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Null operators, ellipsis, and scrambling

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Abstract: Move is subject to phase-based locality, whereas Agree is not, a natural consequence of cyclic linearization. Then, null operator movement, having no impact on linearization, should be immune to certain phase-related effects. I show that this prediction is borne out, based on the interactions between (null operator) movement and ellipsis. Furthermore, I extend the present proposal to scrambling in Japanese. It turns out that the observed correlation between movement and ellipsis helps us choose among competing theories of scrambling. Specifically, theoretical as well as empirical considerations support an analysis of scrambling in Japanese as involving either null operator movement or PF movement.

Keywords: Ellipsis; Japanese; null operator; phase; scrambling

The purpose of this paper is to explore some consequences of the linearization-based theory of syntactic locality (Bošković 2007a;b; see also Fox & Pesetsky 2005) in combination with the phase-based theory of ellipsis (Holmberg 2001). The theory of cyclic linearization predicts that null operators (Chomsky 1977; Browning 1987 among others) behave differently from phonologically overt elements because they have no impact on linearization. Generally speaking, they are expected to enjoy more freedom than their overt counterparts in terms of movement and locality. We will see that the expectation is fulfilled. Besides, null operators are of considerable interest in their own right, since their basic properties are supposed to be universal across languages: no direct evidence regarding them is arguably available to children. Thus, they can serve as a good window into the nature of Universal Grammar.

The organization of the present paper is as follows. Section 1 briefly summarizes the theory of locality proposed by Bošković (2007a;b) and touches upon its implications for null operators. It is proposed that null operator movement is not successive cyclic, which helps us capture the observation that *tough*-movement cannot take place out of a tensed clause. Section 2 considers whether or not the phonological content of the category

targeted by Transfer (VP in English, for instance) plays an important role when it is also targeted by Move. As the theory of cyclic linearization predicts, the Transferred category can move only if it is phonologically empty. Given that spell-out domains correspond to ellipsis sites (Holmberg 2001), we are led to a generalization, called the Ellipsis Movement Generalization (EMG), that if a certain category can undergo ellipsis, it cannot undergo movement except when it is phonologically null (Nakamura 2009). Sections 3–6 discuss scrambling from the viewpoint of the EMG. Section 3 offers background information on scrambling in Japanese, on which the subsequent discussion is based. There we will see how the distinction between A-scrambling and A′-scrambling is analyzed by three major approaches to scrambling. Section 4 considers the way in which the existence of argument ellipsis (Oku 1998; Takahashi 2008) relates to scrambling. The EMG, applied to arguments in Japanese, implies that they cannot undergo overt syntactic movement, contrary to the standard analysis represented by Saito (1985; 1992; 2003). Rather, their scrambling must involve either null operator movement or PF movement, as argued by Ueyama (1998; 2003). Section 5 examines long-distance scrambling, showing that A-scrambling out of subjunctive complements (Uchibori 1997; 2000) is problematic for the approaches making use of direct syntactic movement or LF θ-checking (Bošković & Takahashi 1998). Section 6 presents the novel observation that scrambling of a clausal complement out of a tensed clause can be A-movement. It is shown that the null operator analysis is the only one that can explain the fact. Section 7 is a short conclusion.

1. Cyclic Linearization and Null Operator Movement

Under the Minimalist conception of syntactic movement advocated by Bošković (2007a;b)and others, Move applies as in (1), where the probe as well as the goal has an uninterpretable feature.

(1) Move

a. ... $\text{Probe}_{[-\text{interpretable feature } \alpha]}$ ... $\text{Goal}_{[-\text{interpretable feature } \alpha]}$ ...

Agree

b. ... $\text{Goal}_{[-\text{interpretable feature } \alpha]}$ ... $\text{Probe}_{[-\text{interpretable feature } \alpha]}$ ... t_{Goal}

Agree

Move

First, the probe Agrees with the goal in (1a). Then the goal Moves to a position c-commanding the probe, as in (1b), because "all uninterpretable features must c-command an element that they Match with" (Epstein & Seely 2006, 197).

Chomsky (2001) claims that movement is constrained by the Phase Impenetrability Condition given in (2) (*op.cit.*, 13).

(2) **Phase Impenetrability Condition (PIC)**

The domain of H is not accessible to operations outside HP; only H and its **edge** are accessible to such operations.

According to (2), in the configuration in (3) where H is a phase head, YP gets spelled out and becomes inaccessible to syntactic computations whereas XP and H remain accessible.

(3) $[_{\mathrm{HP}}$ XP [H YP]]

Assuming that *v*P is a phase, the *wh*-movement in (4) proceeds as in (5), where the movement to the intermediate position is driven by a "generalized" EPP feature.

(4) What did Mary buy?

(5) $[_{\mathrm{CP}}$ what$_i$ did $[_{\mathrm{TP}}$ Mary $[_{v\mathrm{P}}$ t'_i $[_{v\mathrm{P}}$ t_{SUB} $[_{\mathrm{VP}}$ buy $t_i]]]]]$

The theory of cyclic linearization, in which linearization of syntactic structure takes place cyclically based on the notion of phase (Bošković 2007a;b), captures the locality observed in (5) in the way illustrated in (6), where the shaded parts indicate linearized domains.

(6) a. $[_{v\mathrm{P}}$ what $[_{v\mathrm{P}}$ Mary v $[_{\mathrm{VP}}$ buy $t_i]$]] buy

b. $[_{\mathrm{CP}}$ what$_i$ did $[_{\mathrm{TP}}$ Mary T $[_{v\mathrm{P}}$ t'_i $[_{v\mathrm{P}}$ t_{SUB} v $[_{\mathrm{VP}}$ buy $t_i]]]]$] Mary < buy

c. $[_{\mathrm{CP}}$ what$_i$ did $[_{\mathrm{TP}}$ Mary T $[_{v\mathrm{P}}$ t'_i $[_{v\mathrm{P}}$ t_{SUB} v $[_{\mathrm{VP}}$ buy $t_i]]]]]$
what < did < Mary < buy

As shown in (6a), VP gets spelled out after *what* has moved to the edge of *v*P. Note that if *what* does not move out of VP, it will be trapped inside VP and linearized in the wrong place – we end up having the wrong word order *buy what*.

Under Bošković's analysis, movement to an intermediate position is driven essentially by phonology, and no feature-checking takes place in that

position. One of its consequences is that there is no need to posit the PIC as an independent syntactic condition. Bošković (2007b) also argues that phases are relevant only to Move, but not to Agree which does not alter word orders (see Bošković 2007a;b for details).

