against the claim that "W-verbs" take S(=CP)-complements and never induce S(=CP)-deletion.

There are, however, certain facts which even Aoun's (1985a;1985b) analysis could not account for. The first is that his analysis could not account for the fact that while (42)(b) and (c) are grammatical, (42)(a) is not:

- (42) a. *Who would prefer for who(m) to win

(Postal, 1974, p. 232)

- b. Who would prefer who to win

- c. Who would prefer who under the weather

Since it would assign the same LF-representation to the sentences in (42), it is extremely difficult for his analysis to offer a coherent account of the contrast in grammaticality between (42)(a) and (42)(b-c) (though it is not clear what kind of constraints LF-WH-movement is subject to [6]). It is abundantly clear that *[For-to] Filter is inoperative in deriving this contrast.

A similar argument can be formulated with respect to quantifier scope facts. His analysis could not offer a principled account of the fact that while sentences (43)(b) and (c) allow both wide-scope and narrow-scope read-

ings, sentence (43)(a) allows only the latter [7][8]:

- (43) a. I strongly desire for no one to be elected
(Unambiguous) (Pesetsky, 1982, p. 675)
b. I strongly desire no one to be elected
(Ambiguous) (Pesetsky, 1982, p. 676)
c. I desire nobody home by midnight
(Ambiguous) (Pesetsky, 1982, p. 680)

Thus, the discussion above would lead us to the conclusion that the validity of Aoun's (1985a;1985b) analysis is questionable with respect to LF-WH-movement facts and quantifier scope facts.

A further argument against the claim that "W-verbs" take S(=CP)-complements and never induce S(=CP)-deletion can be constructed from the fact that it would wrongly predict that sentences such as (44) are grammatical:

- (44) *I want very much Bill to win

Sentence (44) could be assigned structure (45):

- (45) D-structure and S-structure

I want very much [_S [COMP for] [_S Bill to win]]

After the complementizer *for* assigns Case to the NP *Bill* at S-structure, nothing will prevent a rule of *for*-deletion in the PF-component from applying to it. In order to rule out sentences such as (44), we are forced to state an ad hoc restriction on a rule of *for*-deletion that *for* may delete only when the subject that it governs before deletion is adjacent to a Case-assigner, i.e. the matrix verb in (44), after deletion.

Finally, let us look at another evidence Chomsky (1981) argues would support his analysis: Heavy-NP Shift facts. The following examples indicate, however, that this argument fails the test of observational adequacy:

- (46) a. I only want [e] to become doctors those students who have a real interest in a high income
b. I only wish [e] to criticize themselves those of you who feel capable of undergoing deep probing
c. I wish [e] to look like fools all those who are trying to discredit my interplanetary sailboat

(Postal, 1974, p. 410)

- (47) a. I want [e] fired anyone who refuses to accept our authority
b. I wish [e] removed from the room all of those students who have dirty socks

(Postal, 1974, p. 181)

To conclude this section, we have first presented Aoun's (1985a;1985b) and Chomsky's (1981) analyses of "W-verbs" and then shown that they are untenable. As would be seen in the above discussion, all the difficulties with their analyses would be solved by abandoning the assumption that "W-verbs" never induce S(=CP)-deletion. We suppose instead that "W-verbs" may induce S(=CP)-deletion, or alternatively "W-verbs" take IP-complements as well as CP-complements [9][10]. The question now arises how to account for the fact that the subjects of the *to*-infinitival and small clause complements of "W-verbs" cannot be passivized, as the ungrammaticality of sentence (1)(b) indicates. The next section will argue that assuming that "W-verbs" take subjunctive complements, we could correctly predict the ungrammaticality of sentences such as (1)(b).

