

Review Article of Move- α

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<https://doi.org/10.15017/6796303>

出版情報：言語科学. 28, pp.15-33, 1993-02-15. The Institute of Languages and Cultures, Kyushu University
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Review Article of Move- α ¹

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1. Introduction

This article is a review of Howard Lasnik & Mamoru Saito(1992) Move- α : Conditions on Its Application and Output published in Cambridge, Massachusetts by MIT Press as Current Studies in Linguistics 20.

Since the innovation of the Government-Binding approach to syntax with the framework of barrier theory in Chomsky(1986), not a few linguists have tried to improve syntactic theories based on that new framework. Lasnik & Saito(1992), among others, deserves careful examination. This work dates from Lasnik & Saito (1984), whose basic contrivance is partly adopted in Chomsky(1986). It might be claimed that the work to be reviewed in this article has undergone nearly a decade of revision and improvement. I hope that studying this review will contribute to the future research of syntax.

2. Basic System

The two major syntactic constraints are Subjacency and ECP(the Empty Category Principle). These principles are to be seen in turn.

First, the definition of Subjacency is (1). It is based on the notion 'be subjacent to' in (2):

(1) Subjacency

X can move from position α to position β only if α is subjacent to β .

(2) subjacent

β is subjacent to α if for every γ , γ a barrier for β , the maximal projection immediately dominating γ dominates α .

The definition in (2) is different from, and simpler than, that in Chomsky (1986) in that the former is defined in terms of one barrier while the latter depends upon two occurrences of barriers. (2), therefore, is free from the

criticism to the effect that syntactic mechanism might not have the ability to draw a line between 2 or more ($x \geq 2$) and 1 or less ($x \leq 1$). This advantage is achieved by the way of definition where the maximal projection immediately dominating a barrier, rather than a barrier itself, is the bounding category.

The definition of barrier is (3):

(3) barrier

γ is a barrier for β if

- a. γ is a maximal projection,
- b. γ is not an A-bar binder,
- c. γ is not L-marked,
- d. γ dominates β .

The definition (3) is remarkable compared with Chomsky's at least in three respects. First, it involves only inherent barriers excluding barriers by inheritance. Second, there is no proviso that IP is a defective category which never acts as an inherent barrier. Both of these characteristics are great departure from Chomsky's definition of barriers, but overcome its complexity and proviso. Third, it exempts an A-bar binder (such as topicalized elements and wh-moved elements) from being a barrier. This enables the theory to make a delicate prediction as to whether the extraction out of an A-bar binder is to be permitted.

L-marking is defined as (4):

(4) L-marking

α L-marks β iff α is a lexical category that θ -governs β .

We have to note here that Lasnik & Saito assume that I L-marks VP. This makes unnecessary the adjunction of adjuncts to VP in the course of wh-movement. This is, again, an improvement. That VP is L-marked, and in fact θ -governed, is shown by (5), where VP, unlike adjuncts, can cross wh-island:

(5) ?John said he'd win the race and [win the race] I wonder whether he did t.

(Roberts 1990:388)

θ -government, which L-marking depends on, is defined as (6):

(6) θ -government

α θ -governs β iff α is a zero-level category that θ -marks β , and α , β are sisters.

We now turn to the second major syntactic constraint, the Empty Category Principle (ECP). ECP is divided into two parts: γ -Marking and γ -Filter. This is informally shown as (7):

(7) The Empty Category Principle

a. $t \rightarrow [+ \gamma]$ when lexically governed or antecedent-governed.

$t \rightarrow [- \gamma]$ otherwise.

b. $* \dots t[- \gamma] \dots$

(7a) corresponds to γ -Marking. A nonpronominal empty category is marked $[+ \gamma]$ if it is properly governed by means of lexical government or antecedent-government. γ -Marking is supposed to apply at S-structure and LF. The γ -feature is indelible. γ -Filter applies at LF: an empty category marked $[- \gamma]$ either at S-structure or at LF causes ungrammaticality at LF in the light of γ -Filter unless it deletes by LF.

One of the two ways to receive $[+ \gamma]$, is defined as (8):

(8) Lexical Government

α lexically governs β if

a. α c-commands β , and

b. α assigns Case or a θ -role to β .

The definition of c-command is (9):

(9) C-command

α c-commands β iff neither α nor β dominates the other and every branching node dominating α dominates β .