The PIC-based theory and the linearization-based theory make different predictions regarding movement of phonologically empty elements, null operators in particular. Specifically, the former expects them to behave in exactly the same way as regular *wh*-phrases in terms of successive cyclicity, because syntactic movement of any sort is supposed to respect the PIC. The latter, on the other hand, predicts that null elements should behave differently from their overt counterparts, simply because they do not affect linearization in any way.

With this in mind, let us consider the *tough*-sentence in (7).

(7) John is easy to convince Bill to work with.

The PIC demands that (7) involve successive-cyclic movement of the null operator, as in (8).

(8) John is easy
$[_{CP}\ OP_i\ [_{TP}$ PRO to $[_{vP}\ t_i'''\ [_{vP}$ convince Bill $[_{CP}\ t_i''\ [_{TP}$ PRO to $[_{vP}\ t_i'\ [_{vP}$ work with $t_i]]]]]]]]$

Under the theory of cyclic linearization, null operator movement, just like Agree, should not be constrained by phases for the above-mentioned reason. Thus, I propose that null operator movement is in one fell swoop, as shown in (9).

(9) John is easy $[_{CP}\ OP_i$ C $[_{TP}$ PRO to convince Bill $[_{CP}$ C $[_{TP}$ PRO to work with $t_i]]]]$

Agree Agree

Move

First, the probe C enters an Agree relation with the null operator in situ, which then undergoes (long-distance) movement to the Spec of complement CP of *easy* to c-command the probe.

To the best of my knowledge, Stowell (1986) was the first to suggest that null operators are forced to undergo one-step movement. This suggestion is based on two stipulations that are no longer tenable: (a) a trace left in Comp by successive cyclic movement needs to be antecedent-governed, and (b) a null operator cannot function as an antecedent governor. Thus, under Stowell's analysis, successive cyclic movement of a null operator will necessarily result in an ECP violation. Unlike his proposal, the theory

of cyclic linearization provides a principled reason why the phonological content of moving elements matters.

What kind of uninterpretable feature is involved in (9)? Lasnik and Stowell (1991) show that unlike *wh*-phrases, null operators used in *tough*-sentences are not really quantificational expressions but a species of R-expressions in need of identifying their antecedents. For convenience's sake, let us call the relevant feature "the R-operator feature."

Lasnik and Stowell's proposal paves the way to solve a long-standing problem surrounding the ungrammaticality of examples like (10), where the null operator originates from a tensed clause.

(10) *John is easy to believe [(that) Mary kissed *t*].

In order to account for (10), Stowell (1986) had to stipulate, as already mentioned, that a null operator does not qualify as an antecedent governor. For him (10) is ruled out as a Subjacency violation.[1]

Under the present analysis, there is nothing wrong with the long-distance null operator movement in (10) *per se*, being free from the PIC. Then there must be something wrong with Agreement. In this connection, it is worth pointing out that Enç (1987) argues for treating tenses on a par with nominals, maintaining that they are referential expressions to be anchored or identified.

There is an obvious semantic parallel between a DP null operator and a tense. Given this and arguments in the literature that D is the nominal counterpart of T (see, for instance, Pesetsky & Torrego 2001; Lecarme

[1] Stowell (1986) marks examples like (10) with "??", indicating that the violation incurred is relatively mild. Discussing data similar to (10), Browning (1987, 25) says that "while speakers vary widely in their assessment of these sentences, it is generally agreed that they do not exhibit the total grammaticality of wh-extraction from within tensed complements in direct questions." As a completely unacceptable example, she gives (i) (*ibid.*, 294).

(i) *John is difficult to think we might offend.

I abstract away from the dialectal variation in the strength of acceptability judgments and potential interfering factors, regarding sentences like (10) as impossible. A reviewer asks how we can deal with such examples as (ii) where the operator appears to be phonologically empty but can get out of the tensed clause in sharp contrast with (10).

(ii) This is the boy I believe (that) Mary kissed *t*.

I follow Chomsky (1977) in suggesting that (ii) does not contain a genuine null operator: (ii) involves successive-cyclic movement of the phonologically overt wh-element who(m), which undergoes PF-deletion in its landing site.

2004), it is reasonable to assume that a tense and a DP null operator share the same kind of feature, namely, the R-operator feature. If so, (10) is ruled out by minimality: as shown in (11), the embedded tense blocks the necessary Agree relation between the probe and the goal.[2]

(11) *John is easy
[$_{CP}$ C$_{[R\text{-}OP]}$ [$_{TP}$ PRO to believe [$_{CP}$ (that) [$_{TP}$ Mary **T**$_{[R\text{-}OP]}$ kissed *OP*$_{[R\text{-}OP]}$]]]]
*

Note that if the null operator movement were successive cyclic, the probe would be able to Agree with the null operator when the null operator reached the embedded Spec of CP.[3]

Interestingly, not every null operator is subject to minimality effects exerted by finite T. For example, let us consider (12) (Potts 2002, 637).

(12) Ames was a spy, as the FBI eventually discovered.

Potts (2002) shows that *as*-parentheticals like (12) involve movement of a null operator of the category CP denoting a proposition, as in (13).

(13) [$_{PP}$ as [$_{CP}$ *OP* C [$_{TP}$ the FBI eventually discovered *t*$_{CP}$]]]

As shown clearly in (14), the CP null operator, unlike the DP null operator, can be extracted long-distance out of a tensed clause.

(14) We should resign right away, as I'm sure you'll agree.

(15) [$_{PP}$ as [$_{CP}$ C [$_{TP}$ I'm sure [$_{CP}$ C [$_{TP}$ you'll agree *OP*$_{CP}$]]]]]

[2] Rizzi (2004) presents a feature-based theory of minimality, whereby minimality effects do not necessarily implicate feature identity but arise within the same class of features (see Rizzi 2004 for a typology). It may be then that the relevant features of a DP null operator and T are not exactly the same but are similar enough to belong to the same type.

[3] The present analysis also captures the relative well-formedness of (i), where the null operator is extracted out of a *wh*-island (Authier 1989).

(i) ?John is easy to know what present to give to.

The probe C can enter an Agree relation with the null operator in its merged position, because there is no finite T lying between the two. Furthermore, the one-fell-swoop movement over the wh-phrase is permitted.

I assume that the uninterpretable feature associated with the CP null operator is neither identical nor similar to the feature involved in DP null operator movement; no resemblance comparable to the one between D and T is found between C and T (see Potts 2002 for relevant discussion). Then (14) is fine, because nothing blocks the Agreement between the probe C and the null operator in (15).

In short, the theory of cyclic linearization provides a key to understanding why different kinds of null operators, lacking phonological features, behave the way they do.