2. An Alternative Analysis

Apart from *for-to*-infinitival, accusative and *to*-infinitival, and small clause complements, "W-verbs" take subjunctive complements, as illustrated below [11]:

- (48) a. I prefer/desire/wish that John be elected President
(Pesetsky, 1982, p. 680)
b. I intend that he die
c. ?I meant that he visit me

Although some "W-verbs", such as *want* and *hate*, cannot directly be followed by subjunctive complements, data such as (50) and (51) would suggest that they are in fact compatible with subjunctive complements. The unacceptability of sentences such as (49)(a) and (b) is due to the unacceptability of the simple sequences *want that* and *hate that*.

- (49) a. ??I want that John be elected President
b. ??I hate that John be elected President
(50) a. What I want is that John be elected President
b. That he come is what everybody wants
c. I want very much that he come
(51) a. ?What I hate is that John be elected President
b. That John be elected President is what everybody hates
c. ?I hate bitterly that John be elected President

The remainder of this section is intended to show that given the fact that "W-verbs" take subjunctive complements, the ungrammaticality of sentences such as (1)(b) would follow in a principled way. The discussion to follow assumes the following:

- (A) S is a maximal projection of INFL and S is a maximal projection of COMP.
(B) Following Aoun (1985a;1985b), we assume that there are anaphoric relations between non-argument positions. The Binding Theory constrains A-bar-anaphoric relations as well as A-anaphoric relations.
(C) The subjunctive is a dependent tense. It does not occur in matrix sentences, except in an optative, exclamatory sense. Rather it occurs in the complement of predicates that explicitly select a subjunctive (Cf. Jakubowicz (1985), Johnson (1985), Pesetsky (1982), Piccolo (1984;1985)). We represent this dependent property of a subjunctive tense by means of the supposition that while an indicative tense is analyzed as an A-R-expression, a subjunctive tense as an A-bar-anaphor.
(D) The verbs that take subjunctive complements select a subjunctive tense (via subjunctive COMP if they take CP-complements). They keep this property when they take other types of complements, i.e. *for-to* infinitival, accusative and *to*-infinitival, PRO-infinitival, and small clause complements.
(E) SPEC-head agreement holds between the subject and INFL (agreement feature under INFL) even when INFL does not dominate [+AGR] (Chomsky (1986b), Lasnik and Saito (1987)).
(F) The index (or the set of indices) of the head of a phrase percolate up to the phrasal node.
(G) The percolation is not relevant when we define a Governing Category. We assume the Binding Theory proposed in Chomsky (1986a):

- (52) Where I is an indexing and β a domain:

I is BT-compatible with (α, β) if:

- (A) α is an anaphor and is bound in β under I
(B) α is a pronominal and is free in β under I
(C) α is an r-expression and is free in β under I

(Chomsky, 1986a, p. 171)

- (53) α binds β if α c-commands and is co-indexed with β .

(Chomsky, 1986a, p. 164)

- (54) C-command

α c-commands every element of its domain that is not contained within α .

The domain of α is the least maximal projection containing α .

(Chomsky, 1986a, p. 162)

- (55) The licensing condition for a category α governed by a lexical category γ in the expression E with indexing I

For some β such that (i) or (ii), I is BT-compatible with (α, β) :

- (i) α is an r-expression and (a) if α heads its chain or (b) otherwise
 (a) $\beta = E$
 (b) β is the domain of the head of the chain of α
 (ii) α is an anaphor or pronominal and β is the least CFC containing γ for which there is an indexing J BT-compatible with (α, β)

(Chomsky, 1986a, pp. 171-2)

- (iii) The indexing I is not BT-compatible with (α, β) if it violates the i-within-i condition.

(Chomsky, 1986a, pp. 173-4)

- (56) β is a Complete Functional Complex (CFC) if all the grammatical functions compatible with a head dominated by β are contained in β .

