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MOVING TO THE EDGE

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In the Minimalist Program, one does not expect optional operations. In this spirit, in Miyagawa (1997, 2001, 2003a, 2005b), I provide a non-optional account of local A-scrambling, which previously was thought to be entirely optional. However, long-distance scrambling, or A'-scrambling, appears to be truly optional, making it necessary after all to formulate a theory of optional operation. Fox's (2000) Output Economy provides such a theory within MP. I will combine Fox's theory with ideas from Tada (1993), which resembles Fox's theory, though less developed, but with certain advantages that clarify how Output Economy applies. Following Tada (1993), I will assume that an element can move freely to certain positions, and if it receives interpretation at the moved position, it can stay in that position; otherwise it must reconstruct. Following recent work, an element can move freely to a domain if the domain has an Edge Feature, most commonly the phase heads (Chomsky 2005). Our analysis shows that QR, another optional operation, is best viewed as a covert version of scrambling.

1. Introduction

One of the great mysteries of UG is the existence of movement operations. Why does movement occur? At every stage in the development of generative grammar, an attempt is made to answer this question. Interestingly, the answer at any given point characterizes in an essential way the nature of the theory at that particular point. In other words, every step in the evolution of generative grammar has been, in no small measure, an attempt to construct a superior answer to this question than the one before. In GB, movement operations — in fact, all operations — are entirely optional, so that Move α can move anything anywhere, anytime. This leads to massive over generation. Independent universal principles such as the ECP and subjacency extract from this set of overly generated set of strings the subset that constitutes the grammatical strings of a particular language. The independent principles not only allow the theory to meet descriptive adequacy in this way (in the ideal, of course), but it also makes it possible to meet explanatory adequacy in that they "give a general theory of linguistic structure of which each [grammar of a particular language] is an exemplification" (Chomsky 1955/75:77). In GB, this "general theory of linguistic structure" is the principles-and-parameters approach, and it informs us, among others, how language acquisition proceeds from the initial state to the mastery of a language. This is a particularly attractive formulation in that we have, in principle, a clear description of UG's initial state, which is a principal goal of linguistic theory. However, there is one problem. These so-called universal principles are often — probably always — a description of the problem. So long as we depend on such description, we cannot really know the

nature of language (I-language). This is the basis for the Minimalist Program (MP). In MP, effort is made to rid the theory of any element that does not have a natural and independent justification. One consequence of this approach is that, in sharp contrast to GB, operations are viewed as "last resort," so that, ideally, there is no over generation of the kind we find in GB. This leads to a theory that is computationally efficient. We might expect that, on this view, there should not be any kind of optional operation. Indeed, an operation such as A-scrambling, which previously was thought to be totally optional (Fukui 1993, Kuroda 1988, Saito 1989, Saito and Fukui 1998), turns out to be amenable to an analysis as a non-optional operation (Miyagawa 1997, 2001, 2003a, 2005b). Nevertheless, there is a class of operations, A'-scrambling in languages such as Japanese and Korean, and QR in languages such as English, which appear to be truly optional. We need to formulate a theory of optional operations that is consonant with the spirit of the Minimalist Program.

2. Optional Movement

Most linguists who have studied scrambling consider it to be strictly optional (e.g., Fukui 1993, Kuroda 1988, Saito 1989, Saito and Fukui 1998). The Japanese linguists, who were the first to discuss scrambling in terms of optionality (e.g., Saito 1989), provide a specific and technical notion of optionality. The idea is not just that an element can move freely, which is the basic and intuitive notion of optionality. But, according to Saito (1989), who laid the groundwork for the study of scrambling as an optional movement, there is an additional property that the class of scrambling he has studied has no semantic consequence. It is semantically vacuous. This is the scrambling that constitutes A'-movement. The crucial examples are given below.

