CHAPTER 16

OPTIONALITY

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16.1 Introduction

Movement has been a major topic of research at every stage in the development of generative grammar. In GB, movement operations are thought to be entirely optional, Move α being able to move anything anywhere, anytime, which leads unavoidably to massive overgeneration. Independent universal principles extract from this overly generated set of strings the subset that constitutes the grammatical strings of a particular language. These independent principles make 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 1955/75a: 77). In GB, this 'general theory of linguistic structure', or UG, is the Principles and Parameters approach, and it informs us 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 theory, a description of UG's initial state—the state before parameters are set—which is a principal goal of linguistic theory. However, there is one problem. These so-called universal principles are often—perhaps always—a description of the problem. 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. An attempt to live up to this ideal—although by no means the only possible approach—is to view operations not as

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optional as in GB but as strictly last resort (e.g. Chomsky 1995b). This reorientation naturally leads to the hope that there ought not be any unnecessary generation of strings of the kind we find in GB. Typically, movements take place in the presence of a formal feature in the structure—this feature enters into agreement with an item located elsewhere in the structure, and the item moves to where the feature resides. If all movements are to be characterized in this way, optional operations should never occur.[1] Nevertheless, there is a class of operations, quantifier raising (QR) in languages such as English and a subclass of scrambling in languages such as Hindi and Japanese, which appear to be truly optional. We need to formulate a theory of optional operations that is consonant with the tenets of last resort. There are operations such as heavy NP shift that appear to be just as optional as the two I mentioned, QR and (a subclass of) scrambling, but for this chapter, I will focus on these two because they appear to be closely matched in their properties and thus are open to a unified account. In general I will adopt Fox's (1995, 2000) approach to optional movement, showing its advantages, but at the same time fleshing out the issues in this approach in order to sharpen the assumptions and expand the range of empirical phenomena that it can account for. In so doing, I will be particularly informed by Johnson (2000b), whose work extends the work on quantifier scope in MP by Kitahara (1996), Hornstein (1995), and Pica and Snyder (1995), which we will take up briefly in section 16.3.

16.2 Some preliminary observations

Let us begin with some familiar points from the literature on QR and on scrambling. We can see the effect of QR (Chomsky 1977a, May 1977) in environments where one quantifier takes scope over another, as in (1).

(1) Someone loves everyone.

The two quantifiers have ambiguous scope relative to each other, and this is expressed by QR, which raises the object quantifier above the subject quantifier, giving the inverse scope of 'everyone > someone'.

(2) everyone$_j$ [someone loves t$_j$]

Further application of QR, this time to the subject quantifier, induces the surface scope of 'someone > everyone'.

(3) someone$_i$ everyone$_j$[t$_i$ loves t$_j$]

[1] Chomksy (1995a) suggests that for operations such as object shift in Germanic, which is optional, a feature that triggers this operation is inserted just when the operation is to take place. On this view, the presence of a feature does not equate with last-resort movement, although at some deeper level one might be able to make such an argument.

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May (1977) proposes the following to account for these scope facts.

(4) Scope Principle (May 1977)

QP A takes scope over QP B iff QP A asymmetrically c-commands QP B.

A particularly strong support for characterizing QR as movement comes from Antecedent-Contained Deletion (ACD) (May 1985, 1991, Sag 1976, Williams 1977, Fox 2002; see Hornstein 1994 for an alternative to the QR analysis of ACD).

(5) John read every book that Tom did [$_{VP}$ *e*].

Under normal circumstance, the elided VP should correspond to the antecedent VP in the matrix clause, but that would lead to infinite regress due to the fact that the antecedent contains the elided VP.

(6) John [$_{VP}$ read every book that Tom did [$_{VP}$ read every book that Tom did [$_{VP}$ read every book that Tom did [$_{VP}$ read every book that Tom did ...

(6) clearly fails to represent the actual interpretation associated with (5)—in fact it misrepresents (5) as uninterpretable. May argues that the correct interpretation becomes available if QR first moves the object universal and everything that accompanies it.

(7) [every book that Tom did [$_{VP}$ *e*]]$_i$ [John [$_{VP}$ read e_i]]]

Now the matrix VP is [$_{VP}$ read *e*], and by replacing the original VP ellipsis site with it, we are able to associate the appropriate interpretation to the string.

(8) [every book that Tom did [$_{VP}$ read *e*]] [John [$_{VP}$ read *e*]]]

Finally, May (1977) notes that the application of QR is limited to the local domain in which the quantifier occurs.

(9) Someone thinks that every student failed the test.

The inverse scope interpretation (everyone > someone) is difficult, if not impossible, to obtain, showing that QR cannot move a quantifier beyond the clause in which it occurs. One exception to this is the following in which a quantifier successfully moves out of an infinitival clause (Johnson 2000b).

(10) Someone wants to order every item in the catalogue.

This sentence readily admits the inverse scope interpretation, 'every item > someone'. I will return to these examples below.

Scrambling in Japanese shows essentially the same properties as what we saw for QR, and the fact that scrambling is overt movement gives further credence to viewing QR as movement.[2] While a subject–object quantifier combination does

[2] A number of linguists have noticed this correlation between QR and scrambling (e.g. Abe 2005, Beck 1996, Diesing 1992, Johnson 2000b, Kitahara 1996, Miyagawa 2006a, Sohn 1995, and Tonoike 1997). The one exception to this correlation is ACD, which is not easily replicated in Japanese (but see Takahashi 1996).

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not easily allow inverse scope of 'object > subject' (11a), this scope relation becomes possible if the object is scrambled above the subject (11b) (Kuroda 1971; see also Hoji 1985).

(11) a. Dareka-ga daremo-o aisiteiru.
someone-NOM everyone-ACC loves
'Someone loves everyone.'
someone > everyone, *everyone > someone

b. Daremo-o_i dareka-ga t_i aisiteiru.
everyone-ACC someone-NOM loves
'Someone loves everyone.'
someone > everyone, everyone > someone

The scrambled string in (11b), in which the object can scope over the subject, is identical in form to the string that results from covertly moving the object by QR in English for the purpose of inducing inverse scope (*everyone*$_i$ [*someone loves* t_i]). I will return later to why the other interpretation of 'someone > everyone' is also available in (11b).