2. Movement and ellipsis

We saw in the previous section that the linearization-based phase theory captures the observation that null operators undergo one-step movement (cf. Stowell 1986). The theory expects them to have more freedom than their phonologically overt counterparts in regard to movement and locality, although they are constrained by minimality considerations (see (10)).

An interesting question to ask is whether phonological emptiness influences movement of syntactic categories targeted by Transfer. Take, for example, VP, which is the complement of the phase head *v*. The theory of cyclic linearization predicts that VP with phonological features is immobile: it gets spelled out and becomes inert for syntactic operations. Phonologically empty VP, on the other hand, is predicted to be movable, simply because it does not get linearized. Notice that the PIC-based theory fails to make such a distinction.

The prediction is borne out. Consider (16).

(16) a. *[$_{\mathrm{VP}}$ eat the banana] Mary certainly did t_{VP}.
b. [$_{v\mathrm{P}}$ t_{SUB} eat the banana] Mary certainly did $t_{v\mathrm{P}}$.

Huang (1993) demonstrates that the fronted VP-like constituent in English contains the trace of subject, as in (16b), ruling out the representation in (16a). Observe (17) and (18).

(17) John$_i$ wonders which pictures of himself$_{\mathrm{i/j}}$ Bill$_j$ likes.

(18) John$_i$ said that wash himself$*_{i/j}$ Bill$_j$ certainly would.

In (17) the *wh*-movement makes it possible for the anaphor *himself* to be bound by the matrix subject *John*: without the movement, the only possible reading is the one where *himself* is bound by the embedded subject *Bill*.

In (18), on the other hand, the fronting of *wash himself* does not add the extra binding possibility: the only interpretation allowed is the one where the anaphor refers to *Bill*. The interpretative contrast can be accounted for if we assume that the fronted constituent in (16) is *v*P containing the subject trace, as in (19a).

(19) a. John said that [$_{vP}$ t_{Bill} v [$_{VP}$ wash himself]] Bill certainly would t_{vP}.
b. *John said that [$_{VP}$ wash himself] Bill certainly would [$_{vP}$ t_{Bill} v t_{VP}].

Since the trace of *Bill* counts as the closest binder for *himself* in (19a), the matrix subject *John* has no chance to bind the anaphor. If the representation for (18) were (19b), the matrix subject would be able to qualify as a possible antecedent for the anaphor. The conclusion then is that what has been fronted in examples like (16) and (18) is *v*P, not VP.[4]

Let us now see whether or not phonologically null VP can move. Observe (20).

(20) a. He arrived on time, as I had said he would.
b. I believe, as do all my friends, that war is now inevitable.

Potts (2002) argues convincingly that *as*-clauses of the kind illustrated in (20) involve movement of null VP rather than VP-ellipsis. One of his arguments has to do with the interpretative distinction between the gap in *as*-clauses and the VP-ellipsis site. Compare (21) and (22) (Potts 2002, 627).[5]

(21) The fact that Sue read the map carefully probably means that she stayed on the trails, as did Chuck.
a. *as*-clause gap = stay on the trails
b. *as*-clause gap ≠ read the map carefully

[4] Assuming that VP is linearized in its original position, a reviewer asks how examples like (16b) and (19a) are ever possible. I assume instead, following Fox & Pesetsky (2005) and Bošković (2007a;b), that Transfer only establishes the linear order within its target domain. As long as the order is kept, the transferred constituent can be pied-piped with a higher element, typically a phase head.

[5] One may well wonder whether what is missing in (20)–(22) is *v*P rather than VP. See Nakamura (2009) for arguments, based on voice mismatches (Merchant 2008), that the null operator in the as-parentheticals and the domain targeted by ellipsis are indeed of the category VP.

(22) The fact that Sue read the map carefully probably means that she stayed on the trails. But we aren't sure whether Chuck did [$_{VP}$].

a. [$_{VP}$] = stay on the trails

b. [$_{VP}$] = read the map carefully

In (21), a VP null operator is generated in the *as*-clause and undergoes movement. One general trait of a null operator is that it identifies itself with the closest possible antecedent. This accounts for the locality effect observed in (21). (22), on the other hand, is ambiguous. The elided VP can be interpreted either locally as (22a) or non-locally as (22b). (22) contrasts sharply with (21) involving the *as*-clause.

Potts maintains that the *as*-clause in (20b), for instance, is derived as in (23), where the null operator of the category VP moves to Spec of the CP complement of *as*.

(23) [$_{PP}$ as [$_{CP}$ *OP* do [$_{IP}$ all my friends [$_{vP}$ t_{SUB} t_{VP}]]]]

In short, the theory of cyclic linearization offers a principled account of why the phonological content of VP matters when it comes to its movement.

It is worth pointing out here that given a phase-based analysis of ellipsis pursued by Holmberg (2001), movement and ellipsis should be closely related to each other, both of them being regulated by the same notion of phase. The basic idea of Holmberg (2001) is that categories targeted by ellipsis correspond to spell-out domains. If we assume Merchant's (2001) deletion theory, ellipsis can be viewed as a process where phonologically overt categories sent to PF (for instance, the elided VP in (22)) are spelled out as null.

The examination of the behavior of VP in English leads to the following generalization (Nakamura 2009, 321):[6]

(24) **The Ellipsis Movement Generalization (EMG)**

If a certain category can undergo ellipsis, it cannot undergo movement except when it is phonologically null.

[6] A reviewer rejects the EMG, saying that "[it] can never be shown to be invalid." In fact, it can, based on independent evidence (such as binding or voice mismatch) on what category movement or ellipsis targets. See Nakamura (2009) for more empirical arguments for the EMG. Note that the correlation described in (24) should go in the opposite direction, too: if a certain category can be moved with a phonological consequence, it cannot be elided.

The EMG can be captured by the theory of cyclic linearization, combined with Holmberg's proposal on ellipsis.

The rest of this paper focuses on scrambling and ellipsis in Japanese from the viewpoint of the EMG.

3. Analyses of two types of scrambling

3.1. Two types of scrambling

As is well known, Japanese permits "scrambling", which alters word orders in certain ways. Thus, (25a) and (25b) are both possible.[7]

(25) a. Taroo-ga ringo-o tabeta.
Taro-NOM apple-ACC ate
'Taro ate an apple.'

b. Ringo$_i$-o Taroo-ga *ec*$_i$ tabeta.
apple-ACC Taro-NOM ate
Lit. 'An apple, Taro ate.'

Under the widely accepted analysis, stemming from Saito (1985), (25a) represents the basic sentence, whereas (25b) is the "scrambled" version of (25a), derived by moving the thematic object *ringo* 'apple' to the sentence-initial position. One argument for the movement approach is based on the fact that scrambling exhibits island effects (*op.cit.*, 246–247).