(Chomsky, 1986a, p. 169)

- (57) i-within-i Condition

*[$a \dots b \dots$], where:

- (i) $a \neq b$

- (ii) a and b bear the same index or the same set of indices

The i-within-i Condition is independently necessary to exclude cases like (58)(a)-(d):

- (58) a. *[NP_i the friends of [NP_i each other]]
 b. *there is [NP_i a picture of [NP_i itself]] on the mantelpiece
 c. *[NP_i the owner of [[NP_i his] boat]]
 d. *[NP_i the fact that you believed [NP_i it]]

This standard version of the i-within-i Condition (57), however, is incomplete. First, it should be restricted so as not to apply to heads and their projections; otherwise sharing an index (or a set of indices) among heads and their projections through percolation would violate the standard i-within-i Condition. Second, it should be restricted to apply to like categories, since otherwise an IP node could never dominate anything with the same index (or the same set of indices). Because the subject always shares an index with agreement feature under INFL, and this index percolates up to IP, as schematized in (59), the result would be that the standard i-within-i Condition would wrongly disallow the vast majority of sentences.

- (59) [$IP_i NP_i$ [AGR $_i$ V (NP)]]

A modification of the standard i-within-i condition to the effects of incorporating the observations above is formulated in (60):

- (60) i-within-i Condition (Revised)

*[$a \dots b \dots$], where:

- (i) $a \neq b$

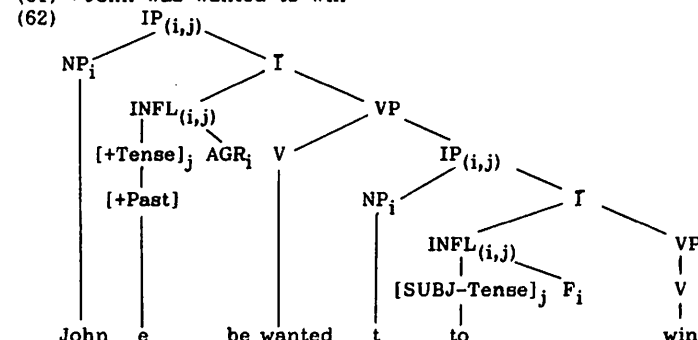
- (ii) a and b bear the same index or the same set of indices

- (iii) a and b are maximal projections

- (iv) a and b are of the same category

On the basis of the foregoing discussion, we will now provide an account of the fact that the subject of the *to*-infinitival complement of a "W-verb" cannot be passivized. Sentence (61) would be assigned structure (62):

- (61) *John was wanted to win



The subject of the matrix clause and that of the embedded clause are co-indexed with AGR and abstract agreement feature F, respectively. The matrix subject and the embedded subject are co-indexed through movement operation. Hence, the matrix subject, the embedded subject, AGR, and F all share the index i . Since "W-verbs" select a subjunctive tense irrespective of whatever complements they take, the embedded INFL node dominates a subjunctive tense. Given that a subjunctive tense is a \bar{A} -anaphor, the subjunctive tense under the embedded INFL node must be bound in the least Complete Functional Complex containing its governor, the matrix verb *want*, and its potential binder, the indicative tense under the matrix INFL node: the matrix IP [12]. In (62), the subjunctive tense under the embedded INFL node is co-indexed with and thus bound by the indicative tense under the matrix INFL node. The percolation convention would make the index of tense and that of agreement feature percolate up to the dominating INFL node and further up to the IP node.

Notice that (62) has the following form:

- (63) [$IP(i,j) \dots [IP(i,j) \dots]$]

This violates the i-within-i Condition (60), and therefore we would correctly predict that sentences such as (61) are ungrammatical. Moreover, if it is the case that small clauses have the categorial status of IP as advocated in Kayne (1981b), Kitagawa (1985) and Lasnik and Saito (1987), the ungrammaticality of sentences such as (28)(b) (repeated here as (64)) could be accounted for in a similar fashion:

- (64) *You are desired home by midnight

- (65) * [$IP(i,j)$ You $_i$ [[INFL(i,j) [+Tense] $_j$ AGR $_i$] [be desired [$IP(i,j)$ t $_i$ [[INFL(i,j) [SUBJ-tense] $_j$ F $_i$] [home by midnight]]]]]]

Sentences such as (66), on the contrary, would not be ruled out by the i-within-i Condition (60), since the matrix subject and the embedded subject are not co-indexed and thus the matrix IP and the embedded IP bear a distinct set of indices, each.