The locality observed for QR also finds its counterpart in scrambling. As noted by Tada (1993; see also Oka 1989), while local scrambling induces a new scope relation as we saw above, long-distance scrambling fails to do so.

(12) Daremo-o_i dareka-ga [Taroo-ga t_i aisiteiru to] omotteiru.
everyone-ACC_i someone-NOM Taro-NOM love C think
'Someone thinks that Taro loves everyone'. Lit.: 'Everyone, Taro thinks everyone loves.'
someone > everyone, *everyone > someone

In this example, the subordinate object quantifier has scrambled long-distance to the matrix clause. While the surface form itself is grammatical (a point we will come back to later), the expected new quantifier relation does not obtain. Instead, the only interpretation available is one that results from reconstruction of the scrambled phrase to the lower clause (Tada 1993; see also Saito 2004).[3] Although this failure of long-distance scrambling to induce a new scope relation may appear to be different from the locality of QR, I will argue that the two can in fact be viewed as exactly the same phenomenon. Finally, just as we saw that QR can move a quantifier out of an infinitival clause, scrambling a quantifier out of such an environment also leads to a new scope relation.[4]

[3] There are speakers who allow the new scope relation even with long-distance scrambling, a point I will return to later in the chapter.

[4] The element *yoo ni* in the following infinitival examples appears to be a C given that it occurs after the infinitival verb. That would make the lower clause a CP, which potentially would make it a phase, hence a potential barrier to A-movement. However, there is a reason to believe that this is not the right analysis. As shown by Nemoto (1993), it is possible for an element from within the infinitival *yoo ni* clause to undergo A-movement scrambling to the matrix clause, which clearly indicates that this environment is not a (strong) phase. See also Uchibori (2000) for relevant discussion.

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(13) a. Dareka-ga [Hanako-ni dono-hon-mo yomu yoo ni] itta.
someone-NOM Hanako-DAT every-book read told
'Someone told Hanako to read every book.'
Someone > every book, *every book > someone

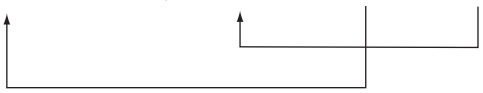
b. Dono-hon-mo$_i$ dareka-ga [Hanako-ni t_i yomu yoo ni] itta.
every-book someone-NOM Hanako-DAT read told
'Someone told Hanako to read every book.'
someone > every book, every book > someone

To summarize, both QR and scrambling can create a new scope by moving a quantifier above another quantifier. But in neither case is a new scope relation allowed to obtain across a tensed domain, although an infinitival domain does not impose such a barrier to QR or scrambling. These observations lead us to suspect that QR and scrambling are one and the same operation, the only difference being that QR is covert while scrambling is overt, both being an optional movement in the relevant sense. Johnson (2000b) essentially comes to this conclusion, and we will pursue a similar line using a different view of scrambling. I will begin with a discussion of Kitahara (1996), Hornstein (1995), and Pica and Snyder (1995), who independently proposed an analysis of QR that does not depend on optional movement, and an extension of their approach by Johnson (2000b), who introduces the idea that QR is a form of covert scrambling.

16.3 To QR or not

Kitahara (1996), Hornstein (1995), and Pica and Snyder (1995) propose to do away with QR by noting that the scope facts (and also ACD in the case of Hornstein 1994) fall out from independent properties of the syntactic structure. They focus in on the proposal in Chomsky (1991, 1993) that DPs (subject, object) must move to the specifier of agreement heads, AgrS and AgrO, for reasons of Case and agreement (I have updated the structure to include vP).

(14) $[_{AgrSP}$ someone$_i$ $[_{TP}$ $[_{AgrOP}$ everyone$_i$ $[_{vP}$ t_i $[_{VP}$ loves t_j]]]]]



Hornstein (1995) argues that the inverse scope (everyone > someone) is induced by by reconstruction of the subject quantifier *someone* to the original position underneath *everyone*. Kitahara takes a slightly different tact, although by and large empirically equivalent, by extending Aoun and Li's (1989) Scope Principle, which

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itself is an extension of May's (1977) original principle of the same name. This approach is similar in spirit to Pica and Snyder (1995).

(15) Scope Principle (Aoun and Li 1989, as revised by Kitahara 1996)
A quantifier X may take scope over a quantifier Y iff X c-commands a member of each chain associated with Y at LF.

For these linguists, the scope relations are a function of the basic structure of the sentence after movement meets case and agreement requirements. The idea is that the subject leaves a copy under the object, and this copy is visible to the interpretive mechanism so that the object can scope over the (copy of the) subject and induce inverse scope. In this way we can dispense with QR.

Johnson (2000b) provides further evidence that it is the lower copy of the subject that contributes to the inverse scope interpretation, but at the same time he argues against the overall 'case' approach. To set the stage, note that in the following example from his work, it is possible for the object quantifier to scope over the existential subject quantifier.

(16) Some student or other has answered many of the questions on the exam.

Johnson notes that an existential quantifier of the type found in (16) cannot occur under negation, so that in the example below, *some student* must be interpreted outside of the scope of negation.

(17) I have not met some student. (some student > not)

If, as Kitahara, Hornstein, and Pica and Snyder argue, it is the lower copy of the subject chain that participates in inverse scope in some relevant sense, we predict that if negation prevents reconstruction of a subject existential, inverse scope should be blocked. This is what we see below.

(18) Some student or other hasn't answered many of the questions on the exam.

As Johnson notes, the lack of inverse scope here results from the fact that the existential subject quantifier must be interpreted above the negation, hence its lower copy is not visible for the purse of scope. The correlation between the lack of inverse scope and the impossibility of reconstructing the subject provides independent evidence that the lower copy of the subject chain is what is active in inverse scope. Of course, we want to know why the lower copy must be active in inverse scope; it is something that we will answer directly below.

While the point above supports the Kitahara/Hornstein/Pica and Snyder approach to scope, Johnson (2000b) notes a problem with their analysis as well (he specifically takes issue with Hornstein's approach, but the argument also is relevant to the others' analyses). He shows that an adjunct can take scope over the subject.

(19) A different student stood near every visitor.

