A-Chain Linearization and Case*

Jeong-Shik Lee
(Wonkwang University)

Lee, Jeong-Shik. 2006. A-Chain Linearization and Case. *The Linguistic Association of Korea Journal, 14*(4), 109-129. This paper deals with A-chain linearization at PF for various cases of long NP-movement. The fact that NP-movement results in an A-chain where only its head bears a checked Case feature leads to a chain reduction process at PF, which under the copy theory of movement, maintains the head involving a checked Case feature but deletes all the other copies. It is crucially assumed that a checked Case feature is visible for PF interpretation and that a chain link with this checked Case feature persists into PF. LCA (Linear Correspondence Axiom) then takes care of other illegitimate A-chains involving more than one Case feature checking among the chain members. This paper thus shows that Case is a crucial property in determining legitimate A-chain linearization in PF.

Key Words: Case, NP-movement, A-chain, Chain linearization, LCA

1. Introduction

In this paper, I attempt to deal with various types of long NP-movement in English in a unified way. A number of conditions have been contrived to block illegitimate cases of NP-movement in the literature, but only with partial success (see Chomsky 1986a,b, Lasnik and Saito 1992, Baker 1988, among others).

One aspect of NP-movement is that it is basically a Case seeking process (Chomsky 1981), as illustrated in (1).

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(1) a. John$_i$ was seen t_i.
b. John$_i$ is believed [t_i to be rich].
c. John$_i$ seems [t_i to be rich].

Another unspoken aspect of NP-movement is that it is blocked by Case in some way or other (see Rouveret and Vergnaud 1980, Lee 1992, Lee and Maling 1993, among others).

(2) a. *Mary$_i$ is believed [t_i likes John].
b. *John$_i$ is believed [that Mary likes t_i].
c. *John$_i$ seems [that it is certain [t_i to win]].
d. *John$_i$ strikes t_i [that Mary is rich].

Along the path of NP-movement, there should not be a Case head until the highest Case position is reached. More relevant examples will be presented in the course of discussion. Thus, the most crucial factor constraining NP-movement is, I think, Case. I formulate this guiding idea as the following condition yet to be refined.

(3) An NP-movement chain, or A-chain, cannot involve more than one Case feature checking along its path, where a chain link asymmetrically c-commands its following chain link.

I will show that the condition (3) with more elaboration can cover a variety of heterogeneous instances of long NP-movement. For the purpose of discussion, I assume the following: (i) An NP bears a simple Case feature, unspecified for Nominative or Accusative, (ii) a Case head bears a specific Case feature, Nominative or Accusative, (iii) Case is checked within a local domain (i.e., m-command domain) of the Case head, (iv) Case checking is not optional.

I will eventually reduce the condition (3) to a condition on chain reduction process at PF where a checked Case feature is assumed to be visible for PF interpretation. Thus, what I am going to propose is that

for an A-chain to undergo a desirable chain reduction process, it must have a checked Case feature on its head, not on any other chain link, along its path. This guarantees the survival of the A-chain head and demise of the other chain links. If there is more than one Case feature checking within an A-chain, more than one member is visible for PF interpretation. As a result, this chain could not be linearized by Linear Correspondence Axiom (LCA) proposed in Kayne (1994). In section 6, I will also compare the current approach to one important previous work on PF chain linearization elaborated in Nunes (1996, 1999), to be introduced in section 5, pointing out some potential problems with his approach.

2. Tensed Sentence Condition and Specified Subject Condition

Traditionally, locality factors are considered to be tense, and the presence of a subject, as illustrated in (4) and (5), respectively.

(4) *Mary$_i$ is believed [t_i likes John]. (=2a)
(5) *John$_i$ is believed [Mary to like t_i]. (=2b)

In Chomsky (1973), these are reflected as Tensed Sentence Condition (TSC) and Specified Subject Condition (SSC), respectively.[1] Chomsky (1976) proposed that the NP-trace is subject to the constraints while NP-movement itself is not. Treating the NP-trace as an anaphor, Chosmky (1981) ultimately collapsed TSC and SSC into Binding Condition A.[2] In (4) and (5), thus, the NP-trace as an anaphor now is not bound in its governing category, namely, the embedded clause, thus

1) a. Tensed Sentence Condition (TSC): No rule can involve X, Y in .....X..... [$_\alpha$ ....Y....]..... where α is a finite clause.
b. Specified Subject Condition (SSC): No rule can involve X, Y in .....X..... [$_\alpha$ Z....Y....]..... where Z is the subject of α.