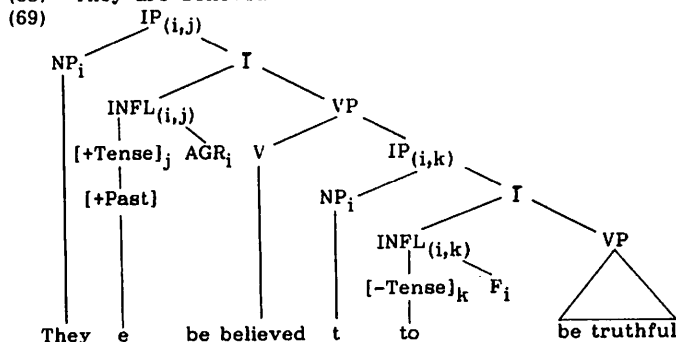
- (66) I wanted John to win

- (67) [$IP(i,j)$ [NP_i I] [[INFL(i,j) [+Tense] $_j$ AGR $_i$] [(want [$IP(k,j)$ [NP_k John] [[INFL(k,j) [SUBJ-Tense] $_j$ to] F $_k$] [win]]]]]]]

How can we account for the fact that while the *to*-infinitival and small

clause complements of "W-verbs" are resistant to matrix passivization, those of "B-verbs" are not? Sentence (2)(b) (repeated here as (68)) would be assigned structure (69). In (69), although the matrix subject and the embedded subject are co-indexed, the indicative tense under the embedded INFL node, being an \bar{A} -R-expression, is not co-indexed with the matrix tense; otherwise it would violate the principle (C) of the Binding Theory. Hence, the matrix IP and the embedded IP each bear a distinct set of indices; it would not violate the i-within-i Condition (60).

(68) They are believed to be truthful.



The grammaticality of sentences such as (31)(b) (repeated here as (70)) could be accounted for in a parallel way:

(70) This car is considered fully overhauled

To recapitulate, the discussion of this section has showed that the revised i-within-i Condition is instrumental in accounting for the fact that while the subjects of the *to*-infinitival and small clause complements of "B-verbs" can be passivized, those of "W-verbs" cannot. Section three will argue that further support for this analysis comes from some anaphoric phenomena in "W-verb" complements.

3. Anaphoric Phenomena in "W-verb" Complements

If the considerations in the previous section are correct, we would expect that the subjects of "W-verbs" and the subjects of their *to*-infinitival and small clause complements can never be co-indexed. This prediction is borne out [13]:

- (71) a. ?Tom_i wants himself_i to leave town
b. ?Tom_i desires himself_i to do that
c. ?Tom_i prefers himself_i to leave town
(72) a. ?Tom_i wants himself_i home by midnight
b. ?Tom_i desires himself_i home by midnight
c. ?Tom_i prefers himself_i home by midnight

In (71) and (72), *himself*_i being an anaphor, is bound in the least Complete Functional Complex containing its governor, the matrix verb (*want*, *desire*, or *prefer*), and its potential binder, the matrix subject *Tom*: the matrix IP. Therefore the sentences in (71) and (72) do not fall foul of the principle (A) of the Binding Theory. We argue that the unacceptability of sentences such as (71) and (72) is due to the violation of the i-within-i Condition (60) [14][15]. One might claim that the difficulty with this analysis arises in the fact that the sentences in (71) and (72) will become well-formed if we replace *himself* with *each other*, which is assumed to be another anaphoric expression, as indicated below:

- (73) a. They want/desire/prefer each other to be successful
b. They want/desire/prefer each other home by midnight

This difficulty would be resolved by the adoption of Lebeaux's (1983;1985) analysis of *himself* and *each other*.