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Hornstein (1995) and Pica and Snyder (1995) are also aware that phrases that do not require accusative case may scope over the subject, but they argue that these are phrases that are merged above the *v*P that contains the original position of the external argument. On this analysis, *near every visitor* is adjoined to the *v*P above the *v*P-internal external argument position. However, Johnson (2000b) provides data to show that even adjuncts that are construed lower than the external argument position can scope over the subject (see also Fox 2000, Kennedy 1997 for other arguments against the Case approach).

Johnson (2000b) proposes that inverse scope requires two operations: reconstruction of the subject quantifier to its original *v*P-internal position, as we saw above, and the movement of the object/adjunct to a position above the external argument position.[5] He calls the latter 'scrambling' of the sort found in languages such as Dutch and German. Scrambling in these languages typically moves an object or an adjunct to *v*P, which puts it above the subject copy in Spec,*v*P. Recall also that QR can move a phrase out of an infinitival clause to the next higher clause but not from a tensed clause.[6] We can see the same in scrambling in the following Dutch examples from Johnson (2000b); the first example shows extraction out of an infinitival clause, and the second out of a tensed clause.

(20) a. . . . dat Jan *Marie*$_1$ heeft geprobeerd [t_1 te kussen].
. . . that John Mary has tried to kiss
'. . . that John has tried to kiss Mary.'

b. *. . . dat Jan *boken*$_1$ heeft besloten [dat er t_1 gelezen heeft]
. . . that John books has decided that he read has
'. . . that John has decided that he has read books.'

In the next section, I will expand on this view of scope as involving scrambling.

16.4 QR as scrambling

Let us begin with two questions about Johnson's 'scrambling' approach to inverse scope. First, what triggers this scrambling, and why does it move a phrase typically

[5] Johnson and Tomioka (1997) also assume a paired operation for inverse scope, subject reconstruction as we saw above, and the VP-internal item such as the object undergoing QR to *v*P. The latter is required to remedy type mismatch (Heim and Kratzer 1998).

[6] Hornstein (1995) deals with such cases by suggesting that the verb + infinitival undergoes restructuring, a process familiar from Romance. Kennedy (1997) points out, however, that the verb + infinitival combinations that allow wide scope go beyond the restructuring verb + infinitival combinations found in Romance.

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to *v*P? Second, in the existential-negation example in (18), in which we saw that inverse scope is blocked because the existential subject is blocked from reconstructing by negation, what prevents the object quantifier from scrambling to the top of the sentence above the subject quantifier as in below?

(21) $[_{TP}$ *many of the questions*...$_j$ $[_{TP}$ *some student*...$_i$ NEG$[_{vP}$ t_j $[_{vP}$ t_i $[_{VP}$ V t_j ...]]]]]

If the second movement were possible, we ought to be able to detect the inverse scope interpretation despite the unavailability of the lower copy of the subject. One answer is that this 'scrambling' is of the Dutch/German type—which Johnson assumes—that disallows this kind of movement; but once we expand our analysis to include scrambling in languages such as Japanese, which easily allows scrambling beyond the *v*P, this question becomes relevant. I will address these questions below by laying out the basic assumptions of optional movement.

16.4.1 Scope Economy and Edge Feature

Let us begin with the question: is the application of QR to the object quantifier, or some adjunct quantifier, always possible even in contexts such as the following?

(22) Mary admires every teacher.

Here, there is only one quantifier, so that even if the object quantifier moves by QR to a position that can take scope over the subject, we would not be able to detect the movement. So, does the object quantifier move at all in this situation? Fox (2000) provides an answer to this question, namely, that the object quantifier does not undergo movement by QR in these kinds of situations. The principle he proposes is the following.[7]

(23) Scope Economy (Fox 2000: 3)

Scope-shifting operations (SSOs) cannot be semantically vacuous.

Scope Economy predicts that the movement of the object quantifier would not take place for the purpose of taking scope in (22) above (*Mary admires every teacher*) because this movement would be semantically vacuous owning to the fact that it moves across an R-expression, *Mary*.

A particularly compelling argument for Scope Economy is found in ellipsis constructions. Sag (1976) and Williams (1977) point out that in an example such as the following, inverse scope is impossible.

[7] Reinhart (1995/2006) and Tada (1993) have noted similar ideas, although not as extensively developed as Fox (2000). Fox originally introduced the idea independently in Fox (1995).

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(24) A boy admires every teacher. Mary does, too.
a boy > every teacher, *every teacher > a boy

One possibility for the lack of inverse scope is that such an interpretation is not allowed in ellipsis constructions, but that turns out not to be the case (Hirschbühler 1982).

(25) One guard is standing in front of every building, and one policeman, too.
one guard > every building, every building, one guard; one policeman > every building, every building > one policeman

Based on the well-known fact that the ellipsis site and its antecedent must be parallel in form (e.g. Lasnik 1972, Chomsky and Lasnik 1993, Tancredi 1992), Fox argues that the lack of inverse scope in (24) (*A boy admires every teacher. Mary does, too*) is due to the fact that in the elided site, the object quantifier *every teacher* does not undergo QR because the subject is an R-expression, and in adherence to the parallelism requirement, the object quantifier in the first clause is prevented from undergoing QR. In contrast, we obtain inverse scope in (25) because the subject in both conjuncts is a quantifier.

Scope Economy is consistent with the 'last resort' tenet of MP insofar as, if optional movement does not take place, such as QR/scrambling for scope-taking, a new meaning (inverse scope) would not be possible. Optional movement is therefore a 'last resort' effort on the part of the grammar to induce the otherwise unavailable meaning. While it is consistent with last resort, it is important to note that this expanded notion of last resort potentially conflicts with MP's core notion that movement operations only occur if they need to. This is because the idea of optional movement regulated by Scope Economy leaves open the possibility of an item moving improperly, that is, moving without inducing new meaning. Improper movement by nature constitutes overgeneration, something that we would like to avoid in MP. Fox suggests a form of look-ahead to prevent improper optional movement (Fox 2000: 5), but I will suggest another approach that comes from the work on scrambling in Japanese, particularly Saito (1989) and its extension in Tada (1993).