(1)a. John-ga [$_{\text{WH-ISD}}$ Taroo-ga nani-o katta ka] siritagatteiru.
John-NOM [$_{\text{WH-ISD}}$ Taro-NOM what-ACC bought Q] want:to:know
'John wants to know what Taro bought.'

b. ?Nani-o$_i$ John-ga [$_{\text{WH-ISD}}$ Taroo-ga t_i katta ka] siritagatteiru.
what-ACC$_i$ John-NOM [$_{\text{WH-ISD}}$ Taro-NOM t_i bought Q] want:to:know

(1a) is a declarative sentence that contains an indirect question. The crucial example is (1b). In this example, the wh-phrase *nani* 'what' has scrambled from inside the indirect question to the head of the matrix clause, a position that cannot license a wh-phrase because the matrix is a declarative sentence. The wh-phrase must be interpreted inside the indirect question despite its surface position outside it. To do so, the wh-phrase undergoes what Saito calls "radical reconstruction" back into the indirect question. The defining trait of radical reconstruction is that it does not leave a trace. It is as if the scrambling movement never took place — the overt movement is simply "undone" at LF. The only way that this scrambling can be literally "undone" as just described is if it is semantically vacuous, so that the original movement has no semantic import; as Boškovič(2004) puts it, "...for semantics, scrambling does not exist." Therefore it is a purely optional movement.

The reason why Saito (1989) considers the example in (1b) as demonstrating the "undoing" property of scrambling is that, independently, he argues that all movement operations are subject to the Proper Binding Condition (Fiengo 1977, May 1977). On this assumption, one would not expect any lowering operations, overtly or at LF, because lowering would leave an unbound trace in the head position of the chain. Thus, there is no reconstruction in the classic sense in which it was formulated (e.g., May 1977). I will not re-create his arguments here; see his article and also Saito (2004). See Miyagawa (2005b) for counterarguments. As Saito notes, despite this restriction against reconstruction, it is a fact that in the Japanese example in (1b), the scrambled wh-phrase must be interpreted in the indirect question so that it can be properly associated with the [+wh] selection property of the indirect question. This is made possible by completely undoing the scrambling, leaving no trace that would trigger a PBC violation.

3. Empirical Problem with Saito's Analysis

As noted by Nishigauchi (2002) (cf. also Miyagawa (2005b)), Saito's "undoing" analysis makes the wrong prediction in Condition C environments. Nishigauchi (2002) observes the following example from Lasnik and Saito (1999).

(2) [John$_i$-ni-tuite-no dono hon]-o$_j$ kare$_i$-ga
[John$_i$-about-GEN which article]-ACC$_j$ he$_i$-NOM
[Hanako-ga t_j ki-ni-itte iru ka] sitte-iru.
[Hanako-NOM t_j like Q] knows
'He wants to know which book about John, Hanako likes.'

This example has the same structure as the "undoing" example Saito (1989) gave. The wh-phrase, "which article about John," has scrambled from within an indirect question to the head of the declarative sentence. Under the undoing analysis, this entire wh-phrase must obligatorily reconstruct. But that would incorrectly predict a Condition C violation, because *John* in the wh-phrase would end up being c-commanded by the pronoun *kare* 'he' in the matrix subject position. The fact that there is no Condition C violation — the sentence is fine with the intended interpretation, proviso the usual awkwardness associated with long-distance scrambling — is evidence that the wh-phrase does not get put back. Nishigauchi correctly notes that the "conclusion to be drawn from [this type of example] will be that [it] is not really a 'semantically vacuous movement'" (Nishigauchi 2002: 84).

Additionally, Nishigauchi observes that (2) is the familiar argument/adjunct distinction noted for wh-movement in English (Lebeaux (1988); cf. also van Riemsdijk and Williams (1981), Freidin (1986)).

(3) ??/*[Which criticism of John$_i$]$_j$ did he$_i$ reject t_j?

(4) [Which criticism that John$_i$ heard]$_j$ did he$_i$ believe t_j?

Under Lebeaux's (1988) analysis, this contrast is due to the fact that *John*, which is an argument of *criticism* in (3), must be immediately merged with *criticism* when *criticism* first appears in the complement position of *reject*. Therefore, the entire phrase, *which criticism of John*, is constructed in the original complement position, and the phrase in its entirety is visible as a copy at its original position. This leads to a Condition C violation. In contrast, (4) is fine. Lebeaux observes that *that John heard* is an adjunct, and suggests that adjuncts, by their nature, need not be immediately merged with the head of its phrase. Rather, it can be late-merged after *which criticism* has undergone wh-movement to the Spec of CP. In this way the copy in the lower position is simply *which story*. Condition C violation is therefore avoided (cf. also Chomsky 1993).