(26) a. ?*Ano hon-o$_i$ John-ga [[ec$_j$ ec$_i$ katta] hito$_j$]]-o sagasiteiru rasii.
that-book-ACC John-NOM bought person-ACC looking.for seem
(Lit. 'That book, it seems that John is looking for the person who bought.')

b. ?*Tookyoo$_i$-ni Mary-ga [John-ga ec$_i$ ikitagatteiru noni] musisiteiru rasii.
Tokyo-to Mary-NOM John-NOM want.to.go although ignoring seem
(Lit. 'To Tokyo, it seems that although John wants to go, Mary is ignoring that fact.')

[7] The abbreviations used in this paper are as follows: ACC = accusative, COMP = complementizer, COP = copula, DAT = dative, GEN = genitive, NOM = nominative, SUBJ = subjunctive.

In the Japanese examples to follow, *ec* is used for expository purposes only and indicates the θ-position with which a "scrambled" element is associated.

This paper deals exclusively with scrambling and ellipsis of arguments and leaves a detailed examination of adjuncts for future work (see Oku 1998 for some relevant discussion).

In (26a) the object *ano hon* 'that book' has been scrambled out of the relative clause modifying the head noun *hito* 'person' in violation of the Complex NP Constraint. In (26b) the scrambling of *Tookyoo-ni* 'to Tokyo' has taken place out of the concessive clause headed by *noni* 'although' in violation of the Adjunct Condition. If island sensitivity is a signature property of syntactic movement, then examples like (26a,b) count as evidence for the popular analysis.[8]

It has been recognized in the literature (Saito 1992; Ueyama 1998 among numerous others) that descriptively, scrambling in Japanese can be classified into two types. One is "A-scrambling", illustrated in (27). In this type, the scrambled element can remain in its surface position at LF. The other is "A′-scrambling", illustrated in (28), where the scrambled element is put back to its original position at LF.

(27) A-scrambling (Ueyama's 1998 Deep OS-type):
PF: DP-ACC/DAT ... DP-NOM ... V
LF: DP-ACC/DAT ... DP-NOM ... V

(28) A′-scrambling (Ueyama's 1998 Surface OS-type):
PF: DP-ACC/DAT ... DP-NOM ... V
LF: DP-NOM ... DP-ACC/DAT ... V

The major properties of the two types of scrambling are listed in (29) and (30) (adapted from Ueyama 1998).

(29) Properties of A-scrambling (Deep OS-type):

a. Availability of anaphor-binding

b. Absence of weak crossover (WCO) effects

c. Wide scope reading of "scrambled" DP with respect to subject

(30) Properties of A′-scrambling (Surface OS-type):

a. Reconstruction effects

b. Absence of Condition C violations

c. Narrow scope reading of "scrambled" DP with respect to subject

A-scrambled DPs can bind an anaphor, remedy potential WCO violations, and take scope over subject (29a–c), whereas A′-scrambled ones have no interpretative impact, exhibiting the properties given in (30a–c).

[8] Under Ueyama's (1998; 2003) analysis, to be defended below, the island violations in (26) must have been incurred by PF movement, suggesting that island constraints are essentially phonological in nature (see Merchant 2001 for relevant discussion).

Let us concentrate on WCO configurations to highlight the distinction between A-scrambling and A′-scrambling (see Ueyama 1998 for discussion of the other properties in (29) and (30)). WCO effects are observable in examples such as (31) (Postal 1971; Wasow 1972).

(31) a. *Who$_i$ does his$_i$ mother love t_i?
b. *His$_i$ mother loves everyone$_i$.

(32) a. Who$_i$ t_i loves his$_i$ mother?
b. Everyone$_i$ loves his$_i$ mother.

(31a–b) are ruled out as WCO violations: in (31a) the *wh*-phrase literally crosses over the pronominal variable with which it is coreferential, and in (31b) the quantifier *everyone* is supposed to undergo Quantifier Raising (May 1977) across the pronoun, leading to a structural configuration similar to the one in (31a) at LF. In sharp contrast to (31a–b), (32a–b) are legitimate, because the variables directly bound by the quantificational expressions c-command the pronominal variables.

(31a–b) show that A′-movement induces WCO effects, whereas (33a–b) show that A-movement does not.

(33) a. Who t_i seems to his$_i$ mother t_i to be lovable?
b. Everyone$_i$ seems to his$_i$ mother t_i to be lovable.

In (33) the A-movement across the pronoun into Spec of TP does not result in a WCO violation.

Turning now to Japanese, clause-internal scrambling can be either A-scrambling or A′-scrambling, as shown in (34) and (35) (Ueyama 1998, 31–38).

(34) a. *[So-ko$_i$-o tekitaisisiteiru kaisya]-ga Toyota-sae$_i$-o uttaeta.
that-place-ACC be:hostile company-NOM Toyota-even-ACC sued
(Lit. 'The company which is hostile to it$_i$ sued even Toyota$_i$.')
b. Toyota-sae$_i$-o [so-ko$_i$-o tekitaisisiteiru kaisya]-ga *ec*$_i$ uttaeta.
Toyota-even-ACC that-place-ACC be:hostile company-NOM sued
Lit. 'Even Toyota$_i$, the company which is hostile to it$_i$ sued.'

(35) a. Toyota-sae$_i$-ga [so-ko$_i$-o tekitaisisiteiru kaisya]-o uttaeta.
Toyota-even-NOM that-place-ACC be:hostile company-ACC sued
'Even Toyota$_i$ sued the company which is hostile to it$_i$.'

b. [So-ko$_i$-o tekitaisisiteiru kaisya]$_j$-o Toyota-sae$_i$-ga ec_j uttaeta.
that-place-ACC be:hostile company-ACC Toyota-even-NOM sued
Lit. '[The company which is hostile to it$_i$], even Toyota$_i$ sued.'

(34a), as in (31b), contains a WCO configuration and thus is excluded. In particular, the quantificational phrase *Toyota-sae* 'even Toyota' is the object c-commanded by the complex subject containing the pronominal expression *soko* 'it' referring to *Toyota-sae*.[9] However, if the object is scrambled, as in (34b), the sentence becomes acceptable on a par with (33b), indicating that this type of scrambling counts as A-scrambling. (35b), on the other hand, is a case of A′-scrambling. If the scrambled complex object stayed in its surface position, (35b) would be ruled out as a WCO violation, just like (31b) and (34a). It must be then that the scrambled object appears in its θ-position at LF.

3.2. Analyses of scrambling

This subsection briefly summarizes three competing analyses of scrambling in Japanese as (a) syntactic movement, (b) LF θ-checking, and (c) Null Operator/PF Movement.