Can optional movement move a phrase anywhere in the structure so long as Scope Economy sanctions it? Recall that in Johnson (2000b), QR as scrambling moves a quantifier to vP, presumably adjoining to vP above the original position of the external argument. This is also the position to which scrambling typically moves an item in languages such as Dutch and German. What triggers this movement? Maybe there is nothing to cause the movement, but there is a theory of movement that makes the right prediction that optional movement like QR/scrambling would end up at vP (among other positions). Chomsky (2008a: 144) suggests that 'only phase heads trigger operations' because phase heads come with what he calls an 'Edge Feature' that attracts items to the edge of a phase. Presumably an obligatory movement such as *wh*-movement results from a combination of the Edge Feature

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on C and a question feature on this C that enters into an agreement relation with the moved *wh*-phrase. Let us suppose that optional movement occurs when there is an Edge Feature but nothing else to link the phase head with an item within the phase. We thus have the following (Miyagawa 2006b: 33).

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

This answers one of the questions we posed at the beginning of this section about Johnson's analysis: why does QR/scrambling move an item to *v*P? The answer is that *v*P is a phase, and *v* carries an EF. It also accounts for why QR and scope-altering scrambling are possible out of an infinitival clause; such a clause is not a (strong) phase. This still leaves open the other question of why QR/scrambling doesn't move an item to a higher position in Johnson's example involving a subject existential and negation. We will return to this question below.

Scope Economy in combination with the Edge Feature approach to optional movement makes it possible to provide a precise analysis of probably the most compelling argument for Scope Economy. Recall that May (1977) noticed that QR is clause-bound.

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

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

(28) 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

In (28a) the universal quantifier in the lower clause cannot take wide scope over the matrix indefinite, which is what we expect if QR is locally bounded. But in (28b), a subordinate universal quantifier unexpectedly takes such wide scope over the matrix subject indefinite. Fox notes that in (28a), the movement of *every boy* to the lower Spec of CP (or adjoining to this CP) does not lead to a new scope relation. Hence Scope Economy does not sanction this movement. In (28b), moving the universal *every boy* over *what* does lead to a new scope relation—it makes a pair-list interpretation possible under a quantifying-in approach to this interpretation (*every* > *what*) (e.g. Karttunen 1977; see Krifka 2001 for a review of this literature including problems with the quantifying-in analysis). This, then, sets

up the movement of the universal quantifier to the matrix clause, where ultimately it may take scope over the existential quantifier in the matrix subject position. On the EF approach, in (28b) the subordinate universal quantifier moves to C, probably adjoining to CP, due to the Edge Feature on this C (the EF need not be erased after the *wh*-movement, but can stay active (Chomsky 2008a); it needs to be erased before transfer to semantic interpretation). Scope Economy sanctions this movement, and the universal quantifier is free to move to the higher clause to take scope over the matrix indefinite.

If QR and scrambling are one and the same movement, we ought to be able to find a similar phenomenon with overt scrambling, and we in fact do. Recall that long-distance scrambling does not induce a new scope relation (Tada 1993; see also Oka 1989).

(29) Daremo-o$_i$ dareka-ga [Taroo-ga t_i aisiteiru to] omotteiru.
everyone-ACC$_i$ someone-NOM Taro-NOM love C think
'Someone thinks that Taro loves everyone.' Lit.: 'Everyone, Taro thinks everyone loves.'
someone > everyone, *everyone > someone

Note that in this example, the long-distance scrambled subordinate universal first moves to the edge of the lower CP, but this does not lead to a new scope relation because it crosses an R-expression. Scope Economy predicts this precisely in the same way that QR was blocked from occurring in the English example in (28a) above, where the local movement does not lead to a new scope relation. Now, if we replace this R-expression with a scope-bearing item, we predict that it is possible to induce a new scope relation, just as we saw for (28b) above in English; note the following (Abe 2005, Miyagawa 2005b, 2006a).

(30) Daremo-o$_i$ dareka-ga [itsuka dareka-ga t_i kisu-sita
everyone-ACC$_i$ someone-NOM sometime someone-NOM kissed
to] omotteiru.
C think.
'Someone thinks that at some point someone kissed everyone.' Lit.: 'Everyone, someone thinks that at sometime someone kissed.'
someone > everyone, everyone > someone

In this example the subordinate object universal first moves to the lower *v*P, where it takes scope over *dareka* 'someone' in Spec, *v*P, then to CP, where it again creates a new scope relation relative to *ituka* 'sometime'. This makes it possible for it to move to the matrix clause to take scope over the matrix subject indefinite, exactly in parallel to the English example in (28b) above. There are other points to discuss about (30) and I will return to the example below.

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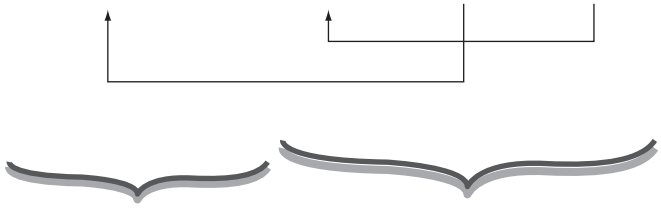
16.4.2 Johnson's example again

Let us look again at the example from Johnson (2000b) that demonstrates that it is the lower copy of the subject chain that participates in inverse scope.

(31) Some student or other hasn't answered many of the questions on the exam.

The negation blocks reconstruction of the subject indefinite, which makes the inverse scope interpretation impossible. This example has two important implications for Scope Economy. First, what we see from this example is that Scope Economy must apply at the next phase, that is, in the phase subsequent to the phase that contains the optional movement. This is because in (31), we can tell that the lower copy of the subject in Spec,*v*P is unavailable only after the subject moves to Spec,TP across negation—hence, in the phase subsequent to that of the *v*P.

(32) $[_{CP}\ [_{TP}SUB_{INDi}\ NEG\ [_{vP}\ OBJ_{UNIVj}\ [_{vP}\ SUB_{INDi}\ [_{VP}\ V\ t_{OBJ}\ ]]]]]$



CP phase *v*P phase

At the higher, CP phase, it becomes clear that the subject indefinite must be interpreted in Spec,TP, not Spec,*v*P. Under Scope Economy, this would invalidate the movement of the universal object to the higher Spec,*v*P in the *v*P phase since it would not lead to a new scope relation.[8] From this, we can deduce that Scope Economy applies as follows.