As opposed to the wide-spread view that reflexives and reciprocals, both being anaphors, are subject to the principle (A) of the Binding Theory and thus have identical distribution, Lebeaux (1983;1985) observe that there is in fact a distributional difference between reciprocals and reflexives, as exemplified below:

- (74) a. John and Mary brought some friends for each other to meet
b. ??John would like some books for himself to read
(Lebeaux, 1983, p. 723)
(75) a. ??John and Mary think that each other will win
b. *John thinks that himself will win
(Lebeaux, 1983, p. 724)
(76) a. John and Mary didn't know what each other had done
b. *John didn't know what himself had done
(Lebeaux, 1983, p. 724)

In order to account for this fact, he proposes that while *each of each other* adjoins to the immediately dominating predicative category at LF, it is the reflexive anaphor (*himself*, *herself*, etc.) itself that does likewise. Under his analysis, associated with sentences (77)(a) and (78)(a) would be LF-representations (77)(b) and (78)(b), respectively:

- (77) a. John and Mary saw each other
b. LF: John and Mary_i [each_i [saw e_i other]]
(78) a. John saw himself
b. LF: John_i [himself_i [saw e_i]]

In (77)(b) and (78)(b), the adjoined elements *each* and *himself* are bound to their antecedents, *John and Mary* and *John* respectively, in the course of predication, co-indexing the predicative categories with their antecedents. This analysis would derive a distributional difference between reciprocals and reflexives from the ECP holding at LF. If reflexives are null at LF, their restricted distribution immediately follows from the ECP; in examples (74)-(76)(b), the traces left by LF-movement of reflexives would not be properly governed. With *each*-movement, on the other hand, the trace would be properly governed by the lexical head *other*; the grammaticality of sentences (74)-(76)(a) would follow.

According to Lebeaux's (1983;1985) analysis, sentences (73)(a) and (b) would be assigned LF-representations (79) and (80) respectively:

- (79) [IP(i,j) They_i [[INFL(i,j) [+Tense]_j AGR_i]_{VP} each_i [VP want
[IP(k,j) [t_i other]_k [[INFL(k,j) [SUBJ-tense]_j to]_{F_k}][be
successful]]]]]]]
(80) [IP(i,j) They_i [[INFL(i,j) [+Tense]_j AGR_i]_{VP} each_i [VP want
[IP(k,j) [t_i other]_k [[INFL(k,j) [SUBJ-tense]_j F_k]_{F_k}][home by
midnight]]]]]]]

In (79) and (80), what is co-indexed with the matrix subject *they* is *each*, not the embedded subject *each other*. The matrix IP and the embedded IP each bear a distinct set of indices; it would not violate the i-within-i Condition (60) [16][17]. Thus, Lebeaux's (1983;1985) *each*-movement analysis of *each other* would correctly predict the acceptability of the sentences in (73).

Unlike the subjects of the IP-complements of "W-verbs", the subjects of the CP-complements of "W-verbs" can be freely co-indexed with the subjects of "W-verbs", as illustrated in the following examples [18][19]:

- (81) a. Tom_i wants/desires very much for himself_i to leave town
 b. Tom_i prefers for himself_i to leave town
 (82) I_i prefer/desire/wish/hate/want [PRO_i to be elected President]
 (83) a. Tom_i prefers/desires that he_i be elected President
 b. Tom_i prefers/desires that he_i improve English

Furthermore, the subjects of subjunctive CP-complements and the subjects of their governing verbs can be co-indexed, as illustrated below [20]:

- (84) a. Tom_i intends/demands/recommended/ordered/required that he_i be elected President
 b. Tom_i insists that he_i be given more money
 c. Tom_i suggested/proposed that he_i be made a freeman of the city

The i-within-i Condition (60) would wrongly rule out the sentences in (81)-(84). A slight modification of it to the effects of incorporating these observations is formulated below:

- (85) i-within-i Condition (Revised)
 *_[a ... b ...], where:
 (i) _a ≠ _b
 (ii) _a and _b bear the same index or the same set of indices
 (iii) _a and _b are maximal projections
 (iv) _a and _b are of the same category
 (v) where _δ is a maximal projection, if _δ dominates _b and _a dominates _δ, then _δ does not bear the same index or the same set of indices as _a and _b

On the assumption that COMP and INFL share an index (or a set of indices) through COMP-INFL agreement, the sentences in (81)-(84) would be assigned structure (86):

- (86) [_{IP(i,j)} NP_i [_{INFL(i,j)} [+Tense]_j AGR_i] [_{CP(i,j)} [_{COMP(i,j)} [_{IP(i,j)} NP_i [_{INFL(i,j)} [SUBJ-tense]_j AGR_i] VP]]]]]]

The embedded COMP agrees with and thus shares a set of indices with the embedded INFL. The set of indices of the COMP percolates up to the embedded CP. Structure (86) would not fall foul of the i-within-i Condition (85). This is because although the matrix IP and the embedded IP share a set of indices, the embedded CP, which bears the same set of indices as the matrix IP and the embedded IP, intervenes between them [21].

4. Conclusion

The present study has attempted to provide an account of the fact that "W-verbs" cannot be passivized if they take accusative and infinitival or small clause complement. Contrary to the wide-spread view that the accusative and infinitival and small clause complements of "W-verbs" have the categorial status of CP, we have claimed that they have the categorial status of IP. Assuming that "W-verbs" select a subjunctive tense irrespective of whatever complements they take, we have argued that the restriction on passivization accusative and infinitival and small clause complements to "W-verbs" show can be accounted for by our revised version of the i-within-i Condition. We have also shown that the present analysis receives further support from some anaphoric phenomena in "W-verb" complements.

NOTES:

* This is a revised version of a paper read at the 2nd Tokyo Linguistics Forum held at Otsuma Women's University in August, 1988. I am grateful to the participants of TLF and the members of ICU linguistic circle for their invaluable comments and suggestions. Sole responsibility for errors is my own.

1. One might argue that the ungrammaticality of sentences such as (1)(a) is due to the unpassivizability of "W-verbs". However, we are advised of the spuriousness of this conclusion by the existence of sentences such as (i):
 (i) Public transportation is not wanted/desired/preferred/liked/hated by everybody.

(Bresnan, 1979, p. 155)

2. Structure (14)(a) is also ruled out by a condition on a maximal CHAIN:
 (i) If C = (α₁, ..., α_n) is a maximal CHAIN, then α_n occupies its unique θ-position and α₁ its unique Case-marked position.

(Chomsky, 1986a, p. 137)

3. Lasnik and Saito (1987) concerns dispensing with the ECP with respect to NP-traces and deriving its effects from other independent principles of the grammar. They extend the Uniformity Condition, which was originally proposed in Chomsky (1986a) to rule out illicit NP-movement in Nominals, and argue that ECP effects for NP-traces would fall under their extended version of the Uniformity Condition (i):

- (i) Uniformity Condition
 (i) α assigns inherent Case to β only if α θ-marks β.
 (D-structure)
 (ii) Suppose β bears a θ-role assigned by α. Then, if γ is a barrier for α, γ dominates β. (S-structure)

(Lasnik and Saito, 1987, p. 30)

Notice that in order to account for the ungrammaticality of (1)(b), this analysis would also require "W-verbs", unlike "B-verbs", to take S(=CP)-complements and never induce S(=CP)-deletion.

4. This idea is also adopted by Belletti and Rizzi (1981), Aoun, Hornstein, and Lightfoot (1987) and Aoun and Lightfoot (1984).