It would deserve mention that this definition of 'lexical government' in fact presupposes government, because (9b) makes reference to Case and θ -role, both of which, Lasnik & Saito assume, are assigned under government:

(10) Government

- a. α governs β if every maximal projection dominating α dominates β and conversely.
- b. If α governs β , then α governs the head of β .

(10a) is equivalent to the mutual m-command. (10b) is necessary to allow exceptional Case-Marking. According to Lasnik & Saito, V governs, and donates Case-assigning ability to, the embedded Infl, which in turn gives Case to what is in Spec of IP. Another point to note is that the reference to Case- or θ -assignments rather than just to government has the effect to prevent a matrix V from lexically governing an intermediate trace in the Spec of CP complement to that V, which governs, but never assigns Case or θ -role to the specifier of its complement.

The other way to receive $[+\gamma]$, antecedent-government, is defined as (11):²

(11) Antecedent-Government

- α antecedent-governs β if
 - a. α binds β , and
 - b. β is subjacent to α .

Antecedent-government, unlike lexical-government, does not directly capitalize on government whereas, like Subjacency, it is defined based upon one barrier.

Another condition is indispensable in Lasnik & Saito's system, Condition on Chains. This explains the difference between argument movements and adjunct movements.

(12) Condition on Chains

- a. Every trace must be a member of a chain.
- b. Every chain must have as its tail an empty category that is licensed.

Lasnik & Saito expect this condition to derive the effect that an adjunct trace can not appear at S-structure: it is licensed neither by the Extended Projection Principle nor by the Constraint against Vacuous Quantification nor by selection, whereas at LF it must exist in an appropriate position for interpretive reasons. This means that once an adjunct trace is assigned $[-\gamma]$ (at LF), it has no chance to delete and is ruled out by γ -Filter. An argument trace, however, does exist at S-structure and its intermediate traces, even if they are assigned $[-\gamma]$, can delete by LF so that they may not be rejected by γ -Filter. This way of distinction between adjuncts and arguments is somewhat better than the mere stipulation that adjunct traces and argument traces differ in the level where γ -Marking applies. This explains, for example, the difference in (13):

- (13) a. *Who_i do you think t_i' that t_i solved the problem?
- b. How_i do you think t_i' that he solved the problem t_i?

In (13a), the overt complementizer prevents t_i' from antecedent-governing t_i, which is not lexically governed and hence must be antecedent-governed to satisfy ECP. In (13b), however, t_i' and t_i can be absent thanks to (12), and they can be resumed by LF-lowering and LF-raising of the wh-phrase and γ -Marked at LF, where the complementizer is deleted and does not inhibit t_i' from antecedent-governing t_i.

One thing remains to be seen, a condition on adjunction. Lasnik & Saito claim that adjunction makes two independent maximal projections rather than just two segments of the same maximal projection. This makes adjunction unable to evade barrierhood making unnecessary the stipulation in Chomsky(1986) that IP can not be adjoined to. In our understanding, we only have to declare that an argument resists adjunction.

3. Island Effects and Auxiliary Assumptions

In this section, we will see how the system in Section 2 can explain various island phenomena sometimes with auxiliary assumptions.

That-Trace Effect: (13), repeated here as (14), is dealt with the combination of the far-reaching assumptions (15) and (16):

- (14) a. *Who_i do you think t_i' that t_i solved the problem?
- b. How_i do you think t_i' that he solved the problem t_i?
- (15) Only X⁰ categories can be proper governors.
- (16) The index of SPEC is copied onto the head only if the SPEC and the head agree with respect to the feature [$\pm$ WH].

In (14a), t_i', since intermediate traces are assumed to be non-marked with respect to [$\pm$ WH] and 'that' is [$-$ WH], never copies its index onto the complementizer, which, therefore, is not entitled to antecedent-govern t_i. t_i' itself is unable to antecedent-govern t_i, because it is not X⁰ and nothing but X⁰ is allowed to antecedent-govern by (15). t_i is assigned [$-\gamma$] and violates ECP. In (14b), we have a completely different story. (12) makes t_i' and t_i absent at S-structure. At LF, 'how', for interpretive reasons, lowers and raises resuming the two traces, t_i' in the Spec of CP and t_i in the original position. Now t_i' (non-marked with respect to [$\pm$ WH]) copies its index onto the deleted complementizer position (assumed to be non-marked with respect to [$\pm$ WH]), which successfully antecedent-governs t_i.