2) Binding Condition A: An anaphor must be bound in its governing category (defined in terms of tense and subject).

leading to a violation of Binding Condition A. This assimilates (4) and (5) to (6) and (7), respectively.

(6) *Mary$_i$ is believed [herself$_i$ likes John].
(7) *John$_i$ believes [that Mary likes himself$_i$].

In this approach, then, NP-movement is constrained by separate conditions on movement, for example, Subjacency.[3] Below, however, it will be shown that either Binding Condition A or Subjacency is not enough in accommodating some instances of NP-movement.

Under the current approach, each A-chain in (4) and (5), that is, (Mary*, t*) and (John*, t*), involves more than one Case feature checking, marked as * on the Case-feature-checked element, along its path, thus violating the condition (3). (Here traces can be regarded as copies.)

3. Superraising

Consider the following example, involving the so-called Superraising (Chomsky 1981).

(8) *John$_i$ seems [that it is certain [t$_i$ to win]].

According to Chomsky, Binding Condition A (or SSC) is not responsible for the ungrammaticality of (8), but rather Subjacency is. Lasnik and Boeckx (2006) say that examples like (9) are presumably the reason for this conclusion.

(9) They$_i$ think it is a pity that pictures of each other$_i$ are hanging on the wall.

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3) Subjacency: No rule can involve X, Y, if Y is not subjacent to X. (Y is subjacenct to X if they are contained in all the same cyclic categories, clause or NP, or if they are in adjacent cyclic domains.)

Despite the same or longer distance between the anaphor *each other* and its antecedent *they* in (9), compared with (8), Condition A is satisfied here. If (8) is excluded by Condition A, (11) must also be incorrectly ruled out.

Notice also that the ungrammaticality of (8) is much severer than that resulting from a mere Subjacency violation. Thus, Lasnik and Saito (1984) attributed the ungrammaticality of examples like (8) to a violation of the Empty Category Principle (ECP),[4] which results in severe degradation. It is also surprising to note that (4), repeated below, involving 'closest attraction' (Chomsky 1995), is worse than a typical Subjacency violation.

(4) *Mary$_i$ is believed [t_i likes John]. (=2a)

This kind of example is called a case of Hyperraising in Ura (1994). All this state of affairs indicates that something else operates for (long) NP-movement.

Under the current approach, the A-chain in (8), that is, (John*, t), involves a Case feature checking on the intermediate subject it*, a potential chain member, along the path of NP-movement, hence in violation of the condition (3).

The Binding Condition A approach cannot handle the following Lasnik's (1985) example, either.

(10) *John$_i$ is believed [that he$_i$ likes t_i].

The NP-trace here, treated as an anaphor, can be bound by the

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4) ECP (see, e.g., Chomsky 1981, Lasnik and Saito 1984): A trace must be properly governed.

(i) α properly governs β if α lexically governs β or α antecedent-governs β.
(ii) α lexically governs β iff α governs β and α assigns Case or a theta-role to β.
(iii) α antecedent-governs β iff α binds β and α and β are not separated by an S' boundary (unless β is in Comp).

co-indexed *he*$_i$ in the local binding domain, thus undesirably satisfying Binding Condition A. (On the other hand, (10) can be ruled out by both TSC and SSC, since the NP-movement takes place out of the bracketed finite clause and across a subject.) Chomsky (1986b) proposed the Chain Condition to the effect that an A-chain cannot contain two Case positions in both its head and tail. This condition can then exclude (10).

Under the present approach, the A-chain in (10), that is, (John*, t*), involves more than one Case feature checking within it, plus extra intermediate Case feature checking on *he** within this chain, hence in violation of the condition (3).

Another Superraising case where the traditional ECP account fails, as provided in (11) (Baker 1988), also falls out in the same way.