3.2.1. Scrambling as syntactic movement

The first analysis, proposed by Saito (1985; 1992) among others and illustrated in (36), takes scrambling to be overt syntactic movement, which can be either of the A-type or of the A′-type.

(36) DP-ACC/DAT ... DP-NOM ... *ec* ... V
↑ ⌊ Syntactic Movement

a. If A, then
LF: DP-ACC/DAT ... DP-NOM ... *ec* ... V

b. If A′, then
LF: DP-NOM ... DP-ACC/DAT ... V

There are conditions on A-scrambling, though. Putting details aside, Miyagawa (2003) argues that it is V-to-T movement that makes (EPP-driven) A-scrambling into Spec of TP possible because of the notion of equidistance

[9] See Ueyama (1998) for discussion of the quantificational nature of *sae* and other similar lexical items.

(Chomsky 1993) (cf. Bošković & Takahashi 1998), whereas Saito (2003), within his framework, basically suggests that only scrambling within a (CP) phase (Chomsky 2001; 2008) can be A-scrambling.

3.2.2. Scrambling as LF θ-checking

The second analysis, proposed by Bošković and Takahashi (1998) and adopted by Oku (1998), takes scrambling to be base-generation, as illustrated in (37).

(37) DP-ACC/DAT ... DP-NOM ... V
↑
Base-generation

a. If A (θ-checking), then
LF: DP-ACC/DAT ... DP-NOM ... V

b. If A′ (no θ-checking), then
LF: DP-NOM ... DP-ACC/DAT ... V

If the θ-role of the scrambled DP can be properly licensed in its surface position, then the DP stays where it is, resulting in A-scrambling. If, on the other hand, no such θ-role licensing happens, then the scrambled DP typically has to lower to a θ-position, resulting in A′-scrambling. This analysis assumes that (a) θ-roles are formal features, (b) θ-features are weak in Japanese, which can be checked at LF, and (c) θ-checking in the TP-adjoined position, made possible by V-to-T movement, is optional.

3.2.3. Scrambling as null operator/PF movement

The third and last analysis, proposed by Ueyama (1998; 2003) and shown in (38), claims that A-scrambling and A′-scrambling are derived differently.

(38) a. DP-DAT/ACC *OP* DP-NOM ... *ec* ... V
↑
Base-generation
LF: DP-DAT/ACC OP_i DP-NOM ... ec_i ... V

b. DP-DAT/ACC DP-NOM ... *ec* ... V
PF Movement
LF: DP-NOM ... DP-DAT/ACC ... V

According to this analysis, A-scrambling involves the base-generation of a scrambled DP and null operator movement, which identifies the θ-role of

the scrambled DP.[10] In other words, A-scrambling is treated as a species of *tough*-construction. A′-scrambling, on the other hand, is taken to be PF movement.[11] Since it takes place in PF, it has no effect on LF and the scrambled DP is always interpreted in its θ-position.

Notice that *tough*-movement does not induce WCO violations, as shown in (39) (Lasnik & Stowell 1991, 695).

(39) John$_i$ was hard [OP$_i$ [PRO to persuade his$_i$ boss [PRO to vouch for t_i]]].

This is in full accord with Ueyama's (1998; 2003) analysis and the grammaticality of examples like (34b) comes as no surprise.

4. Argument ellipsis

Shifting our attention now to ellipsis in Japanese, it has been observed that argument DPs can be elided, as in (40b) (Oku 1998; Takahashi 2008, among others).

(40) a. Masao$_i$-ga zibun$_i$-o suisensita.
Masao-NOM self-ACC recommended
'Masao recommended himself.'

b. Taroo$_j$-mo [~~zibun$_j$-o~~] suisensita.
Taro-also self-ACC recommended
'Taro did, too.'

(40b) permits the sloppy reading, where *Taro* recommended himself, rather than *Masao*. The silent DP cannot be a null pronoun, because (41) with the intended reading is ungrammatical.

(41) *Taroo$_j$-ga *pro$_j$* suisensita.
Taro-NOM recommended
''Taro recommended himself.'

[10] Ueyama (1998, 63, note 42) mentions that it was Hajime Hoji who originally suggested the relevance of null operator movement to A-scrambling (or her Deep OS-type scrambling).

[11] In support of Ueyama's (1998; 2003) claim, Sauerland and Elbourne (2002, section 4) argue that (total) reconstruction of scrambling in Japanese is possible only when it is derived by PF movement.

Thus, the claim is that (40b) is indeed a case of ellipsis (see Takahashi 2008 for further discussion).[12]

Assuming the copy theory of ellipsis (see, for example, Chung et al. 1995), Oku (1998) tries to tie ellipsis and scrambling in Japanese. He suggests that Japanese allows both precisely because θ-checking can wait until LF. In scrambling, a DP is base-generated in a non-θ-position and undergoes LF movement to a θ-position, if necessary (Bošković & Takahashi 1998). In argument ellipsis, no element is base-generated in the ellipsis site, and an appropriate antecedent is copied into the empty θ-position at LF. According to Oku's analysis, the fact that English allows neither argument ellipsis nor scrambling is explicable in terms of a parametric difference: θ-features are strong in English, whereas they are weak in Japanese (cf. Chomsky 1993).

The EMG urges us to take a different tack on the relationship between scrambling and ellipsis in Japanese. In particular, it follows from the EMG that since argument DPs can undergo ellipsis in Japanese, they themselves should not be able to undergo syntactic movement (recall the discussion of VP ellipsis and (impossible) VP fronting in English). Interestingly, this immediately rules out the commonly accepted syntactic movement approach.[13] It appears that the LF movement approach is not incompatible with the EMG, because the EMG, as it stands, has nothing to say about LF movement. However, Bailyn (2001) points out several conceptual as well as empirical problems with the approach. For example, he rightly notes that treating θ-roles as formal features goes against the strictly local characterization of θ-role licensing by Merge (Chomsky 1995) and severely increases the computational burden. In addition, Bošković and Takahashi's (1998) analysis fails to solve the optionality issue surrounding scrambling that it is supposed to solve: the Last Resort issue is handled at the expense of introducing another kind of optionality with respect to base-generation of scrambled elements (in adjoined positions) and LF lowering (or LF raising in limited cases). To be more concrete, the LF movement approach wrongly rules out even simple examples such as (25b), given that (25a)

[12] A reviewer says that "Hoji's (1998) paper has convincingly shown that the phenomenon in question cannot be considered as an instance of NP-ellipsis." Although Hoji's (1998) analysis, relying on the alleged special nature of null pronouns in Japanese, may be correct in certain cases, Oku (1998, chapter 5) points out that it cannot be the whole story. What matters for the purpose of the paper is that there exist genuine cases of argument ellipsis in Japanese: arguments in the language **can** undergo ellipsis.