Subject Island: Examples like (17) show Subjacency violation:

- (17) ?*Who_i did [pictures of t_i] please you? (Lasnik & Saito 1992:89)

The subject NP is not L-marked, hence a barrier. The antecedent of t_i, the matrix C, acquires the index i, but is not dominated by IP, the category immediately dominating a barrier for t_i (the subject NP). Adjunction to the subject NP or IP does not evade the Subjacency violation, because it multiplies the intervening maximal projections and is of no help. When we look at adjunct wh-movement out of the subject NP, it crosses one barrier (i.e. the subject NP)

and the maximal projection immediately dominating it(IP) predicting an ECP violation. This prediction is borne out by (18):

- (18) *How_i did [fixing it t_i] bother Mary? (Manzini 1992:4)

Thus, Lasnik & Saito's system is in conformity with facts. In this respect, it is no worse than Chomsky's, where the subject NP and IP are barriers deriving a strong subjacency effect and an ECP effect.

Adjunct Island: (19) shows Subjacency and ECP violations:

- (19) a. ??Who_i did they leave [before speaking to t_i]?
 b. *How_i did they leave [before fixing the car t_i]?

It is clear that the bracketed adjunct constitutes a barrier. What immediately dominates this barrier varies according to the position of the adjunct. It does not matter, however, where it lies, hung from IP, adjoined to IP, hung from VP, or adjoined to VP. Under any one of these possibilities, a wh-phrase moving out of the adjunct barrier does cross what immediately dominates the barrier, causing Subjacency violation, because adjunction makes two independent maximal projections and even a 'segment' can be counted as a full projection for the purpose of Subjacency. This correctly predicts that (19a) violates Subjacency and (19b) violates (Subjacency and) ECP. This way of explanation might be better than that in Chomsky(1986). In Barriers system, (strong) Subjacency is defined with two barriers and there must be two barriers intervening a step of movement in (19a). Thus, the bracketed adjunct must not belong to VP. If it did, the wh-phrase could be adjoined to VP nullifying the VP barrier and the movement would only cross one barrier wrongly predicting that (19a) is as fine as (20), where CP is the only barrier:

- (20) What_i do you wonder [how_j to fix t_i t_j]?

Wh-Island: As we see in (20), an argument wh-phrase can get out of an infinitival wh-Island. An adjunct wh-phrase, however, can not do so:

(21) *How_i do you wonder [what_j to fix t_j t_i]?

The comparison of (20) with examples like (17) and (19a) tells us that the Subjacency effect of wh-Island is weaker. Wh-Island is a 'weak' island. If wh-Island is tensed as in (22), a Subjacency effect does arise:

(22) ??What_i do you wonder[whether John saw t_i]?

It might be the case, as Manzini(1992) points out, that the existence of tense strengthens the effect of Subjacency and therefore island effect should not be judged in tensed islands. If this is on the right track, Lasnik & Saito's system is too strict to allow examples like (20) though it derives an ECP effect in (21), since the IP in the island is a barrier and the wh-phrase crossing this IP does not move to a position dominated by the CP immediately dominating the IP. Chomsky(1986) is better, if not satisfactory, in this respect: there is a stipulation that the most deeply embedded tensed IP constitutes an inherent barrier(in addition to CP barrier in wh-Island).

Complex NP Island(Relative): (23), an example of (infinitival) relative case of complex NP Island, is ungrammatical:³

(23) *the doctor who_i I know [a suitable gift[Op_j to give t_j to t_i]]

(Manzini 1992:137)

Lasnik & Saito would attribute the ungrammaticality of the cases like (23) to the double violation of Subjacency. First, the relative CP is a barrier and the wh-phrase crossing the CP can not move to a position dominated by the NP immediately dominating the CP. Second, the IP in the relative clause is a barrier and the wh-phrase crossing the IP can not move to a position dominated by the CP immediately dominating the IP with its Spec filled with the relative operator. This is quite similar to the treatment in Barriers framework, where the relative clause and the complex NP are barriers inherited from the relative clause and the IP immediately dominated by the relative CP, respectively. Thus, Lasnik & Saito's system makes a correct prediction as far as the relative case

of Complex NP Island is concerned.

Complex NP Island (Noun-Complement): wh-movement out of the noun-complement case of Complex NP Island, as shown in (24a), is better than (23) and can be regarded as violating Subjacency only once:⁴

- (24) a. ??Who_i did you witness [John's attempt [to give artificial respiration to t_i]]?
 b. *How_i did you witness [John's attempt [to give artificial respiration to Bill t_i]]?