(11) *John$_i$ seems [that it was told t_i [that Mary was rich]].

The NP-trace here satisfies lexical government requirement, thereby satisfying the ECP. But the result is still bad. Also, the A-chain here, namely, (John*, t), undesirably satisfies the Chain Condition. Chomsky's (2000) proposal for (11) is that the intermediate subject *it* exhibits 'defective intervention' effect. Although it is not a potential attractee (having already checked its Case), it must still count for the purpose of closest Attract, so that *John* cannot be attracted. Obviously, why this is so is somewhat obscure.

The proposed condition (3) captures the essence of this 'defective intervention,' and (11) can simply be treated on a par with (8).

Note also that another particular variant of Superraising introduced in (12) (due to E. Raposo) is undesirably allowed in Chomsky's (1995) system.

(12) *It$_i$ seems [that t_i was told John [that Mary was rich]].

Since the categorial/EPP feature of *it* is interpretable, it is accessible for further computation. Thus, it can legitimately raise to matrix Spec IP. In Chomsky's (1995) system, since *it* has lost its Case feature in the

lower clause, it cannot check the uninterpretable Case feature of higher Infl. But raising of *John* (or its relevant formal features) in LF can check the Case features of both matrix finite Infl and *John*. So the derivation incorrectly converges.

Chomsky (2000) stipulates that an element having checked its Case feature cannot be attracted for mere EPP-checking (EPP stands for Extended Projection Principle). In other words, Case makes an element visible for Attraction (here, NP-movement). Thus, in (12) *it* cannot raise to matrix Spec IP having checked its Case feature already in the lower clause. The uninterpretable Case feature of matrix Infl then remains unchecked, leading to crash in the derivation.

The current approach offers a very simple solution to this problem. The condition (3) can easily rule out the A-chain (It*, t*) involving more than one Case feature checking. This approach equally applies to another case of long NP-movement given in (13).

(13) *Mary believes [John$_i$ to be likely [t$_i$ will win]].

Here the A-chain (John*, t*) involves more than one Case feature checking, thus leading to a violation of (3).

For a similar case like (14), however, if the noun *belief* does not assign an inherent Case to its complement subject due to the lack of theta relation between the two (Chomsky 1986), there occurs no Case feature checking for *John* in the infinitive subject position.

(14) *Mary's belief [John$_i$ to be likely [t$_i$ will win]]

The resulting A-chain (John, t*) involves only one Case feature checking, thereby incorrectly satisfying (3). I will resort to chain reduction at PF for this problem in section 6.

4. NP-movement over Experiencer

A paradoxical case is found in the possible long NP-movement over

an Exp(eriencer) in examples like (15) and (16).

(15) John$_i$ seems to Mary [t$_i$ to be the best].
(16) John$_i$ strikes Mary [as t$_i$ being the best].

Here, the A-chain (John*, t) apparently involves more than one Case feature checking along the path of NP-movement. This is due to the fact that the Exp *Mary* has its Case feature checked by the preposition *to* in (15), and by the verb *strike* in (16), along this path. But the result is good.

I first note that the Exp *Mary* in (15) is not on the main path of the NP-movement, but rather it is under the PP headed by *to*. By the main path I mean the projections of a verbal and Tense element, the backbone of the tree structure. In a more structural term, *Mary* under the PP here does not c-command the tail of the A-chain, namely, *t*. This distinction leads me to a claim that in (15) the A-chain involves only one Case feature checking on its head along its main path. Following Lasnik and Boeckx 2006, I also assume that the Exp *Mary* in (16) may be a complement of a null preposition. Then (16) can be treated on a par with (15). In short, the Exp does not c-command the trace position in both (15) and (16), and so it does not count as a chain member here; hence (15) and (16) satisfy the condition (3).

As for the Condition C effect in (17) and (18), I assume, following Lasnik and Boeckx 2006, that (formal features of) the (null) preposition in question covertly incorporates to the verb, so that the Exp *him* can c-command *John* at LF (cf. also Kitahara 1997).

(17) *They$_j$ seemed to him$_i$ [t$_j$ to like John$_i$].
(18) *They$_j$ strike him$_i$ [as t$_j$ being angry at John$_i$].