(33) Application Domain of Scope Economy
Scope Economy evaluates optional movement in one phase at the next higher phase. In the root phase the evaluation takes place simultaneous with the movement.

The movement of the universal object to the edge of *v*P across the indefinite subject in Spec,*v*P, is evaluated after the structure reaches the next phase, CP. By this time, the indefinite subject has moved to Spec, TP, across negation, and its

[8] While Johnson (2000b) focuses on the unavailability of the lower copy in those constructions that does not allow inverse scope, cases like the following (Hornstein 1995) indicates that it is more accurate simply to say that if the subject must be interpreted in its higher copy position, inverse scope is not possible.

(i) A boy danced with every girl before he left the party.

A boy here must be interpreted in Spec,TP in order to bind the pronoun in the adjunct clause, in turn depriving this sentence of inverse scope.

copy in Spec, *v*P is no longer visible. Scope Economy applying at the CP phase would correctly deem the movement of the object quantifier inside the *v*P to be illegitimate.

Now we come to the second question posed at the beginning of this section: in Johnson's analysis, what prevents the universal object from moving to the higher phase, CP, to take scope over the indefinite subject in Spec,TP?

AQ: (33) repeated twice. Please check.

(33) $[_{CP}\ OBJ_{UNIV_j}\ [_{TP}\ SUB_{IND_i}\ NEG\ [_{vP}\ OBJ_{UNIV_j}\ [_{vP}\ SUB_{IND_i}\ [_{VP}\ V\ t_{OBJ}]]]]]$

While scrambling in Dutch/German typically does not move an item to such a higher position beyond the *v*P, scrambling in languages such as Japanese does. Particularly since we have drawn parallels between QR and Japanese scrambling, we should consider this movement to the higher position to be possible in principle. One possible account of why it is not available in this particular case is that the second movement of the object would be deemed illicit after Scope Economy deems its first movement illegitimate. However, a cleaner analysis would somehow prevent the second movement from taking place as a legitimate operation to begin with. As it turns out, the illegitimate nature of the second movement is something that Scope Economy predicts. The crucial point is that, although the second movement of the object crosses the indefinite subject, this fails to lead to a new scope relation because the scope relation of $[OBJ_{UNIV} > SUB_{IND}]$ has already been established at the lower phase in which the object universal moves to *v*P above the subject indefinite in Spec,*v*P. The second movement of the object would constitute a semantically vacuous movement in violation of Scope Economy. So, to answer the question we posed, it is in principle possible for QR/scrambling to move an item to CP from *v*P, but it must be sanctioned by Scope Economy.[9]

The reasoning given above in fact provides an explanation for why it is that the lower copy of the subject chain must be active for inverse scope to be possible (Hornstein 1995, Kitahara 1996, Pica and Snyder 1995). The higher copy of the subject chain, in Spec,TP, cannot participate in inverse scope with the object quantifier (or some VP adjunct) because it would replicate the same scope relation already established by the two quantifiers at the *v*P phase.

This analysis also provides a straightforward account of the well-known pair below (May 1985).

[9] One question about this analysis is how we deal with negation. In (32), while the movement of the object quantifier across the subject quantifier in Spec,TP violates Scope Economy as noted, this movement creates a new scope relation relative to negation, which arguably is in the higher phase. Certainly it is difficult, if not impossible, to get a reading in which the object quantifier scopes over negation (it does not scope over the subject either, of course): *Some student or other hasn't answered many of the questions on the exam.* It appears that there is a locality imposed on Scope Economy, in that if a quantifier A is moved across two scope-bearing items, Scope Economy is evaluated against the closest (higher) scope-bearing item. So, in (32), it is only the subject quantifier that comes into calculation of Scope Economy, so that negation cannot help to validate this movement.

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(34) a. What$_i$ did every student read t$_i$?
b. Which student$_i$ t$_i$ read every book?

(34a) allows a pair list (PL) interpretation while (33b) does not. Chierchia (1992) argues that in order for a PL interpretation to be possible, the universal quantifier must c-command the trace of the *wh*-phrase (see also Kitahara 1996).[10] This is true of (34a) but not of (34b). The Scope Economy approach to optional movement provides an explanation without having to make any additional assumptions such as that of Chierchia's that must invoke weak crossover. First, look at the *v*P phase of these two sentences.

(35) a. [$_{v\text{P}}$ what$_j$ [$_{v\text{P}}$ every student [$_{\text{VP}}$ V t$_j$]]]
b. [$_{v\text{P}}$ every book$_j$ [$_{v\text{P}}$ which student [$_{\text{VP}}$ V t$_j$]]]

In both, the object phrase has moved to *v*P above the external argument, but the new scope that is induced is different. In (35a) the *wh*-phrase has undergone movement, and although this movement has nothing to do with scope-taking, but instead the *wh*-phrase must move so that it can ultimately end up in Spec,CP, it would be reasonable to view this as having established a *wh* > *every* scope relation (though not critical for our analysis). On the other hand, the movement of the object universal in (35b) establishes the scope relation, *every* > *wh*. At the CP phase, Scope Economy would evaluate the following two structures differently.

(36) a. [$_{\text{CP}}$ every student$_i$ [$_{\text{CP}}$ what$_j$ [$_{\text{TP}}$ t$_i$ … [$_{v\text{P}}$t$_j$ [t$_i$ …]]]]]
b. [$_{\text{CP}}$ every book$_j$ [$_{\text{CP}}$ which student$_i$ [$_{\text{TP}}$ t$_i$ … [$_{v\text{P}}$t$_j$ [t$_i$ …]]]]]

In (36a), the movement of *every student* to CP is sanctioned because it induces the scope relation, *every student* > *what*, which is different—hence semantically not vacuous—from the earlier scope of *what* > *every student*. In contrast, the movement of the object universal in (36b) fails to lead to a new scope relation because the scope relation it creates, *every book* > *which student*, is identical to the one established already at the *v*P phase level. Thus, this movement of the object universal to CP cannot be sanctioned. Given that the *wh*-phrase c-commands the universal quantifier, a PL interpretation is correctly ruled out. This analysis upholds the 'quantifying-in' analysis of PL interpretation, which requires the universal to quantify into the wh-question.[11]

[10] The idea is that the trace of the *wh*-phrase contains a pronoun-like element co-indexed with the universal quantifier that makes the PL interpretation possible, but this pronoun must be c-commanded by the universal quantifier in order to avoid a weak crossover violation.