The system reviewed in Section 2 fails to treat (24a) properly. There is no non-L-marked maximal projection crossed by the wh-phrase. Lasnik & Saito adopt the auxiliary assumption provided in Barriers framework that nouns assign oblique Case imposing an inherent barrier. If the CP complement to N in (24a) is an inherent barrier, the movement of the wh-phrase crossing the NP immediately dominating the barrier CP causes Subjacency violation. (24b) is correctly treated as an ECP violation. Lasnik & Saito note that this would also explain the contrast such as (25):

- (25) a. Who_i did you see a picture of t_i?
 b. ??Who_i did you see a picture of friends of t_i?

In (25b), the complement to picture is a barrier (ignoring 'of').

Topic Island: Lasnik & Saito concentrate on the matters of Topics. One of the topics about Topics is whether a Topicalization configuration constitutes a barrier or not. The facts in (26) tell us that it in fact does:⁵

- (26) a. ??[_{IP}On the table_i [_{IP}this book_j [_{IP}John put t_j t_i]]].
 b. ??the man [_{CP}to whom_i [_{IP}that book_j [_{IP}I gave t_j t_i]]]

(26a) is double topicalization. Topicalization is an IP-adjunction operation. It makes two independent IPs. The innermost IP is not L-marked, hence a barrier. Subjacency violation arises, since PP crosses the middle IP, the maximal

projection immediately dominating the innermost IP barrier. A similar analysis is applicable to (26b). Topic Island is not considered in Chomsky(1986). We can say that Lasnik & Saito have enlarged the range of grammatical exploration. What is not clear here, however, is whether or not an adjunct wh-movement out of Topic Island produces an ECP violation. We will turn to this topic in the next section.

There are numerous auxiliary assumptions in Lasnik & Saito: Generalized Proper Binding Condition, Clause Internal Incomplete Constituent Constraint, Superiority Condition, Extended Uniformity Condition, and so forth. In the remainder of this section, LF Infl-Raising, the exemption of an A-bar binder from being a barrier, and the treatment of a selected PP as a non-argument, among others, will be picked up.

LF Infl-Raising: The raising of Infl is needed at LF to explain the contrast in (27), where there is no that-trace effect in the case of LF wh-movement(=(27b)):⁶

- (27) a. *Who_i do you think t_i ' that t_i left?
 b. ?Who_i t_i thinks that who_j left?

(27a) is explained in the first part of the present section as an ECP violation: [_Cthat](=[-WH]) fails to antecedent-govern t_i because the intermediate trace t_i' (=[±WH] unspecified) never copies its index to C. The trace t_j left by the LF movement of who_j in (27b) must be antecedent-governed. Its LF representation would be something like (28):

- (28) who_j, who_i C_i t_i thinks [_CInfl_j] t_j e_j left

'that' has no meaning and can be erased at LF. Infl, coindexed with the subject wh-phrase due to the Spec-head agreement under IP, raises to empty C and antecedent-governs t_j from there.

A-bar Binder as Non-Barrier: There is a subtle contrast in (29):

- (29) a. ?*Who_i do you think that [pictures of t_i] are on sale?

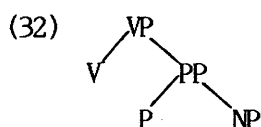
- b. ??Who_i do you think that [_{IP}[pictures of t_i]] [_{IP}John wanted t_j]]?

Lasnik & Saito ascribe the degraded status of (29a) to Subjacency and Clause Internal Incomplete Constituent Constraint proposed in Kuno(1973), [pictures of t_i] being the relevant clause internal incomplete constituent. They claim that (29b) violates only the latter constraint. This means that the topicalized NP in (29b), an A-bar binder, is not a barrier. Thus, no Subjacency effect is expected in (29b).

Selected PP as Non-Argument: The contrast in (30) and (31) is indicative of the fact that a selected PP is more difficult to extract out of an island than a selected NP is:

- (30) a. *To whom_i did they leave before speaking t_i?
 b. ??Who_i did they leave before speaking to t_i?
 (31) a. ?*To whom_i did you witness John's attempt to give artificial respiration t_i?
 b. ??Who_i did you witness John's attempt to give artificial respiration to t_i?