Nishigauchi (2002) notes that we can observe a similar argument/adjunct distinction for scrambling. The following, which is not from his work, is taken from Miyagawa (2005b).

(5) a. ??/?*[Minna-no John$_i$-no hihan-o]$_j$ kare$_i$-ga
[everyone-GEN John$_i$-GEN criticism-ACC]$_j$ he$_i$-NOM
[Hanako-ga t_j osiete-kureta to] itta.
[Hanako-NOM t_j told.him C] said
'[Everyone's criticism of John], he said that Hanako told him.

b. [[Minna-ga John$_i$-kara kakusite-ita] hihan-o]$_j$
[[everyone-NOM John$_i$-from was.hiding] criticism-ACC]$_j$
kare$_i$-ga [Hanako-ga t_j osiete-kureta to] itta.
he$_j$-NOM [Hanako-NOM t_j told.him C] said
'The criticism that everyone was hiding from John, he said that Hanako told him.'

In (5a), the antecedent of the pronoun, *John*, occurs as an argument of the nominal head *hihan* 'criticism'. Following Lebeaux, *John* must be merged at the point when the nominal head is initially merged, in the complement position of *osiete-kureta* 'told'. A full copy of *John* is therefore visible in this position, and it leads to a Condition C violation. In (5b), on the other hand, *John* is contained in a relative clause, which is an adjunct. Again following Lebeaux, an adjunct can be late-merged, in this case, after the phrase headed by *hihan* 'criticism' has been scrambled to the head of the sentence. In this way the relative clause containing *John* never occurs in the original position and Condition C violation is avoided. This example in (b) clearly indicates that the scrambled phrase does not get put back. If it did, the entire phrase, [[*minna-ga John$_i$-kara kakusite-ita*] *hihan-o*]$_j$ 'the criticism that everyone was hiding from John', would be interpreted lower in the structure, which incorrectly predicts a Condition C violation.

The upshot of the discussion above is that scrambling of the type dealt with by Saito exhibits typical reconstruction/non-reconstruction properties associated with A'-movement (wh-movement). This suggests that A'-

scrambling is a straightforward A'-movement like wh-movement. We can predict its reconstruction properties along the lines of Lebeaux's analysis, which predicts that reconstruction only occurs in certain cases, which is what we observed for A'-scrambling as well.

4. Undoing and Quantifier Scope

Another piece of evidence given for the "undoing" property of scrambling is quantifier scope (Boškovič and Takahashi 1998 (BT), Boškovič 2004, Saito 2004). As noted by Oka (1989) and Tada (1993), a quantifier scrambled long distance cannot be interpreted in its scrambled position. Instead it is interpreted in its original position or some position lower than the scrambled position. The following is taken from BT.

(6) Daremo-ni dareka-ga [Mary-ga *e* atta to] omotteiru.
everyone-DAT someone-NOM [Mary-NOM met that] thinks
'Everyone, someone thinks that Mary met.'
someone > everyone, *everyone > someone

The failure of the quantifier to take scope at the scrambled position ostensibly reflects the undoing property.

The phenomenon we just observed takes on a very different character when we expand the data. First, suppose, as has been suggested in the literature, that scrambling of a quantifier may count as an instance of overt QR (cf. Abe 2005, Kitahara 1995, Miyagawa 2003b, Sohn 1995,Tonoike (1997). Fox (2000) argues that QR is subject to what he calls the Scope Economy.

(7) Scope Economy
A Scope Shifting Operation can move XP_1 from a position in which it is interpretable only if the movement crosses XP_2 and $<XP_1, XP_2>$ is not scopally commutative. (Fox 2000:26)

According to the Scope Economy, optional QR is possible if it leads to a new scope relation. Let us first look at relevant examples from English. May (1977) noted that QR is clause bound.

(8) a. Someone loves everyone.
some > every, every > some
b. Someone thinks that Mary loves everyone.
some > every, *every > some

There are exceptions to the clause boundedness of QR. The following is an observation by Moltmann and Szabolci (1994) discussed by Fox (2000).