[11] This analysis leaves a question about the following pair (Longobardi 1987; see also Cresti 1995).

(i) What$_i$ do you wonder whether every boy bought t$_i$? (*PL)
(ii) What$_i$ do you think everyboy ought t$_i$? (PL)

As shown in (i), PL is not possible if a *wh*-phrase is extracted out of a wh-island that contains the universal. As shown in (ii), PL is possible if the *wh*-extraction is not out of an island. There are a number of possibilities, all with some problems, but I will not pursue this issue here.

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As the final note on the topic of PL interpretation, note the following from May (1985, 1988).

(37) a. Which boy loves every girl? (no PL)
b. Which boy loves each girl? (PL)

(37a) is what we expect from the discussion above, but (37b) is unexpected. This example contains *each*, which is inherently focused (Culicover and Rochemont 1993). May (1985, 1988) argues that this inherent focus property causes the *each* phrase to move and adjoin to CP. This movement of the *each* phrase to CP is not an optional operation, but rather, it is an obligatory movement for the purpose of focus marking, which is not subject to the restrictions imposed by Scope Economy. The fact that this obligatory movement leads to the universal taking scope over the *wh*-phrase to allow the PL interpretation shows that Scope Economy applies only to optional movement. If Scope Economy were to apply even to obligatory movements, we would not expect the PL interpretation to emerge.

Let us return to the Japanese example that demonstrates that long-distance scrambling can induce a new scope relation if each movement is sanctioned.

(38) Daremo-o$_i$ dareka-ga [itsuka dareka-ga t_i kisu-sita
everyone-ACC$_i$ someone-NOM sometime someone-NOM kissed
to] omotteiru.
C think.
'Someone thinks that at some point someone kissed everyone.' Lit.: 'Everyone, someone thinks that at someone someone kissed.'
someone > everyone, everyone > someone

In this example, there are two quantified expressions in the lower CP, 'sometime' and 'someone'. This is important for Scope Economy to validate each movement. In the lower *v*P phase, the subordinate object universal 'everyone' scrambles across the subject indefinite in Spec,*v*P.

(39) [$_{vP}$ everyone$_j$ [$_{vP}$ someone [$_{VP}$ t_j ...]]]

At the subordinate CP phase level, this object universal would move across another quantifier, 'sometime', which creates a new scope relation, and 'everyone' is then free to move to the matrix clause to take scope over the matrix subject 'someone'. I will return to some issues that arise with this final movement later, but for now, note that if 'sometime' is removed, it is harder to interpret the long-distance scrambled object in the matrix position.

(40) Daremo-o$_i$ dareka-ga [dareka-ga t_i kisu-sita to]
everyone-ACC$_i$ someone-NOM someone-NOM kissed C
omotteiru.
think.

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'Someone thinks that someone kissed everyone.' Lit.: 'Everyone, someone thinks that at someone someone kissed.'
someone > everyone, ??everyone > someone

This is predicted because the movement in lower CP of the subordinate universal is not sanctioned by Scope Economy. Why is the 'everyone > someone' interpretation not completely out? As we will see below, long-distance scrambling may be sanctioned independently by focus (e.g. Miyagawa 1997, 2006a), so that the interpretation of the long-distance scrambled object at the matrix clause may be validated by focus, and scope can piggy-back on this just as we saw with the focus *each* in English above. For some reason, focusing does not lead to a clearly new scope relation, as we can see by '??' for the intended interpretation.[12]

As the final note in this subsection, we saw that the Edge Feature on a phase head triggers optional movement that results in QR and (a subclass of) scrambling. This is the reason why the two behave identically in the contexts we have observed. Although they behave identically as shown so far, there is one obvious difference—QR is covert while scrambling is overt. We will take up the consequence of this difference later, but for now, let us make clear our assumption about the nature of covert movement. Given that it is triggered by EF, and EF is a feature that occurs in narrow syntax, a reasonable assumption is that QR as covert movement and scrambling as overt movement both take place in an identical fashion, both triggered by the EF on a phase head. The difference arises with the decision to pronounce which of the copies that occur in the chain: in the case of scrambling, it is the higher copy that is pronounced while in QR it is the lower copy (see e.g. Bobaljik 1995a, Fox and Nissenbaum 1999, Groat and O'Neil 1996, and Pesetsky 1998 for this idea of overt/covert resulting from pronunciation). One consequence of this is that optional movement, either overt or covert, occurs in narrow syntax, not PF, so that there ought not to be any 'semantically vacuous' optional movement at PF, a point I will elaborate on later.

16.4.3 Does optional movement lead to Overgeneration?

I began this chapter by noting the transition from GB, in which there is massive overgeneration, to MP, which, because of Last Resort, in principle is able to avoid overgeneration. However, by introducing optional movement into the grammar, we potentially set the stage for overgeneration to occur even in MP. An optional movement that violates Scope Economy would be tagged as an unacceptable derivation, and if we say that such derivation 'crashes', that takes us straight into the realm of

[12] In Miyagawa (2005b, 2006a), I gave examples such as (39) as evidence for the relevance of Scope Economy to long-distance scrambling of quantifiers. As I noted, while many speakers found this construal possible, others did not. The addition of the second quantifier, 'someone', as in (37), makes the interpretation more easily available.

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overgeneration. One way to avoid this overgeneration is Fox's (2000) look-ahead, which prevents movements that violate Scope Economy from taking place to begin with by introducing a look-ahead mechanism. However, there is another approach available, from the literature on scrambling in Japanese, that avoids the difficulties associated with a look-ahead approach. This is the idea of radical reconstruction.

Saito (1989) argues that scrambling is semantically vacuous, and at LF, it is obligatorily put back into its original position, a process known as 'undoing' or 'radical reconstruction'.[13] I will use the latter term. To see this, let us again look at cases of long-distance scrambling that fail to induce a new scope relation, which Saito (2004) points to as a demonstration of radical reconstruction.