5. An apparent counterexample is sentences like (i):

- (i) The food is wanted raw

It is entirely conceivable, however, that the NP *the food* is not the subject of the small clause complement of *wanted*, but the NP object of it. The AP *raw* is analyzed as a secondary predicate (in the sense of Rothstein (1983)) which is predicated of *the food* (more precisely, the trace of *the food*). This claim would be supported by the following data:

- (ii) a. John ate the peanuts salted/*salty
 b. John ate the meat raw/*tasty
 (Rothstein, 1983, p. 153)
 (iii) a. John wanted/desired/preferred the peanuts salted
 b. The peanuts were wanted/desired/preferred salted
 (iv) a. John wanted/desired/preferred the peanuts salty
 b. *The peanuts were wanted/desired/preferred salty
 (v) a. John wanted/desired/preferred the meat raw
 b. The meat was wanted/desired/preferred raw
 (vi) a. John wanted/desired/preferred the meat tasty
 b. *The meat was wanted/desired/preferred tasty

Rothstein (1983) observes that there is a semantic condition on secondary predicates. The attribute described by the secondary predicate must be at the same time an intrinsic property of its subject, and a transitory one. Thus, in (ii)(a), *salted* is an acceptable predicate of *peanuts*, because it describes an intrinsic property of the subject itself, and a transitory property - they do not grow salted. *Salty*, however, describes not a property of its subject, but rather the relation between the *peanuts* and *John* - he finds them salty. A similar analysis accounts for (ii)(b). Given this evidence, while sentences such as (iii)(a) and (v)(a) would be structurally ambiguous, i.e. (I) "W-verbs" take NP-complements and APs are analyzed as secondary predicates, or (II) "W-verbs" take small clause complements, sentences like (iv)(a) and (vi)(a) would only have the second possibility. This is because the predicates *salty* and *tasty* can never be used as secondary predicates. Therefore,

the ungrammaticality of sentences such as (iv)(b) and (vi)(b) would lead one to conclude that the subjects of the small clause complements of "W-verbs" cannot be passivized.

6. It has been argued that the ECP applies to the trace left by LF-WH-movement. Lasnik and Saito (1987), however, casts doubts on that claim, presenting the following examples:

- (i) a. ?Who thinks that who left
b. ?Who wonders whether who left
(Lasnik and Saito, 1987, pp. 12-13)
- c. Who thought who fixed the car

7. Kayne (1981a) presents the following examples which would strengthen this argument:

- (i) a. In all these years, we've desired for not a single linguist to talk to you
(Unambiguous) (Kayne, 1981a, p. 330)
- b. In all these years, he has wanted not a single person to see his albums
(Ambiguous) (Kayne, 1981a, p. 342)
- (ii) a. He's suggested that not a single student come to see him
(Unambiguous) (Kayne, 1981a, p. 322)
- b. He's suggested that they write not a single term paper
(Ambiguous) (Kayne, 1981a, p. 322)

Pesetsky (1982) notes, however, that he finds the contrast between (ii)(a) and (b) weak.

8. It is questionable whether the ECP applies to the trace left by QR, as indicated below:

- (i) a. Who do you think that everyone saw at the rally
(Ambiguous)
- b. Who do you think everyone saw at the rally
(Ambiguous)

(May, 1985, p. 116)

9. For the arguments against S(CP)-deletion, see Fukui (1986).

10. Since we have dispensed with a rule of *for*-deletion in the PF-component, the unacceptability of sentences such as (4) (repeated here as (i)) would follow not from the fact that *for* would be deleted obligatorily if it is adjacent to *want*, but from the fact that *want* can be directly followed by IP-complement, but not by CP-complement:

- (i) *Mary wants for her friends to be truthful

This restriction seems to be dialect-specific, since some dialects, such as Ozark and Ottawa Valley English, accept sentences like (i), as reported in Carroll (1983) and Chomsky and Lasnik (1977).