(9) a. One girl knows that every boy bought a present for Mary.
one > every, *every > one
b. One girl knows what every boy bought for Mary.
one > every, every > one

Fox notes that in (9a), the movement of *every boy* to the lower Spec of CP (or adjoing to this CP) does not lead to a new scope relation. Hence Scope Economy does not license this movement. In (9b), moving the universal *every boy* over *what* does lead to a new scope relation — it makes a pair-list interpretation possible. This, then, sets up the movement of the universal quantifier to the matrix clause, where ultimately it may take scope over the existential.

Let us return to the Oka/Tada-type Japanese example noted by BT, repeated below.

(10) Daremo-ni dareka-ga [$_{CP}$ t_2 Mary-ga t_1 atta to]
everyone-DAT someone-NOM [$_{CP}$ t_2 Mary-NOM t_1 met that]
omotteiru.
thinks
'Everyone, someone thinks that Mary met.'

We can see immediately that the first link of the chain, <t_2, t_1> in the subordinate clause violates Scope Economy. The universal quantifier only moves across the R-expression *Mary*. Hence the quantifier cannot take scope at the scrambled position. If Scope Economy is, indeed, what is responsible for the "undoing" property in this example, we predict that such undoing need not take place if the first movement is licensed.

In fact Abe (2005) has observed that with another quantifier in the right position, the long-distance scrambling of a quantifier may lead to a new scope relation, contrary to what Oka and Tada observed. Before introducing Abe's examples, which involve clefts, I will present "normal" sentences that demonstrate the property.

(11) Daremo-ni$_i$ dareka-ga [John-ga t_i kisusita to]
everyone-DAT$_i$ someone-NOM [John-NOM t_i kissed C]
omotteiru.
thinks
'Everyone, someone thinks that John kissed.'
*everyone > someone, someone > everyone

(12) Daremo-ni$_i$ dareka-ga [futari-no-kodmo-ga t_i kisusita to]
everyone-DAT$_i$ someone-NOM [2-GEN-kids-NOM t_i kissed C]
omotteiru.
thinks
'Everyone, someone thinks that two kids kissed.'
^{ok}/??everyone > someone, someone > everyone

Although there is a preference for the "reconstructed" (some > every) interpretation in both examples, the other reading (every > some) is available in (12) for many speakers, but not in (11).[1] This difference comes from the fact that in (11) there is no quantificational expression in the subordinate clause other than the scrambled phrase, "everyone." Hence Scope Economy would not license the movement of the quantifier in the lower CP. In (12), the subordinate subject is the quantificational expression "two kids"; movement of the universal quantifier "every article" across this subject quantifier creates a new scope relation. This step is, thus, licensed. The next step is also licensed because "everyone" moves across another quantifier, "someone." In order for "everyone" to scope over the matrix "someone," it is necessary for "everyone" also to scope over the subordinate "two kids," since that is the new scope relation that licenses the first step of the movement. What we can see is that the original observation by Oka and Tada, which BT (1998), Bošković (2004), and Saito (2004) point to as evidence for the undoing property, is simply a demonstration of Scope Economy at work. The observation was based on examples in which a quantifier moves in the lower clause without altering the scope relation, in violation of Scope Economy

To my knowledge, Abe (2005) was the first to offer examples that illustrate the Scope Economy effect we just observed for scrambling. Although his conclusions are somewhat different from ours, we share the idea that the Oka/Tada observation is an insight about when one can, and cannot, do QR as overt movement such as scrambling. Abe's examples are cleft constructions given below.

(13) [Daremo-ga [sensee-ga t_1 kisusita to] sinziteiru no]-wa
[everyone-NOM [teacher-NOM t_1 kissed C] believe C]-Top
dareka seeto-ni_1 da.
some student-DAT_1 be
'It is some student that everyone believes that the teacher kissed.'

(14) [Sensee-ga [daremo-ga t_1 kisusita to] sinziteiru no]-wa
[teacher-NOM [everyone-NOM t_1 kissed C] believe C]-Top
dareka seeto-ni_1 da.
some student-DAT_1 be
'It is some student that the teacher believes that everyone kissed.'