If the traces of the selected PPs in (30a) and (31a) satisfied ECP by lexical government, these two examples would only violate Subjacency. The fact is that their grammaticality is worse than a mere Subjacency violation. Lasnik & Saito group selected PPs and adjuncts together and regard the former not being lexically governed. As we see in (8), lexical government requires Case or θ -role. In the configurations like (32), V and P jointly assign θ -role to NP:



What is θ -marked, therefore, is not PP but NP, as Stowell(1981) proposes. Thus, the PPs in the examples above, though selected, behave like adjuncts and have to satisfy ECP by antecedent-government.⁷

4. Outstanding Characteristics, Problems and Extensions

Several outstanding characteristics of Lasnik & Saito's system will be picked up in this section. We will see their possible extensions. Problems will also be pointed out.

LF lowering & Raising of Adjunct wh-Phrases: An adjunct wh-phrase leaves no traces at S-structure because they are not permitted by Condition on Chains. It, however, must have a trace in its original position at LF for interpretive reasons. It first lowers to its original position and raises from there to pre-IP position leaving traces, which now are licensed by the constraint against vacuous quantification. This way of derivation is crucial in the explanation of phenomena like that-trace effect seen in the last section. This idea dates to Lasnik & Saito(1984).

In our view, Condition on Chains, which explains the absence of adjunct traces at S-structure, can be dispensed with. It is a proper subpart of the more general constraint that unlicensed elements can not appear in syntactic representations. Adjunct traces are only necessary at LF. Therefore, they must not appear at S-structure. This is, in a sense, economy of representation.

Lasnik & Saito capitalize on this way of derivation in the explanation of the adjunct wh-movement out of topic island:

(33) ??How_i do you think (that) this problem_j, John solved t_j t_i?

'how' might belong to VP at D-structure, but at LF, it lowers and adjoins itself to the embedded IP, leaves a trace there, and moves back to the Spec of the matrix CP via the Spec of the embedded CP. The resulting LF is (34):

(34) how_i [_{CP}do]_i you think [_{CP}t_i' C_i[_{IP}this problem_j[_{IP}John solved t_j]]t_i]

In (34), t_i and t_i' are antecedent-governed by the embedded and the matrix Cs, respectively. What is noteworthy here is that the adjunct wh-phrase can move no lower than the embedded IP. If it lowered as deep as the embedded VP, the trace resumed there would fail to be antecedent-governed because of the barrier created by the adjunction to IP of the topicalized NP. An adverbial like 'how',

however, is usually thought to belong to VP. If it belonged to IP as in (34), there would arise some problems. First, a manner adverbial would wrongly be permitted to appear at the sentence-initial position, which belongs to IP:⁸

- (35) a. *Completely, Stanley ate his Wheaties.
 b. *In an efficient manner, John washed his car.

Second, a manner adverbial would be predicted to elude VP-Deletion. (36) shows that it is wrong:

- (36) Did John hit Mary with a stick or with a belt? - *He did ϕ with a belt.
 (Kuno 1975:162)

Third, there would arise an interpretive confusion between a manner adverbial and a sentential adverb, because they both would belong to IP.

Lasnik & Saito present, in a note, a rather ugly solution that, at LF, the Infl in the embedded clause adjoins itself to IP leaving no trace, now headless IP turns its categorial status to VP, the moved I L-marks VP, the L-marking percolates to all VPs, and the embedded C with the index of the intermediate trace of 'how' successfully antecedent-governs the original trace of 'how' adjoined to VP:

- (37) $\text{how}_i \dots [t_i \text{ 'C}_i[\text{VP I}[\text{VP this problem}_j[\text{VP John}[\text{VP t}_i[\text{VP solved } t_j]]]]]]]$

This way of solution, however, would wrongly rule in (38), which Lasnik & Saito present themselves:

- (38) *How_i do you think that Mary_j, Bill told t_j that [John solved the problem t_i]?

In (38), if I raised, the Topic Island effect would disappear and t_i would be properly governed. This type of solution is also weird in the light of X⁰(I) adjunction to X^{max}(IP).

A-bar Binder as Non-Barrier: Lasnik & Saito exempt an A-bar binder like a topicalized phrase from being a barrier to rule in (29b), repeated here as (39), which only violates the Clause Internal Incomplete Constituent Constraint:

- (39) ??Who_i do you think that [_{IP}[pictures of t_i]_j [_{IP}John wanted t_j]]?

There are counterexamples, however, like (40):

- (40) *I wonder who_i [pictures of t_i]_j you bought t_j?