11. "W-verbs" also take PRO-infinitival complements, which are irrelevant to our discussion:

- (i) I prefer/desire/wish/want/yearn/would like/need/intend [PRO to be elected President]

(Pesetsky, 1982, p. 680)

12. Remember that the percolation is not relevant when we define a Governing Category. Otherwise, one is forced to the unfortunate conclusion that the subjunctive tense under the embedded INFL node in (62) cannot have any Governing Category and therefore does not obey the principle (A) of the Binding Theory.

13. Kioyshi Kurata (personal communication) has pointed out to the author that if extra stress or emphasis is placed on *himself*, the sentence becomes acceptable. A similar observation is found in Soames and Perlmutter (1979):

- (i) Tom_i wants himself_i to leave, not Marcia

(Soames and Perlmutter, 1979, p. 90)

Although an adequate grammar of English must be able to account for such emphatic sentences, we will not be concerned with them here.

14. Notice that even if we assign the categorial status of CP(=S) to the "W-verb" complements of sentences such as (71) and (72) as proposed in Aoun (1985a) and Chomsky (1981), their unacceptability would not follow from the Binding Theory.

15. Our analysis is not without any difficulty, however. While the violation of the i-within-i Condition would result in total ungrammaticality when the matrix subject and the embedded subject are co-indexed through movement operation, it would only result in unacceptability when the Binding Theory requires them to be co-indexed.

16. This study assumes that the i-within-i Condition applies at LF. We are not concerned here with the question whether it also applies at S-structure.

17. Notice that our account of the unacceptability of the sentences in (71) and (72) in terms of the i-within-i Condition is also available under Lebeaux's (1983;1985) analysis, as the LF-representations of (71)(a) and (72)(a) indicate:

- (i) [IP(i,j) Tom_i [[INFL(i,j) [+Tense]_j AGR_j] [_{vp} himself_i [_{vp} want to_j F_j [leave town]]]]]]
- (ii) [IP(i,j) Tom_i [[INFL(i,j) [+Tense]_j AGR_j] [_{vp} himself_i [_{vp} want to_j F_j [home by midnight]]]]]]

This study, however, assumes that reflexives do not undergo LF-movement to the immediately dominating predicative categories, but rather their distribution would be determined by the standard Binding Theory, for the reason we will see later.

18. The generality of Lebeaux's LF-movement analysis of reflexives is questionable with respect to certain observed phenomena of which sentences (81)(a) and (b) are instances. His analysis would wrongly predict that sentences like (81)(a) and (b) are ruled out by the ECP, since the reflexives are not in properly governed positions.

19. As shown above, the present study assumes Lebeaux's (1983;1985) *each*-movement analysis of *each other*. Hence, sentences like (i)(a) and (b) would not be identified as instances where the subjects of "W-verbs" and the subjects of their CP-complements are co-indexed:

- (i) a. They want/desire very much for each other to leave town
b. They prefer for each other to leave town

20. One might argue that data such (i) and (ii) would undermine our analysis:

- (i) a. Linda ordered the men to leave the meeting
b. The men were ordered to leave the meeting
- (ii) a. He requires the students to wear uniforms
b. The students are required to wear uniforms

As Bresnan (1979) points out, however, the verbs *order* and *require* are analyzed as three-place predicates - they take an NP and a clausal complement - as well as two-place predicates - they take a clausal complement. Thus, in (i)(b) and (ii)(b), *the men* and *the students* are not the subjects of the embedded clauses, but in fact the NP-complement of *order* and *require* respectively. The unacceptability of sentences such as (iii)(b) would further support this claim:

- (iii) a. The commander ordered/required there to be riots in the city
b. ?*There were ordered/required to be riots in the city

Notice that *there*, being a subject expression, never occurs in a complement position.

21. Bouchard (1983), Kayne (1981a), and Pesetsky (1982) have attempted to provide an account of the fact that "W-verbs" cannot be passivized if they take accusative and infinitival complements. Although their analyses could overcome the difficulties which section one argued would undermine Aoun's (1985a;1985b) and Chomsky's (1981) analyses, they would not correctly predict the anaphoric phenomena in "W-verb" complements presented in this section.

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