[1] I have consulted six native speakers, all linguists. None got the wide reading of "everyone" in (11), as expected. They all got the wide reading of matrix "someone" in both (11) and (12), again, as expected. For the crucial reading — the wide reading of "everyone" over the matrix "someone" for (12), four of the six speakers got this reading, although one said that it is somewhat difficult. Of the remaining two speakers, one did not get it at all, and the sixth could not determine if the reading is available or not.

To quote Abe (2005: 52), "[w]hile it is hard to get the reading in which *daremo* ['everyone'] takes scope over *dareka* ['someone'] in [(13)], such a reading is easily available for [(14)]." The difference is that in (14), the first movement within the lower clause crosses a quantifier, *daremo* 'everyone', in the lower clause, which, as we saw earlier, satisfies Scope Economy. No quantifier occurs in the lower clause in (13) so that the movement inside the lower clause violates Scope Economy. The movement in these cleft constructions is operator movement (Hoji 1985). While (13) demonstrates the Oka/Tada effect of "undoing," (14) does not.

Another piece of data, well-known in the literature, is Takahashi's (1993) scrambling-as-wh-movement.

(15) Nani-o$_i$ Taroo-ga [$_{CP}$ Hanako-ga t_i katta ka] sitteiru no?
what-ACC Taro-NOM Hanako-NOM bought Q] know Q
(i) 'What does Taro know whether Hanako bought?'
(ii) 'Does Taro know what Hanako bought?'

Takahashi (1993) argues that the long-distance scrambling (LD scrambling) of the lower object wh-phrase "what" counts as wh-movement even though Japanese is normally a wh-in-situ language. His point rests on the observation that the wh-phrase cannot be interpreted inside the indirect question; it cannot be reconstructed, in other words. However, many speakers, including myself, allow the reconstructed interpretation given in (ii). What is significant is that, as Takahashi notes, this instance of LD scrambling allows the scrambled element to be interpreted in the scrambled position. Each step of its movement is licensed by Scope Economy.

5. Edge Feature and Optional Movement

Tada (1993), along with Oka (1988), discovered that long-distance scrambling of a quantifier over a matrix quantifier does not lead to a new scope relation (cf. (13)). Tada argues that this is because the scrambled position does not lead to a new interpretation, so that the LD-scrambled item must necessarily undergo radical reconstruction. This, he claims, is the reason for the 'undoing' property of scrambling that Saito (1989) observed. Tada's analysis of this "undoing" effect is an earlier version of Scope Economy, although the formulation is quite different. He observes that the position to which an element is LD-scrambled is an A'-position, because LD-scrambling is solely A'-movement (Mahajan 1990, Saito 1992). He also suggests that an A'-position by nature is where operators take scope, hence only operator movement constitutes proper movement into an A'-position. He then points out that LD-scrambling is not operator movement. We can see why by the fact that, for example, R-expressions can undergo LD-scrambling. The moved element therefore cannot be interpreted in the scrambled position, because the position is for operators but the moved element did not undergo operator movement. The moved element must therefore undergo radical reconstruction, as originally argued by Saito (1989), in order for it to be in a position where it can be interpreted properly as a non-operator.

Tada's analysis makes explicit something that is left open in Fox's (2000) formulation of Scope Economy. One way to interpret Fox's formulation is that an optional movement simply cannot apply if it does not lead to an effect on the output, such as a new scope relation. While this is attractive in one sense, in that it avoids over-generation, it is extremely difficult to implement formally without a powerful, "look-ahead" feature built into the grammar, something one would want to avoid. Tada's approach freely allows optional movement. After it moves, it is evaluated for interpretability. If it receives a valid interpretation in the moved position, it stays there, but if there is no credible interpretation, it undergoes radical reconstruction at LF to a position where it can receive interpretation.

One problem with Tada's approach is that he stipulates that the A'-position to which an element is LD-scrambled is not an operator position, so that nothing can be interpreted in that position. This is clearly false, as we saw in (12), in which an LD-scrambled quantifier is able to take scope at this moved position because every step of the movement meets Scope Economy as formulated by Fox (2000). Let us combine Fox's Scope Economy with a generalized formulation of Tada's approach to evaluating optional movement. I will comment on "Edge Feature" below.