[13] See Hoji (2006) for convincing arguments for Ueyama (1998) and against Saito (2003).

and (25b) share the same numeration and thus compete with each other: (25b) is more costly than (25a).

How about Ueyama's (1998; 2003) approach? Clearly, it is fully consistent with the EMG. As a matter of fact, the EMG implies that any argument DP that appears in a dislocated position in syntax must rely on the use of a null operator in Japanese (recall the contrast between VP fronting and VP null operator movement). This is the case of A-scrambling. Although Ueyama is not explicit about null operator movement, let us assume, for concreteness, that A-scrambling is derived as shown in (42).

(42) $[_{\mathrm{TP}}$ DP-DAT/ACC $[_{v\mathrm{P}}$ *OP* [DP-NOM v $[_{\mathrm{VP}}$ ... *ec* ... V]]]]

Following Kuroda (1988) and others, it is assumed here that thematic subject does not have to move to Spec of TP in Japanese. The "scrambled" DP is base-generated in Spec of TP, and the object null operator moves within vP.[14] It is worth pointing out that the null operator analysis is free from the conceptual problems that the LF θ-checking analysis faces. In particular, the problem of optionality goes away, because (25a) and (25b), for instance, do not have the same numeration: (25b) with A-scrambling has one extra lexical item, namely the null operator, in its numeration. The direct insertion of a DP into Spec of TP seems to be an option open to languages of the world (cf. *there*-insertion in English).

Furthermore, the EMG, being a generalization about syntactic movement, certainly does not rule out the possibility of PF movement of argument DPs in Japanese resulting in A′-scrambling.[15]

We conclude from these considerations that theoretically, Ueyama's (1998; 2003) analysis is to be preferred to the other analyses. Sections 5 and 6 examine some relevant data that point to the same conclusion.

5. Long-distance scrambling

We have already seen that clause-internal scrambling can be A or A′-scrambling. Let us now examine long-distance scrambling to see whether the pro-

[14] A question remains as to why v in Japanese can be endowed with the feature that matches with the corresponding feature of the null operator. I leave this question open. VP fronting in English (see (16) and (18)) cannot utilize the strategy depicted in (42), because only the C selected by *as* triggers VP null operator movement (see Potts 2002 for details).

[15] A′-scrambling taking place in PF is costless, as far as syntax is concerned.

posed analyses can deal with it. It has been established that long-distance scrambling out of tensed CPs can only be A′-scrambling (Saito 1992; 2003; Uchibori 1997; 2000; Ueyama 1998; 2003 among others). As shown in (43b), the WCO violation in (43a) cannot be remedied by the long-distance scrambling. The grammaticality of (44b) shows that the scrambled DP can be put back to its θ-position at LF.

(43) a. *[So-ko$_i$-no bengosi]-ga [John-ga Toyota-ni-sae$_i$
that-place-GEN attorney-NOM John-NOM Toyota-DAT-even
ayamatta to] omotteiru.
apologized COMP think
('Its$_i$ attorney thinks that John apologized even to Toyota$_i$.')

b. *Toyota-ni-sae$_i$ [so-ko$_i$-no bengosi]-ga
Toyota-DAT-even that-place-GEN attorney-NOM
[John-ga *ec*$_i$ ayamatta to] omotteiru.
John-NOM apologized COMP think
(Lit. 'Even to Toyota$_i$, its$_i$ attorney thinks that John apologized.')

(44) a. Toyota-sae$_i$-ga [John-ga so-ko$_i$-no bengosi-ni
Toyota-even-NOM John-NOM that-place-GEN attorney-DAT
ayamatta to] itta.
apologized COMP said
'Even Toyota$_i$ said that John apologized to its$_i$ attorney.'

b. So-ko$_i$-no bengosi-ni Toyota-sae$_i$-ga
that-place-GEN attorney-DAT Toyota-even-NOM
[John-ga *ec*$_i$ ayamatta to] itta.
John-NOM apologized COMP said
Lit. 'To its$_i$ attorney, even Toyota$_i$ said that John apologized.'

This kind of long-distance scrambling can be handled equally well by the competing analyses. Miyagawa's (2003) theory and Bošković and Takahashi's (1998) theory are both successful, because there is no way the embedded V can reach the matrix T. Saito's (2003) analysis captures the fact because the movement is across a CP phase boundary. Ueyama's (1998; 2003) analysis is also fine: unlike the case of clause-internal A-scrambling, in which the null operator movement takes place within the *v*P domain (see (42)), long-distance A-scrambling in examples like (43b) would have to move the null operator across an indicative finite T. This, however, is prohibited for the above-mentioned reason having to do with minimality (recall the discussion surrounding (10)). In other words, the ban on long-

distance A-scrambling derives directly from the locality of null operator movement under Ueyama's (1998; 2003) account.

So far, the proposed analyses are equally successful. However, a difference emerges when we consider subjunctive complements. Uchibori (1997; 2000) demonstrates that long-distance scrambling out of subjunctive CP complements can be A-scrambling. Thus, the WCO violation in (45a) can be circumvented by scrambling the embedded object long-distance, as shown in (45b).[16]

(45) a. *[So-ko$_i$-o tekitaisisiteiru kaisha]-ga
that-place-ACC be:hostile company-NOM
[ginko-ga Toyota-sae$_i$-o misute-ro to] inotta.
bank-NOM Toyota-even-ACC desert-SUBJ COMP prayed
(Lit. '[The company which is hostile to it$_i$] prayed that the bank would desert even Toyota$_i$.')

b. Toyota-sae$_i$-o [so-ko$_i$-o tekitaisisiteiru kaisha]-ga
Toyota-even-ACC that-place-ACC be:hostile company-NOM
[ginko-ga *ec*$_i$ misute-ro to] inotta.
bank-NOM desert-SUBJ COMP prayed
Lit. 'Even Toyota$_i$, [the company which is hostile to it$_i$] prayed that the bank would desert.'

(46b), where the bound pronominal has been scrambled out of the subjunctive complement, indicates that the scrambling can be undone.

(46) a. Toyota-sae$_i$-ga [ginko-ga so-ko$_i$-no kogaisya-ni
Toyota-even-NOM bank-NOM that-place-GEN subsidiary-DAT
yuusisi-ro to] inotta.
lend.money-SUBJ COMP prayed
'Even Toyota$_i$ prayed that the bank would lend money to its$_i$ subsidiary.'

b. So-ko$_i$-no kogaisya$_j$-ni Toyota-sae$_i$-ga
that-place-GEN subsidiary-DAT Toyota-even-NOM
[ginko-ga *ec*$_j$ yuusisi-ro to] inotta.
bank-NOM lend.money-SUBJ COMP prayed
Lit. 'To its$_i$ subsidiary, even Toyota$_i$ prayed that the bank would lend money.'