But the Exp raising to Spec IP produces a bad result, as seen in (19), since the resulting A-chain, (John*, t*), involves more than one Case feature checking.

(19) *John$_i$ strikes t_i [that Mary is rich]. (=2d)

5. A-chain Linearization: Nunes (1996, 1999)

Under the copy theory of movement, an A-chain must be linearized in PF in such a way that only its head copy remains and other copies are deleted. To capture this fact, Nunes (1996, 1999) first proposed Chain Reduction stated in (20) (here LCA stands for Linear Correspondence Axiom proposed in Kayne 1994).

(20) Chain Reduction
Delete the minimal number of constituents of a nontrivial chain CH that suffices for CH to be mapped into a linear order in accordance with the LCA.

(21) LCA (Linear Correspondence Axiom):
Let X, Y be nonterminals and x, y terminals such that X dominates x and Y dominates y. Then if X asymmetrically c-commands Y, x precedes y.

It is noticed that LCA crucially incorporates the asymmetric c-command relation between the two elements in the syntactic structure for correct linearization in PF.

For the purpose of discussion, let us consider (22) (the two occurrences of *John* are nondistinct, as indicated by the superscript).

(22) [$_{TP}$ John^i [$_{T'}$ was+T [$_{VP}$ seen John^i]]].

It is noted that in the partial sequence <*John, was, John*>, *was* should precede *John* and at the same time be preceded by *John*, the same nondistinct element. This lack of asymmetric c-command relation does not accord with the LCA, and thus, (22) cannot be linearized as (23) at PF.

(23) *John was seen John.

LCA then forces deletion of *John* either as in (24a) or (24b) (the outlined ***John*** below indicates deletion of it).

(24) a. John was seen John.
b. *John was seen John.

Still the question is how to secure the derivation in (24a) but to block the derivation in (24b).

Nunes then proposed that optimality of deletion of chain links is contingent on the elimination of formal features in the phonological component, assuming that checking operations render -Interpretable features invisible at PF and that formal features are eliminated, according to Formal Feature Elimination, since no formal feature is interpreted at the A-P interface. Under this extended checking theory, (22) can be represented as in (25) along with Case features (CASE indicates an unchecked feature and Case indicates a checked feature).

(25) [$_{TP}$ John^{i}-Case [$_{T'}$ was+T [$_{VP}$ seen John^{i}-CASE]]].

Here only the chain head must be chosen over the chain tail. According to Nunes, deletion of the tail as in (26a) is more economical than the deletion of the head as in (26b).

(26) a. [$_{TP}$ John^{i}-Case [$_{T'}$ was+T [$_{VP}$ seen **John^{i}-CASE**]]].
b. [$_{TP}$ **John^{i}-Case** [$_{T'}$ was+T [$_{VP}$ seen John^{i}-CASE]]].

Deletion of the tail requires no further feature checking since the Case feature of the chain head has already been checked. On the other hand, deletion of the head requires additional deletion of the unchecked Case feature of the tail for convergence. Thus, Chain Reduction in conjunction with Formal Feature Elimination and Economy opts for (26a), and thus, (24a), as desired. Of course, deletion of both chain links in (25) is less economical than deletion of one chain link in (26a) or (26b), and thus, **was seen* can be excluded.

Nunes' brilliant approach, however, seems to face difficulty, especially, for examples in (27) involving traditional Chain Condition violation.

(27) a. *Mary$_i$ is believed [t_i likes John]. (=2a)
b. *John$_i$ is believed [that Mary likes t_i]. (=2b)
c. *John$_i$ strikes t_i [that Mary is rich]. (=2d)

Under the copy theory of movement, (27a), for example, can be represented as (28).

(28) [Mary^i-Case [is+T [believed [Mary^i-Case likes John]]]].

Since Case features of both chain links are checked, either the chain head or the tail can be deleted in accordance with Economy and LCA, as seen in (29a,b).

(29) a. [Mary^i-Case [is+T [believed [Mary^i-Case likes John]]]].
b. *Mary is believed likes John.
(30) a. [Mary^i-Case [is+T [believed [Mary^i-Case likes John]]]].
b. *is believed Mary likes John.