(16) Optional Movement
An element may freely move to any position with an Edge Feature.

(17) Interpretation Economy (a slight revision of Fox's Scope Economy)
The movement is licensed in the new position iff it alters the interpretation of the string.

Note that I have limited the licensing condition to altering the interpretation of the string. Fox (2000) actually generalizes his Scope Economy to what he calls Output Economy, by which the condition that licenses optional operation is one that has an "effect on the output." This notion has been adopted by others (e.g., Chomsky 2001; Miyagawa 2005b, to appear). We can see that this substantially broadens the possibilities for licensing optional movement. However, I see no need at this point to broaden the condition in this way. Although Scope Economy is too restrictive and it needs to be expanded, as we will see below, I believe that the condition should continue to reference only matters of interpretation. I will therefore limit the condition to those relevant to interpretation and call it Interpretation Economy, a slight revision of Fox's Scope Economy. Below, I will show that, along with scope, altering the focus potential of a string counts as licensing optional movement.

5.1 Edge Feature

One question that arises immediately is, how does an item undergo optional movement? What triggers it? Which positions does optional movement target? Chomsky (2005:11) suggests "only phase heads trigger operations..." Limiting the discussion to internal merge, internal merge is triggered by the EF on a

phase head. Let us use the example of movement to the Spec of CP. There appears to be two ways in which an EF may attract an element to the Spec of CP. The first does not belong to the class of optional movement. In this instance, the EF operates in tandem with a formal feature such as the Q-feature of wh-questions. The Q-feature enters into Agree with the wh-feature on a wh-phrase. The EF, which is a part of this Agree process, then attracts the goal of Agree, the wh-phrase, to the Spec of CP. This is the familiar movement operation involving an Agree process. This is not an optional movement so that Interpretation Economy would not come into play.

The second way for an EF on C to attract an item is exemplified in the LD-scrambling. There is no apparent Agree relation between the C and the scrambled element. The EF therefore simply requires that something be moved into the Spec of CP. This is an instance of optional movement, so Interpretation Economy is relevant. One way in which we can tell that it is completely optional is that there is no locality, such as superiority, which is what we expect if there is no Agree. In the following example, either the locative PP or the object of the lower clause can be LD-scrambled. The (d) and (e) examples show that both can be extracted in either order, clearly showing a lack of superiority.

(18)a. Taroo-ga [Hanako-ga tosyokan-de hon-o karita to] itta.
Taro-NOM Hanako-NOM library-at book-ACC borrowed C said
'Taro said that Hanako borrowed a book at the library.'

b. Tosyokan-de$_i$ Taroo-ga [Hanako-ga t_i hon-o karita to] itta.
library-at$_i$ Taro-NOM Hanako-NOM t_i book-ACC borrowed C said

c. Hon-o$_j$ Taroo-ga [Hanako-ga tosyokan-de t_j karita to] itta.
book-ACC Taro-NOM Hanako-NOM library-at$_i$ t_i borrowed C said

d. Tosyokan-de$_i$ hon-o$_j$ Taroo-ga [Hanako-ga t_i t_j karita to] itta.
library-at$_i$ book-ACC$_j$ Taro-NOM Hanako-NOM t_i t_j borrowed C said

e. ?Hon-o$_j$ tosyokan-de$_i$ Taroo-ga [Hanako-ga t_i t_j karita to] itta.
book-ACC$_j$ library-at$_i$ Taro-NOM Hanako-NOM t_i t_j borrowed C said

Of all of these examples, the final example ((e)) is slightly awkward, possibly indicating a mild form of a nesting violation, but the sentence is perfectly interpretable.

Based on the idea that the EF on a phase head is responsible for optional movement, the LD-scrambling moves an element to the Spec of CP (or to a position adjoined to CP). This is consistent with the idea that scrambling that moves an element to the Spec of TP is solely A-movement (Miyagawa 2001, 2003a, 2005a). If these earlier works are correct, this A-movement is not an optional movement, but rather, it is triggered by the universal property of the EPP on T.