[16] A reviewer questions the validity of taking examples like (45b) as involving long-distance scrambling "because an ACC-marked NP can be analyzed as a matrix clause element." Since subjunctive predicates like *inoru* 'pray' do not allow for matrix accusative DPs of the relevant kind, (45b) does involve long-distance scrambling. The same reviewer finds an example similar to (45b) with long-distance scrambling of a dative DP ungrammatical. I have no account of the dialectal variation.

It should be noted that Miyagawa's (2003) analysis as well as Bošković and Takahashi's (1998) cannot explain the A-scrambling in (45b), precisely because the embedded verb does not raise to the matrix T in subjunctive clauses (see Uchibori 2000, section 5.3 for arguments). In order for Saito's (2003) account to work, it must be assumed that subjunctive CP is not a phase (cf. Uchibori 2000). One may, however, cast doubt on the assumption, because it would typically require head movement of the embedded C into the matrix clause (see den Dikken 2007; Gallego 2007), which, like the verb raising in question, is hard to justify on empirical grounds.

Ueyama's (1998; 2003) null operator analysis can account for (45b), given the assumption that subjunctive T, like control infinitival T, lacks the "R-operator" feature (or its relative). The assumption is reasonable in light of the similarities between the subjunctive and the infinitive. Manzini (2000), for example, argues that a subjunctive is an indefinite T bound by what she calls an intentional operator (see Manzini 2000 for details). Furthermore, null operator movement is neither contingent upon verb movement nor subject to phase considerations (see section 1).

The results of the discussion of DP scrambling are summarized in Table 1.

	Clause-initial A/A′	Long-distance (subjunctive) A/A′	Long-distance A′
Syntactic Movement:	✓	*/?	✓
LF θ-checking:	✓	*	✓
NO/PF Movement:	✓	✓	✓

Table 1: DP scrambling

The ambiguity of clause-internal scrambling in terms of the A-/A′-status can be explained by all the three approaches. They can also capture the fact that long-distance scrambling out of an indicative finite clause is uniformly A′-movement. A-scrambling out of a subjunctive clause, however, poses a problem for the approaches that crucially rely on V-to-T movement (Miyagawa 2003; Bošković & Takahashi 1998) and possibly for the phase-based approach (Saito 2003). Ueyama's (1998; 2003) analysis, in contrast, faces no such problem.

6. Clausal complements

Let us finally consider clausal complements and see how they differ from DP arguments. Like DP arguments, they can scramble, as shown in (47b).

(47) a. Hanako-ga [Taroo-ga atarasii kuruma-o katta to] itta.
Hanako-NOM Taro-NOM new car-ACC bought COMP said
'Hanako said that Taro bought a new car.'

b. [Taroo-ga atarasii kuruma-o katta to]$_i$ Hanako-ga ec_i itta.
Taro-NOM new car-ACC bought COMP Hanako-NOM said
Lit. '[That Taro bought a new car], Hanako said'.

Tanaka (2008) observes that clausal complements can undergo ellipsis in Japanese. In (48b), what has been deleted is the complement CP and the sloppy reading obtains, where *Taro*, not *Hanako*, is the one whose daughter is thought to pass the exam.

(48) a. Hanako$_i$-wa [zibun$_i$-no musume-ga goukakusuru to] omotteiru.
Hanako-TOP self-GEN daughter-NOM pass COMP think
'Hanako thinks that her daughter will pass (the exam).'

b. Taroo$_j$-mo [~~zibun$_j$-no musume-ga goukakusuru to~~] omotteiru.
Taroo-also self-GEN daughter-NOM pass COMP think
'Taroo does, too.'

Given the EMG and the line of reasoning pursued here, the scrambling in (47b) cannot be derived by the movement of the CP itself. Rather, it must involve either null operator movement or PF movement. It is predicted that the distribution of clausal A-scrambling should pattern with that of movement of CP null operators. Let us examine some relevant data to see if the prediction is borne out.

First, as expected, clause-internal CP scrambling can be A- or A′-scrambling. Observe the following examples:

(49) a. *[So-re$_i$-o hiteisitekita hito]-ga
that-thing-ACC have denied person-NOM
[John-ga sinhannin da to sae mo]$_i$ syuchoosita.
John-NOM true culprit COP COMP even also claimed
(Lit. 'The man who had denied it$_i$ claimed [even that John was the true culprit]$_i$.')

b. [John-ga sinhannin da to sae mo]$_i$
John-NOM true culprit COP COMP even also
[so-re$_i$-o hiteisitekita hito]-ga ec_i syuchoosita.
that-thing-ACC have denied person-NOM claimed
Lit. '[Even that John was the true culprit]$_i$, [the man who had denied it$_i$] claimed.'

(50) a. Toyota-sae$_i$-ga [John-ga so-ko$_i$-no bengosi-ni ayamatta to] itta.
Toyota-even-NOM John-NOM that-place-GEN attorney-DAT apologized COMP said
'Even Toyota said that John apologized to its attorney.'

b. [John-ga so-ko$_i$-no bengosi-ni ayamatta to]$_j$ Toyota-sae$_i$-ga
John-NOM that-place-GEN attorney-DAT apologized COMP Toyota-even-NOM
ec_j itta.
said
'[That John apologized to its$_i$ attorney], even Toyota$_i$ said.'

In (49) *sae* 'even' is attached to the complement clause, making it a quantificational expression.[17] (49a) contains a WCO configuration and is thus ruled out. The local scrambling of the complement clause in (49b) saves the otherwise ill-formed sentence, indicating that it counts as A-scrambling. (50b), derived from (50a), illustrates the A′-nature of the scrambling involved: the scrambled clause can be interpreted in its thematic position.

We observed in section 1 that CP null operators behave differently from DP ones with respect to locality (compare (10) with (14)). Specifically, the former are not affected by the presence of finite T. Given this, Ueyama's (1998; 2003) analysis predicts that CP scrambling out of a finite clause can be A-scrambling. Crucially, the other approaches make a different prediction. They predict that such scrambling, just like DP scrambling, can never be A-scrambling. (51b), where the long-distance scrambling of the *sae*-marked CP ameliorates the WCO violation in (51a), demonstrates that the predication made by the null operator analysis is correct.

(51) a. *[[So-re$_i$-o sinziteitu keizi]-ga [nakama-ga izure
that-thing-ACC believe detective-NOM crony-NOM over time
[John-ga sinhannin da to sae mo]$_i$ haku to] omotteiru].
John-NOM true culprit COP COMP even also confess COMP think
(Lit. '[The detective who believes it] thinks [that the crony will confess [even that John is the true culprit] over time].')