So the problem is that Nunes' system permits both (29b) and (30b) too generously. (If no chain link deletion takes place in (28), LCA will not apply to (28) and no PF linearization will be possible.)

As mentioned in section 3, assuming that Case makes an element visible for Attraction, Chomsky (2000) stipulates that an element having checked its Case feature cannot be attracted for mere EPP-checking. Thus, one might say that NP-movement does not take place in examples like (27a,b,c) since the Case feature in question is checked in the trace position. If so, the Case feature in the matrix Infl is rendered unchecked, leading to crash in the derivation.

In fact, however, in Chomsky's (2000) system the Case feature of *John* in (31a) is checked in its place through AGREE, as in (31b), and then *John* moves to Spec IP to check the EPP feature as in (31c) (Case

and Epp below represent a checked feature).

(31) a. [$_{TP}$ [$_{T'}$ was+T-[EPP, CASE] [$_{VP}$ seen John-CASE]]].
b. [$_{TP}$ [$_{T'}$ was+T-[EPP, Case] [$_{VP}$ seen John-Case]]].
c. [$_{TP}$ John-Case [$_{T'}$ was+T-[Epp, Case] [$_{VP}$ seen t]]].

Thus it appears that NP-movement itself has little to do with an unchecked status of a Case feature. In this connection, Chomsky's stipulation that an element having checked its Case feature cannot be attracted for mere EPP-checking needs reconsideration for examples like (12), repeated below.

(12) *It$_i$ seems [that t$_i$ was told John [that Mary was rich]].

In this sense, Chomsky's (2000) proposal of 'defective intervention' also seems to leave a loose end in connection with examples like (8) and (11), repeated below.

(8) *John$_i$ seems [that it is certain [t$_i$ to win]].
(11) *John$_i$ seems [that it was told t$_i$ [that Mary was rich]].

That is, if *it* in (12) can move now, the ungrammaticality of (8, 11) will not be a matter of 'defective intervention' of this element, but rather it will be a matter of closest Attract.

Further, claims have been made in favor of the view that AGREE is actually an operation separate from Move (see, e.g., Niinuma and Park 2003, Bošković 2005). This is based on data like (32a-d).

(32) a. A woman and five men are in the garden.
b. *A woman and five men is in the garden.
c. *There are a woman and five men are in the garden.
d. There is a woman and five men are in the garden.

Bošković (2005) interprets these contrasts with the assumption that the

agreement in (32a,b) does not take place before movement, as seen by the contrast in (32c,d), but only after movement. If so, in (31a) *John* will move before AGREE, which amounts to saying that Case checking occurs after movement.

Differently from Chomsky (2000), Nunes should thus allow NP-movement in examples like both (12) and (27a,b,c) to make his system work. If this is correct, my point that Nunes undesirably allows either (29) or (30) holds valid. Superraising cases like (8) and (11) above need a separate condition to rule these examples out under Nunes' system. It was also seen in previous sections that neither Subjacency nor ECP can handle them.

Finally, examples like (14), repeated below, raise an intriguing problem with Nunes' approach, perhaps with any other approaches.

(14) *Mary's belief [John$_i$ to be likely [t_i will win]]

Under his system, (14) would have been derived from (33a) by deleting the chain tail. But Chain Reduction will in fact turn (33a) into (33c) via (33b) in accordance with LCA and Economy.

(33) a. Mary's belief [John-CASE to be likely [John-Case will win]]
b. Mary's belief [John-CASE to be likely [John-Case will win]]
c. *Mary's belief to be likely John will win.

Nothing in his system can rule out (33c) without resorting to a separate condition.

In the next section, I will try to develop an alternative analysis to overcome the problems noted in this section.

6. Visibility of a checked Case feature and PF chain linearization

Considering that NP-movement is basically a Case seeking process (see (1) vs. (2)), any analysis concerning an A-chain must be able to express this fact in reasonable theoretical terms. This analysis must capture the fact that only an A-chain head bears Case. If any other A-chain link including an intervening one, a potential member of this chain, bears Case, the result is completely bad. Based on so far seen massive amount of empirical justification of the condition (3), repeated below,

(3) An NP-movement chain, or A-chain, cannot involve more than one Case feature checking along its path, where a chain link asymmetrically c-commands its following chain link.