If the topic in (40) constitutes a barrier, the deviance of (40) can be ascribed to the clause-internal constraint and Subjacency.

It might be the case that a good theory must be able to distinguish the cases like (39) where the wh-phrase and the topic are not in the same clause on one hand and the cases like (40) where they are in the same clause on the other hand. That this has some significance is shown by (41a), where the wh-phrase and the topic island are in the same clause in contrast with (33), repeated here as (41b), where those two elements belong to separate clauses:⁹

- (41) a. *John hoped that Mary would find his hat, but I wonder how_i [find it]_j she ever could t_j t_i.
 b. ??How_i do you think (that) [this problem]_j, John solved t_j t_i?

Selected PP as Nonarguments: Lasnik & Saito consider that in the structure [_{VP}V[_{PP}P NP]], V and P jointly assign θ -role to NP and PP, though selected, is nonargument, hence behaves as an adjunct. This explains the contrast in (30) and (31), repeated here as (42) and (43):

- (42) a. *To whom_i did they leave before speaking t_i?
 b. ??Who_i did they leave before speaking to t_i?
 (43) a. ?*To whom_i did you witness John's attempt to give artificial respiration t_i?
 b. ??Who_i did you witness John's attempt to give artificial

respiration to t_i ?

This kind of explanation involves some problems. First, there are some islands (like (44) Factive Island and (45) Extraposition Island) which selected wh-PP, but not a wh-adjunct, can move out of:¹⁰

- (44) a. To whom_i do you regret that you could not speak t_i ?
 b. *How_i does he regret that we behaved t_i at the party?
 (45) a. To whom_i is it time to speak t_i ?
 b. *How_i is it time to behave t_i ?

Second, it is not clear how NP complement to P receives a θ -role when PP pied-pipes.

Third, if PP is not θ -marked, it would become a barrier predicting that the simple cases of preposition stranding like (46) always violate Subjacency:

- (46) Who_i did you speak [_{PP} to t_i]?

In (46), PP is not L-marked, hence a barrier. The wh-phrase moving out of PP does not move to a position dominated by the matrix VP, which immediately dominates the barrier PP, a typical instance of Subjacency violation.

LF Infl Raising: The embedded Infl has to raise to C at LF to antecedent-govern the trace of the raised wh-subject:

- (47) S-str: who_i t_i thinks that who_j Infl_j left
 LF : who_j, who_i t_i thinks [_CInfl_j] t_j left

LF Infl Raising is also needed to license the trace of the raised quantifier:

- (48) S-str: everyone_i Infl_i left
 LF1 : [_CInfl_i][_{IP}everyone_i[_{IP} t_i e_i left]]
 LF2 : [_{IP}everyone_i[_{IP}Infl_i[_{IP} t_i e_i left]]]

LF1 is not allowed, since Infl_i fails to antecedent-govern t_i and e_i with the middle IP immediately dominating the innermost IP barrier. Thus, LF2 should be preferred: Infl first adjoins itself to IP and then the quantifier is adjoined to this IP. This is problematic. (49) is still unaccountable:

- (49) S-str: ... that [$_{\text{IP}}\text{John}_i$ [$_{\text{IP}}\text{everyone}_j$ Infl_j loves t_i]]
 LF : ... [$_{\text{IP}}\text{everyone}_j$ [$_{\text{IP}}\text{Infl}_j$ [$_{\text{IP}}\text{John}_i$ [$_{\text{IP}}t_j$ e_j loves t_i]]]]]

In the LF of (49), Infl_j fails to antecedent-govern t_j and e_j . The ugly solution discussed over (37) would provide an account of (49) by means of the LF (50), where LF Infl Raising leaves no trace and headless IPs change to VPs, which are all L-marked by Infl as the result of percolation:

- (50) [$_{\text{VP}}\text{everyone}_j$ [$_{\text{VP}}\text{Infl}_j$ [$_{\text{VP}}\text{John}_i$ [$_{\text{VP}}t_j$ [$_{\text{VP}}\text{loves } t_i$]]]]]]]

This, however, makes it unable to interpret an adverb appropriately, because sentential adverbs and VP-adverbs both belong to 'VP' at LF. Moreover, if X^0 could move without leaving a trace, (51) would be ruled in:

- (51) *Can to Bill Mary say anything?
 D-str: [$_{\text{IP}}\text{Mary can}$ [$_{\text{VP}}\text{say anything to Bill}$]]
 S-str: can_i [$_{\text{VP}}[\text{to Bill}]_j$ [$_{\text{VP}}\text{Mary}$ [$_{\text{VP}}\text{say anything } t_j$]]]

If there is a trace of Infl in (51), it will be ruled out as an ECP violation: the raised Infl does not antecedent-govern its trace owing to the topic island.