[17] The particle *mo* 'also' is also added to the clausal complement because it seems to facilitate the relevant bound variable reading. Its addition is prompted by an anonymous reviewer's comment.

b. [John-ga sinhannin da to sae mo]$_i$ [[so-re$_i$-o sinziteitu
John-NOM true culprit COP COMP even also that-thing-ACC believe
keizi]-ga [nakama-ga izure *ec*$_i$ haku to] omotteiru].
detective-NOM crony-NOM over time confess COMP think
Lit. '[Even that John is the true culprit]$_i$, [the detective who believes it$_i$] thinks [that the crony will confess *ec*$_i$ over time].'

All the approaches predict that undoing of long-distance CP scrambling is possible, which is indeed the case, as shown in (52b).

(52) a. Shinbun-ga [Toyota-sae$_i$-ga [John-ga so-ko$_i$-no
newspaper-NOM Toyota-even-NOM John-NOM that-place-GEN
bengosi-ni ayamatta to] itta to] tsutaeta.
attorney-DAT apologized COMP said COMP reported
'The newspaper reported that even Toyota$_i$ said that John apologized to its$_i$ attorney.'

b. [John-ga so-ko$_i$-no bengosi-ni ayamatta to]$_i$
John-NOM that-place-GEN attorney-DAT apologized COMP
shinbun-ga [Toyota-sae$_i$-ga *ec*$_i$ itta to] tsutaeta.
newspaper-NOM Toyota-even-NOM said COMP reported
Lit. '[That John apologized to its$_i$ attorney], the newspaper reported that even Toyota$_i$ said.'

Finally, consider the following examples:

(53) a. *[[So-re$_i$-o nozomu hitotati]-ga [koohoo-ga [Amerika-ga
that-thing-ACC hope for people-NOM spokesperson-NOM America-NOM
Toyota-no kuruma-o motto ukeireru to sae mo]$_i$
Toyota-GEN car-ACC more accept COMP even also
happyoosi-ro to] inotta].
announce-SUBJ COMP prayed
(Lit. '[The people that hope for it$_i$] prayed that the spokesperson will announce [even that America will import more of Toyota's cars]$_i$.)

b. [Amerika-ga Toyota-no kuruma-o motto ukeireru to sae mo]$_i$
America-NOM Toyota-GEN car-ACC more accept COMP even also
[[so-re$_i$-o nozomu hitotati]-ga [koohoo-ga happyoosi-ro
that-thing-ACC hope for people-NOM spokesperson-NOM announce-SUBJ
to] inotta].
COMP prayed
Lit. '[Even that America will import more of Toyota's cars]$_i$, the people that hope for it$_i$] prayed that the spokesperson will announce.'

(54) a. Keizaikai-ga [Toyota-sae$_i$-ga [Amerika-ga so-ko$_i$-no
business community-NOM Toyota-even-NOM America-NOM that-place-GEN
kuruma-o motto ukeireru to] happyoosi-ro to] inotta.
car-ACC more accept COMP announce-SUBJ COMP prayed
'The business community prayed that even Toyota$_i$ will announce that America will import more of its$_i$ cars.'

b. [Amerika-ga so-ko$_i$-no kuruma-o motto ukeireru to]$_j$
America-NOM that-place-GEN car-ACC more accept COMP
keizaikai-ga [Toyota-sae$_i$-ga ec_j happyoosi-ro to] inotta.
business community-NOM Toyota-even-NOM announce-SUBJ COMP prayed
Lit. '[That America will import more of its$_i$ cars], the business community prayed that even Toyota$_i$ will announce.'

CP scrambling out of subjunctive complements can be A-scrambling, as in (53b), or A′-scrambling, as in (54b). Just as in the equivalent case of DP scrambling, its A-status is mysterious for Miyagawa (2003) and Bošković and Takahashi (1998), but could be handled by Saito (2003) if we assume the subjunctive complement is not a phase. In contrast, Ueyama's (1998; 2003) theory accounts for the A-status correctly.

The results of the examination of CP scrambling are given in Table 2.

	Clause-initial A/A′	Long-distance (subjunctive) A/A′	Long-distance A′
Syntactic Movement:	✓	*/?	*
LF θ-checking:	✓	*	*
NO/PF Movement:	✓	✓	✓

Table 2: CP scrambling

Significantly, only Ueyama's (1998; 2003) analysis can explain why CPs behave differently from DPs when it comes to long-distance scrambling.

In brief, the EMG helps us choose among the competing analyses of Japanese scrambling. In particular, it implies that the null operator/PF movement analysis of the kind proposed by Ueyama (1998; 2003) must be superior to the other analyses. The above considerations, both theoretical and empirical, made us reach the same conclusion.

7. Conclusion

Starting with the intuitive idea that the theory of cyclic linearization should expect systematic discrepancies between phonologically overt elements and their covert counterparts in terms of syntactic movement, I discussed the behavior of certain kinds of null operators in English and Japanese. The linearization-based theory of syntactic locality provides a principled reason why null operator movement cannot operate successive cyclically. The ban on the movement of a DP null operator across a finite T is regarded as an intervention effect on (long-distance) Agreement. Once the theory of cyclic linearization is coupled with the phase-based theory of ellipsis, it makes an interesting prediction about the phonologically conditioned correlation between movement and ellipsis, which I have argued is borne out. The Ellipsis Movement Generalization, which captures the correlation, has been applied to scrambling in Japanese. It has been argued that the EMG helps us choose among the existent analyses of Japanese scrambling. In particular, we are led to the conclusion that Ueyama's (1998; 2003) account, whereby A-scrambling and A′-scrambling involve null operator movement and PF movement, respectively, is the most successful (See also Hoji 2006).

To the extent that the present line of reasoning is on the right track, we have found converging evidence for both the EMG and the null operator movement analysis of scrambling in Japanese. If the EMG is correct, it supports the theory of locality advanced by Bošković (2007a;b) and the theory of ellipsis of the kind proposed by Holmberg (2001), both of which make crucial use of the notion of phase. Overall, the results attained here lend support to the phase-by-phase conception of derivations (Chomsky 2001; 2008).

The recent treatment of locality of movement as intricate syntax-phonology interactions has opened up new possibilities of analyzing various linguistic phenomena that have been thought to be unrelated or have defied satisfactory explanations. The attempt made here is intended as an example, however small it is, to illustrate the fruitfulness of this particular aspect of the Minimalist approach currently investigated. It is hoped, from the present perspective, that further investigations of phonologically empty linguistic objects will shed more light on the nature of the computational system of human language.

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