I first assume that a checked Case feature is visible for PF interpretation. This means that the problem is reduced to how to opt for an A-chain that involves a checked Case feature only on its head for legitimate PF linearization. A piece of evidence for PF interpretation of a checked Case feature may be found in pronouns which take different Case forms, for example, *he/him, they/them*. A pronoun with a checked Case feature should be visible to be interpreted at the PF interface, so that it takes a particular Case morphology (see also Epstein and Seely 2002). If a Case feature is deleted in pronouns right after it is checked in narrow syntax (Chosmky 1995), the relevant features responsible for their particular Case form would be absent. Thus, to obtain correct realization of Case morphology, a checked Case feature should be visible for PF interpretation. More precisely, it should be visible at the point of vocabulary insertion, or in Morphology. This means that LCA introduced in (21) applies to the output of Morphology for necessary PF linearization of syntactic structure.

The current assumption that a checked Case feature is visible for PF interpretation produces a desirable consequence in A-chain reduction: Since the Case features of NP-traces or corresponding copies in legitimate A-chains are not in a Case checking position, it is not visible for PF interpretation. Thus, an A-chain reduction process is naturally

led to involve the following deletion process:

(34) Chain Link Deletion (preliminary)
Delete a chain link in an A-chain if it has an unchecked Case feature.

This deletion possibly follows from an assumption that unchecked -Interpretable formal features are not interpreted at PF. Thus, only a chain link with a checked Case feature, namely, the A-chain head, survives to be interpreted and pronounced in PF.

Let us take an example from (1a), repeated below, to see how the current proposal works.

(1a) John$_i$ was seen t_i.

Under the copy theory of movement, (1a) can be represented as (35).

(35) John-Case was seen John-CASE.

Chain Link Deletion then yields (36a), deriving (36b), as desired.

(36) a. John-Case was seen John-CASE.
b. John was seen.

Now consider the examples in (27), repeated below.

(27) a. *Mary$_i$ is believed [t_i likes John]. (=2a)
b. *John$_i$ is believed [that Mary likes t_i]. (=2b)
c. *John$_i$ strikes t_i [that Mary is rich]. (=2d)

Under the copy theory movement, (27a), for example, can be represented as (28), repeated below.

(28) [Mary^i-Case [is+T [believed [Mary^i-Case likes John]]]].

Since both chain links are in a Case checking position, no Chain Link Deletion applies to these links. This means that both of them survive. As a result, LCA will not apply to (28) due to the lack of asymmetric c-command relation in a sequence like *<Mary, is, Mary>*, for instance--*Mary* precedes *is* and is preceded by *is* at the same time; hence, no PF linearization will be possible.

Let us move on to cases of Superraising in (8) and (11), repeated below.

(8) *John$_i$ seems [that it is certain [t_i to win]].
(11) *John$_i$ seems [that it was told t_i [that Mary was rich]].

As in (36), the chain head, *John*, would survive in both (8) and (11). But the result is bad this time. Here the intervening subject, *it*, which is asymmetrically c-commanded by *John* and in turn asymmetrically c-commands the trace, causes trouble with no doubt. Rizzi (1990) proposed that this intermediate subject blocks A-movement in terms of Relativized Minimality. As aforementioned, Chomsky (2000) proposed that it exhibits 'defective intervention' effect, although it is not a potential attractee (having already checked its Case). Incorporating these insights, I might suggest that the A-chain in (8) and (11) contains the intervening subject *it* in the intermediate clause as its potential chain link. Under this extended sense of A-chain, (8) and (11) will have the following extended chain before Chain Link Deletion applies:

(37) (John-Case, it-Case, John-CASE)

Now what undergoes deletion will be the tail, namely, *John-CASE* containing an unchecked Case feature, thereby resulting in (38).

(38) (John-Case, it-Case, John-CASE)

Since the remaining two chain links, namely, *John* and *it*, are in a Case

checking position, Chain Link Deletion does not further apply to them. Thus both of them survive, yielding an impossible chain, as given below.