There is a way to explain (47)~(49) without recourse to the assumption that LF Infl Raising leaves no trace and headless IPs all become L-marked VP. We might assume that the IPs in an adjunction configuration are independent maximal projections each of which is a possible site of adjunction. This will neatly explain (49): Infl can adjoin to the lowest IP.

This Infl Raising is not to be allowed in overt syntax. If Infl were adjoined to IP by S-structure, we would lose the explanation for that-trace effect. The adjoined Infl would antecedent-govern the subject trace even if C

dominates 'that'. This is one of the topics that Lasnik & Saito do not pursue. This is also a nuisance in a vacuous topicalization like (52):

(52) *I thought that John_i left_i.

If the subject trace is to be antecedent-governed by some coindexed X^0 , Infl has to be adjoined to IP. The question what precludes Infl adjunction at S-structure remains to be answered.

Segments as Separate Projections: In Lasnik & Saito's system, XP segments which arise as the result of adjunction are regarded as separate projections for the purpose of barrier definitions. We have proposed around (49) that they can be considered to constitute independent maximal projections also as adjunction sites. This assumption has another advantage. If X^{max} 's resulting from adjunction are separate projections for θ -theory, the prohibition against adjunction to arguments follows. In (53), V θ -marks XP at D-structure while V has to θ -mark two XPs, which arise as the result of YP adjunction:

(53) D-str: ... [_V V XP ...
 S-str: ... [_V V [_{XP} YP [_{XP} ...

This is a θ -Criterion violation.

[$\pm$ WH] Agreement: The Spec of CP can copy its index on C head only if they agree with respect to [$\pm$ WH]. This is crucial in that-trace effect. The intermediate trace in the Spec of CP(=[$\pm$ WH] unspecified) can impose its index only to null C(=[$\pm$ WH] unspecified). This mechanism is also available, in our view, in the cases of the adjunct wh-movement out of Factive Island and Extraposition Island:

- (54) a. *How_i does he regret that we behaved t_i at the party?
 b. *How_i is it a shame that they behaved t_i?

Our proposal here is that 'that' in these constructions are not deletable not only at S-structure, as testified by facts, but also even at LF representation.

Whatever its reason might be, the overt complementizer is [-WH], which is in conflict with the feature of the intermediate trace of the adjunct wh-phrase(= [±WH]unspecified). Thus, C, lacking an appropriate index, fails to antecedent-govern the original trace of the wh-adjunct.

5. Concluding Remarks

The work reviewed in this paper shows a lot of improvements compared with the Barriers framework. We have seen several characteristics and found problems which resist an easy solution. This theory, however, will constitute a basis for further syntactic research. Lastly, we have to confess that there are a lot of minor assumptions and problems(e.g. tense effect on island) ignored in this tiny review.

NOTES

- 1 ... I was stimulated to write this review by the discussion in the Fukuoka Syntactic Circle. I express thanks to its members. The bracketing and indexing of the examples cited are mine.
- 2 ... Lasnik & Saito dare to unite antecedent-government with lexical-government. The united definition, though, seem to us to be somewhat farfetched.
- 3 ... The grammaticality rises when the nominal head is indefinite and a subject is relativized as in (i):
 (i) This is a paper that we need to find someone who understands t.
 (Cinque 1990:147)
- 4 ... There are well-formed exceptional examples like famous make the claim configuration. In this kind of examples, there is no possessive NP and V-N sequence could be a semantic unit(e.g. make the claim = claim).
- 5 ... The famous example (i) is rather exceptional:
 (i) the man to whom liberty you could never grant
- 6 ... There are fluctuation in the judgment of cases like (27b).
- 7 ... Lasnik & Saito worry about the slight difference in acceptability

between (30a) and (30b).

8 ... (35a) is cited from Jackendoff(1972:50) and (35b) from Nakajima(1990:280).

9 ... (41a) is cited from Emonds(1976:32).

10 ... (44a) and (45) are cited from Cinque(1990:29) and (44b) from Browning(1987:339).

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