(41) Daremo-o$_i$ dareka-ga [Taroo-ga t_i aisiteiru to]
everyone-ACC$_i$ someone-NOM Taro-NOM love C
omotteiru.
think
'Someone thinks that Taro loves everyone.' Lit.: 'Everyone, Taro thinks everyone loves.'
someone > everyone, *everyone > someone

Tada (1993), who assumes the idea of radical reconstruction, gives an explanation that is similar to Fox's Scope Economy. He argues that the matrix landing site of the long-distance scrambling is not an operator position (he assumes that it is adjoined to the matrix TP following Saito 1985) so that the quantifier 'everyone' is unable to take scope in this position—in other words, it has no semantic role to play in this position. Consequently, it must be put back by radical reconstruction to its original position where scope is possible. One way to interpret Tada's analysis is that, by providing a repair to the illicit structure in the form of radical reconstruction, this string avoids crashing, thereby prevent overgeneration.

Radical reconstruction, as employed above, can avoid overgeneration in the case of QR as well. We assume that QR, a covert form of scrambling, is possible to the local phase head, its movement triggered by the Edge Feature on the phase head. If this movement meets Scope Economy, the movement is sanctioned (Fox 2000), but if not, it cannot be interpreted in that position (Tada 1993) and it must radically reconstruct to prevent overgeneration (based on a revision of Saito's original 1989 analysis).

One consequence of this way of viewing radical reconstruction is that no optional movement should occur in the PF component. In the literature, movement that has no semantic import is sometimes viewed as taking place in the PF component

[13] Saito's (1989) analysis all involve long-distance scrambling, which is solely A'-movement, as opposed to local scrambling, which may be either A- or A'- movement (Mahajan 1990, Saito 1992). The latter has been shown to be amenable to an analysis as obligatory, not optional, movement triggered by the EPP feature on T (see below for a brief discussion of this). See e.g. Kitahara (2002) and Miyagawa (2001, 2003, 2005a). See Miyagawa (2005b, 2006a) for a critical review of Saito's (1989) radical reconstruction.

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(see e.g. Sauerland and Elbourne 2002 for relevant discussion). At least for those cases of semantically vacuous movement that we have considered, this cannot be true because the movements are evaluated by Scope Economy, which is strictly a principle of the interface in narrow syntax.

16.5 Optional and obligatory scrambling

As noted earlier, scrambling leads to a new scope relation.

(42) a. Dareka-ga daremo-o aisteiru.
someone-NOM everyone-ACC loves
'Someone loves everyone.'
someone > everyone, *everyone > someone
b. Daremo-o_i dareka-ga t_i aisteiru.
everyone-ACC someone-NOM loves
'Someone loves everyone.'
someone > everyone, everyone > someone

Let us look closely at (42b) and see how the new scope relation becomes possible. Under the standard view of Japanese syntax (e.g. Saito 1985), the subject 'someone' resides in Spec,TP, and the scrambled object 'everyone' is adjoined to this TP. Note, however, that this structure violates Scope Economy. In the *v*P phase, the object universal moves to adjoin to *v*P, taking scope over the subject indefinite.

(43) $[_{vP}\ \text{OBJ}_{\text{UNIV}j}\ [_{vP}\ \text{SUB}_{\text{IND}}[_{\text{VP}}\ t_j\ \text{V}\ ]]]$

On the standard view, the subject then would move to Spec,TP in the next phase (e.g. Kishimoto 2001), and the object then moves above it. But notice that the movement of the object universal replicates the scope relation already established at the *v*P phase, hence Scope Economy would not sanction this movement for establishing a new scope. We would therefore expect it to undergo radical reconstruction; but quite to the contrary, the new scope relation is clearly available.

There is an alternative analysis that does not assume that the subject must always end up at Spec,TP. Using an idea originally proposed by Kuroda (1988), I (2001, 2003) proposed that the two word orders, SOV and OSV, are equivalent in the following way.

(44) a. $[_{\text{TP}}\ \text{S}_i\ [_{vP}t_i\ [_{\text{VP}}\ \text{O V}]]]$
b. $[_{\text{TP}}\ \text{O}_i\ [_{vP}\ t_i\ [_{vP}\ \text{S}\ [_{\text{VP}}\ t_i\ \text{V}]]]]$

The core idea is that Spec,TP must be filled due to the EPP feature on T, and this requirement can be met by moving the subject as in (44a) or the object as in (44b).

In either case, 'the other phrase' remains inside the *v*P/VP. See Miyagawa (2001) for evidence that when the object raises, the subject can stay in Spec,*v*P. There are other items that can move into Spec,TP to satisfy the EPP, such as certain types of PP, but I will limit the discussion to subjects and objects. On this analysis the object-scrambled sentence in (42b) is associated with the following structure.

(45) $[_{CP}[_{TP}$ daremo-o$_j$ $[_{vP}$ t$_j$ $[_{vP}$ dareka-ga $[_{VP}$ t$_j$ aisiteiru]]]]]
everyone-ACC someone-NOM love

The scope of 'everyone > someone' is established at the *v*P phase level, and further movement of the object universal to Spec,TP is not an optional movement, but an obligatory one triggered by the EPP (see Miyagawa 2001 for evidence that the object is in Spec,TP in the OSV order).

Recall, too, that this surface form of object universal—subject indefinite not only allows the interpretation 'everyone > someone' but also the other scope of 'someone > everyone'. I will assume that the latter meaning reflects a different derivation in which the subject indefinite moves to Spec,TP to satisfy the EPP, then the object universal moves to CP by optional movement.

(46) $[_{CP}$ daremo-o$_j$ $[_{TP}$ dareka-ga$_i$ $[_{vP}$t$_j$ $[_{vP}$ t$_i$ $[_{VP}$ t$_j$ aisiteiru]]]]]]
everyone-ACC someone-NOM love

The movement of the object universal does not lead to a new scope relation because it replicates the scope relation established already at the *v*P phase level; hence the object must be radically reconstructed to its lower position, which gives rise to the 'someone > everyone' scope interpretation because 'someone' in Spec,TP is the highest quantifier in the structure.

Finally, let us look again at the case in which long-distance scrambling successfully induces a new scope relation.