6. LD-Scrambling vs. QR

Let us review some of the crucial distinctions we have observed.

Moltmann and Szabolci (1994) discussed by Fox (2000).

(19)a. One girl knows that every boy bought a present for Mary.
one > every, *every > one

b. One girl knows what every boy bought for Mary.
one > every, every > one

Miyagawa (2005b, to appear)

(20)a. Daremo-ni$_i$ dareka-ga [John-ga t_i kisusita to]
everyone-DAT$_i$ someone-NOM [John-NOM t_i kissed C]
omotteiru.
thinks
'Everyone, someone thinks that John kissed.'
*everyone > someone, someone > everyone

b. Daremo-ni$_i$ dareka-ga [futari-no-kodomo-ga t_i kisusita to]
everyone-DAT$_i$ someone-NOM [2-GEN-kids-NOM t_i kissed C]
omotteiru.
thinks
'Everyone, someone thinks that two kids kissed.'
ok/??everyone > someone, someone > everyone

These minimal pairs demonstrate Scope/Interpretation Economy. In both, the occurrence of a scope-bearing item in the lower clause (the (b) examples) makes it possible for the movement within this clause to meet the Interpretation Economy, in turn making it possible for the quantifier to move to the matrix clause where it takes scope over the matrix subject quantifier (*one girl*, *dareka* 'someone'). The movement in (19) is QR (May 1977) while the movement in (20) is LD-scrambling. Why do these movements behave identically as we just saw? Both are optional operations, thus both are subject to Interpretation Economy. A reasonable assumption to make is that the two types of movement are exactly the same movement, the only difference being that one is covert and the other is overt. This is precisely the same difference identified among languages for wh-questions; some have overt wh-movement while in others the movement is covert (Huang 1982). QR, then, is the covert version of overt scrambling, an idea found in the literature in a variety of forms (cf. Abe 2005, Kitahara 1995, Miyagawa 2003b, Sohn 1995,Tonoike 1997). I will assume this.

6.1 Why does QR Apply Only to Quantifiers?

If QR and scrambling are the same operation, why is it that QR targets only a small subset of the items that scrambling targets? QR only applies to quantifiers, but scrambling applies to virtually every kind of phrase that occurs in a language that allows scrambling. The answer to this is found in

Interpretation Economy. This condition requires that an optional movement must have an effect on the interpretation for it to be properly licensed. Covert movement such as QR can only have an effect on interpretation in one sense, that of affecting the scope relation. Consequently, the fact that QR, a covert operation, only applies to quantifiers follows straightforwardly from the Interpretation Economy.

In contrast to QR, overt scrambling can affect not only scope, as we have seen, but it can also have an effect on another type of interpretation. As noted by Neeleman and Reinhart (1998), scrambling changes the focus potential of a sentence (cf. also Bailyn 2001, 2003; Ishihara 2001; Jung 2002; Miyagawa 1997, 2005b; Otsuka 2005; Yang 2004; among others). Ishihara (2001) illustrates this for Japanese. Let us begin with a normal SOV word order.

(21) Taroo-ga [VP **hon**-o katta]
Taro-NOM [VP book-ACC bought]
'Taro bought a book.'

The focus here is on the object **hon** 'book', which is the phrase that bears the nuclear stress. According to the Focus Rule of Neeleman and Reinhart (1998), which allows focus to project upward from the focused element, the focus domain of this sentence may be the object **hon**, the VP that contains it, or the entire TP. Thus, (21) can be used as an answer to the following three questions:

(22) a. What happened? (focus on TP)
b. What did Taro do? (focus on VP)
c. What did Taro buy? (focus on object)

(23) below has a different focus domain set due to the scrambling of the object.