(39) (John-Case, it-Case)

Here *John* asymmetrically c-commands *it*, and thus, they can be linearized at PF according to LCA. But the impossibility of (39) may be attributed to a factual assumption that a single chain cannot contain two distinct elements. This also naturally captures the effects of Relativized Minimality and 'defective intervention' mentioned above.

There is one last example that is still recalcitrant to the current approach, repeated from (14).

(14) *Mary's belief [John$_i$ to be likely [t_i will win]]

That is, the question is how to exclude this example. Actually, the present approach will not derive (14) from (33a), but only (33c) via (33b), repeated below.

(33) a. Mary's belief [John-CASE to be likely [John-Case will win]]
b. Mary's belief [John-CASE to be likely [John-Case will win]]
c. *Mary's belief [to be likely [John will win]]

In (33a) the deletion of the chain tail *John-Case* by keeping the chain head *John-CASE* leads to the surface in (14). But since this involves additional deletion of the unchecked Case feature of *John-CASE* in the chain head, the derivation of (14) would be less economical than that of (33c).

In a traditional view, (14) involves a violation of the Case Filter since *John* is not in a Case position. And (33c) may fail to satisfy the EPP (Extended Projection Principle: Every clause has a subject) in the

intermediate clause. But it appears to involve more than an EPP violation, as (40) shows.

(40) *Mary's belief [it to be likely [John will win]]

Although the expletive *it* satisfies the EPP, (40) is still bad. Further, as seen in (33a), *John* has been actually raised to the intermediate subject position under the current approach, and thus, the EPP could have been satisfied, without having to introduce the expletive *it*.

I explore one possibility for this problem, leaving a better proposal open. To capture the fact that only the head in an A-chain with a checked Case feature survives in PF, I slightly refine Chain Link Deletion, as given below.

(41) Chain Link Deletion (revised)
Delete a chain link in an A-chain if it has an unchecked Case feature and is c-commanded by another chain link.

Now going back to (33a), the deletion of the chain head, namely, *John-CASE*, is not possible because it is not c-commanded by another chain link *John-Case*. So the uninterpretable Case feature of *John-CASE* persists into PF, thereby leading the derivation to crash. What this c-command requirement follows from remains to be further investigated. In all legitimate cases of A-chain, a chain link with an unchecked Case feature can be taken to be a kind of dependant, a copy left behind by NP-movement, thus behaving very much like an anaphor. Then the above c-command requirement might follow.

Pending further work on this quirk, I close this section by suggesting an alternative. Considering that what is deleted in an A-chain is normally an NP-trace corresponding to a lower copy, suppose that Chain Link Deletion is a kind of chain processing operation yielding a legitimate chain in PF. Eventually, only a single chain link in an A-chain is pronounced, which turns out to be the chain head in all legitimate cases. (33c) thus constitutes a very intriguing case in that

the chain tail fits the Chain Link Deletion process. It is apparent that what causes trouble in (33a) is the chain head. I might propose that an A-chain can be visible for chain processing only if its head has a checked Case feature. Otherwise, there is no way for this process to see the chain. Hence, (33a) is not visible for the process in question, and thus, -Interpretable Case feature of the chain head persists into PF here, thereby causing derivational crash.

7. Summary

This paper notes that Case is a crucial property in determining legitimate A-chain linearization in PF. In capturing this, I emphasized the role of a checked Case feature. The results of NP-movement reveal that only the A-chain head can bear a checked Case feature. By assuming that a checked Case feature is visible for PF interpretation, I proposed a process of Chain Link Deletion that deletes chain links with an unchecked Case feature, in accordance with LCA and Economy. Any illegitimate A-chain that involves more than one Case feature checking among its chain links is ruled out by Chain Link Deletion. Another illegitimate case where an A-chain has no Case feature checking on its head requires more discussion. Overall, it seems to have fallen out that the current approach capitalizing on Case could shed some light on the mysteries of long NP-movement in English.

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Jeong-Shik Lee
Division of English and Chinese
College of Humanities, Wonkwang University
344-2 Shinyong-dong, Iksan 570-749, South Korea
Phone: 82-63-850-6873
Email: jslee@wonkwang.ac.kr

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