(47) Daremo-o$_i$ dareka-ga [itsuka dareka-ga
everyone-ACC$_i$ someone-NOM sometime someone-NOM
t$_i$kisu-sita to] omotteiru.
kissed C think.
'Someone thinks that at some point someone kissed everyone.' Lit.: 'Everyone, someone thinks that at someone someone kissed.'
someone > everyone, everyone > someone

We saw that Scope Economy sanctions the movement of the subordinate object universal 'everyone' to the edge of the lower CP thanks to the occurrence of 'sometime'. How does this subordinate object take scope over the matrix indefinite 'someone'? Based on what we saw above, a reasonable assumption is that the subordinate object universal adjoins to the matrix *v*P to take scope over the matrix subject indefinite.

(48) $[_{CP}\ldots$ $[_{vP}$ daremo-o$_j$ $[_{vP}$ dareka-ga … $[_{CP}$ t$_j$ …]]]]
everyone-ACC someone-NOM

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From here, the universal moves to the matrix Spec,TP.

(49) [$_{CP}$ [$_{TP}$ daremo-o$_j$ [$_{vP}$ t$_j$ [$_{vP}$ dareka-ga … [$_{CP}$ t$_j$ …]]]]]

This last movement is not an optional one that needs to be validated by Scope Economy; rather, it is an obligatory movement needed to satisfy the EPP. This structure is what makes it possible for the long-distance scrambled subordinate object to take scope over the matrix subject indefinite.[14] For the other interpretation of 'someone > everyone', we can assume the same account as above—the subject moves to Spec,TP, and the object moves to C. The movement of the object is optional, but it fails to induce a new scope relation, so it must be radically reconstructed to the lower clause.

16.6 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 expressions that scrambling targets? QR only applies to quantifiers, but scrambling applies to virtually any kind of expression.

In order to answer this question, let us look again at Fox's Scope Economy. 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

[14] A problem with the derivation just given is that it forms what is standardly thought of as an improper chain—an A′-segment followed by an A-segment. I will leave this problem open. Related to this is the issue that long-distance scrambling is supposed to always be A′-movement, so that, for example, it does not create a new binder (e.g. Mahajan 1990, Saito 1992).

(i) ?*Futari-no gakusei-o$_i$ otagai-no sensei-ga
two-GEN students-ACC each other-GEN teacher-NOM
[Hanako-ga t$_i$ sikaru to] omotteiru.
Hanako-NOM scold C thinks
'Two students, each other's teachers think that Hanako will scold.'

Note that the LD-scrambled subordinate object has undergone an improper movement in the subordinate clause relative to scope. If one places a quantifier in the lower subject position, there appears to be an improvement.

(ii) ?Futari-no gakusei-o$_i$ otagai-no sensei-ga
two-GEN students-ACC each other-GEN teacher-NOM
[dareka-ga t$_i$ sikaru to] omotteiru
someone-NOM scold C thinks
'Two students, each other's teachers think that someone will scold.'

Although the judgement is not so clear, if this is correct, it gives us hope that even long-distance scrambling can have an 'A' version in the matrix clause and create a new scope/binding relation. See Uchibori (2000) for analysis that long-distance scrambling can form an A-chain.

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the output' (Fox 2000: 75). This notion has been adopted by others (e.g. Chomsky 2001, Miyagawa 2005b, 2006a). We can see that this substantially broadens the possibilities for licensing optional movement, although Fox himself is most concerned about operations that impact interpretation—what he calls 'interpretation-sensitive economy' (Fox 2000: 2). I will assume this 'interpretation-sensitive economy' as the principle that regulates optional movement, the idea being that an optional movement must lead to a new interpretation that would not be possible otherwise. I will call it Interpretation Economy for convenience.

Bearing this in mind, let us return to the question of why QR only targets quantifiers while overt scrambling can move all sorts of expressions. Interpretation Economy requires any optional movement to have an effect on interpretation. Covert movement such as QR can only have such an effect in one sense, that of altering scope relations. Consequently, the fact that QR, a covert operation, only applies to quantifiers follows straightforwardly from Interpretation Economy.

In contrast to QR, not only can overt scrambling affect 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 e.g. Bailyn 2001, 2003, Ishihara 2001, Jung 2002, Miyagawa 1997, 2005b, Otsuka 2005, Yang 2004). Ishihara (2001) illustrates this for Japanese. Let us begin with a normal SOV word order.

(50) 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 prominent 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, (50) can be used as an answer to the following three questions:

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

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

(52) 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 focus element *Taroo*. Therefore (52) cannot be used to answer 'What did Taro do?' Let us assume,

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quite plausibly, that altering the focus potential of a sentence counts as having an 'effect,' hence it can license optional movement.[15]

Now consider the following.

(53) 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 others.

(54) 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').

(55) Hon-o$_i$ Hanako-ga [CP t_i Taroo-ga t_i katta to] itta.
Book-ACC$_i$ Hanako-NOM [CP t_i Taro-NOM t_i bought C] 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 (55) cannot be used as a natural response to any of the questions in (53) (*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.

16.7 Conclusion

The 'last-resort' tenet of MP requires the grammar to avoid overgeneration, a view that naturally leads to excluding optional movements. Optional movement conflicts

[15] Ishihara (2001) makes two assumptions about (51). 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 (51), the lowest element is the subject in the Spec of *v*P. This is why the subject receives the nuclear stress, and it constitutes 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 e.g. Fukui and Takano (1998), Fukushima (2003), Sakai and Fukui (2003), and Takano (1996) for arguments that the verb does not raise in Japanese.

with this tenet in two respects. First, being optional, it, in principle, need not occur, hence, when it does, it is not 'last resort'; and optional movement can potentially lead to massive overgeneration of the type we find in GB. In this chapter I took up QR and scrambling, which appear to be quintessential optional operations. I adhered to the idea that they are optional movement, and showed that by the application of Fox's economy condition on optional interpretation, we can predict which optional operations are well-formed and which ones are not. The possible optional movements always lead to a new interpretation, which provides a kind of a 'last resort' view even of optional movement, albeit an extended and somewhat a weaker version. By fleshing out the assumptions behind the application of the economy condition, we extended the empirical coverage of this condition on optional movement beyond Fox's original dataset. I also suggested, contra Fox, that the economy condition does not prevent an illicit movement from taking place. Rather, such an illicit movement, if it occurs, is forced to undergo radical reconstruction because it cannot be interpreted in the moved position. The consequence of this is that, like in Fox's approach but without a look-ahead mechanism, we can avoid overgeneration even with optional movement.