(23) Hon-o_i **Taroo**-ga [$_{VP}$ t_i katta]
book-ACC_i Taro-NOM [$_{VP}$ t_i bought]

With neutral prosody, the focus domains are the subject NP **Taroo** and the TP, but the VP cannot be a focus domain because it does not contain the stress. Therefore (23) cannot be used to answer "What did Taro do?" Let us assume, quite plausibly, that altering the focus potential of a sentence counts as having an "effect," hence it can license optional movement.[2]

[2]Ishihara (2001) makes two assumptions about (23). First, as argued by Miyagawa (2001), the object in an OSV order may move into the Spec of TP to satisfy the EPP of T. Second, there is verb movement to T (cf. Koizumi 1995, Otani and Whitman 1991), so that in (23), the lowest element is the subject in the Spec of *v*P. This is why the subject receives the nuclear stress, and it comprises an argument that the verb raises in Japanese. In Dutch, in which there is no overt verb movement, scrambling of the object leads to the nuclear stress being assigned to the verb, which is the lowest element in the structure, unlike in Japanese. As a counterpoint, see Fukui and Takano (1998), Fukushima (2003), Sakai and Fukui (2003), and Takano (1996) among others for arguments that the verb does not raise in Japanese.

Now consider the following.

(24) Hanako-ga [$_{CP}$ Taroo-ga hon-o katta to] itta.
Hanako-NOM [$_{CP}$ Taro-NOM book-ACC bought C] said
'Hanako said that Taro bought a book.'

This sentence can be used to answer the following three questions, among other questions.

(25) a. What happened? (focus on matrix TP)
b. What did Hanako do? (focus on matrix VP)
c. What did Hanako say? (focus on complement CP)

Now consider the following LD-scrambling of the subordinate object, which is an ordinary nominal expression (*hon* 'book').

(26) Hon-o$_i$ Hanako-ga [$_{CP}$ t_i Taroo-ga t_i katta to]
Book-ACC$_i$ Hanako-NOM [$_{CP}$ t_i Taro-NOM t_i bought C]
itta.
said
Lit. 'Book, Hanako said that Taro bought (it).'

A natural way to pronounce this sentence is to put focus stress on the LD-scrambled *hon-o* 'book-ACC' (Miyagawa 1997). This isolates the focus set to the highest node, and this sentence is used naturally to respond to the question, *What did Hanako say that Taro bought?*, with 'what' scrambled to the head of the sentence. It seems to me that (26) cannot be used as a natural response to any of the questions in (25) (*what happened?, what did Hanako do?, what did Hanako say?*), although it may be possible with a rich context. In any event, what is clear beyond doubt is that the LD-scrambling of the embedded object fundamentally alters the focus potential of a sentence, so that this LD-scrambling is licensed as an optional operation strictly on the basis of altering the focus potential, a form of altering the interpretation of the string.

Finally, let us again reflect on the Oka/Tada discovery that LD-scrambling of a quantifier does not lead to a new scope relation.

(27) Daremo-ni dareka-ga [Mary-ga *e* atta to] omotteiru.
everyone-DAT someone-NOM [Mary-NOM met that] thinks
'Everyone, someone thinks that Mary met.'
someone > everyone, *everyone > someone

We know that this LD-scrambling of the subordinate object violates Scope Economy in the lower clause. But does it violate the more broadly conceived Interpretation Economy? A reasonable way to view (27) is that the optional movement is licensed by altering the focus potential, as we saw earlier, but not by altering the scope relation. Therefore, in (27), the LD-scrambled universal

quantifier need not undergo radical reconstruction — in the copy theory of movement, this means that the interpretation of the chain need not be restricted to the lower copy — as has been previously claimed (Saito 2004, Tada 1993). Rather, the scrambling is preserved, but only under focus alteration, and not also under scope alteration (Miyagawa, to appear).

7. Conclusion

The characterization of optional movement along the lines of Fox (2000) and Tada (1993) leads to a theory that allows over generation, much like the GB theory. Movement is free to phase heads, because phase heads have an EF that can trigger internal merge. The optional movement, once completed, is evaluated by the Interpretation Economy. If it passes, the moved element may be interpreted in the moved position, but if not, it must undergo reconstruction, much like the original conception in Saito (1989), although much more limited in its occurrence. Although we have come to expect operations to be strictly "last resort," there is, in principle, nothing to prevent formulation of an operation that over generates, so long as all the parts are well motivated. At this point, any attempt to prevent over generation would require some mechanism — a look ahead feature — that is not desirable.

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