SCOPE IN MINIMALIST SYNTAX

NORIAKI YUSA

*Miyagi Gakuin Women's College**

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0. Introduction

Since the seminal work of May (1977), the operation called quantifier raising (QR) has generally been assumed to account for quantifier scope represented at Logical Form (LF). This book (henceforth *SS*), dealing with similarities and differences between Chinese and English, is one of the most comprehensive studies of relative operator scope ever written within the Pre-Minimalist framework. The status of QR applying at LF is crucial in a theory which assumes D-Structure, S-Structure, Phonetic Form (PF) and LF as significant linguistic levels, since arguments for the existence of LF come from the difference between principles that hold at S-Structure and those which hold at LF. For example, consider the relevant examples from Chomsky (1981: 196-197):

- (1) a. Which book that *John* read did *he* like?
b. **He* liked every book that *John* read.

On the assumption that the Binding Theory applies at S-Structure and

* I am indebted to two anonymous *EL* reviewers for valuable comments that have materially improved this paper. This indebtedness should not be construed as implying agreement on their part with the claims made herein. I also wish to thank Chris Huston for suggesting some stylistic improvements. After submitting this review article, I had access to Hornstein (1995), which deals with quantification in Minimalism, but unfortunately I have not incorporated his ideas into the system here because of the lack of time, though two proposals are similar in relevant respects. This study is supported in part by a Grant-in-Aid for Scientific Research from the Japanese Ministry of Education, Grant No. 06610441.

QR adjoins quantified phrases (QPs) to IP at LF, (1a) and (1b) have the same LFs in relevant respects:

- (2) a. for which book x that John read, he liked x
 b. for every book x that John read, he liked x

At S-Structure, *he* does not c-command *John* in (1a), but it does in (1b). At LF, the pronoun does not c-command its antecedent in (2a) or (2b). Thus, the difference between (1a) and (1b) can be captured at S-Structure, but not at LF.

However, the Minimalist framework outlined by Chomsky (1991, 1993, 1994) derives all conditions on derivations and representations from “bare output conditions”, that is, from conditions imposed on the interfaces of the grammatical component with other cognitive components. In effect, a syntactic representation consists only of the external interface levels, PF and LF. With the elimination of D-Structure and S-Structure as linguistic levels, the question of whether LF exists as a level distinct from S-Structure has become meaningless, and so has the issue as to whether quantifier scope is best represented at S-Structure or at LF. LF is the only level equipped with grammatical information relevant to interpretation. In the Pre-Minimalist framework, S-Structure is presupposed and those who argue for the existence for LF bear the burden of proof.¹ However, in the Minimalist Program it is those who deny LF and argue for S-Structure that have the obligation for proving their claim.

One of the leading ideas behind the Minimalist Program is that “the basic principles of language are formulated in terms of notions drawn from the domain of (virtual) conceptual necessity” (Chomsky (1993: 5)). The analyses offered in *SS*, reviewed from this perspective, crucially rely on the notions and principles which have been abandoned or derived from more fundamental ones in the Minimalist Program. This is where I take issue, and in what follows I will try to recast some of the Pre-Minimalist analyses offered in *SS* in terms of Minimalist assumptions, proposing alternatives which better cohere with the Minimalist paradigm.

¹ Chomsky (1981: 343) writes: The most fundamental level of representation is S-Structure. Surface structure is relevant to phonology, but to syntax except insofar as it has implications concerning S-Structure. The arguments in favor of particular conclusions about S-Structure are generally far stronger than arguments bearing on D-Structure and LF, as we have seen throughout.

Chapters 1 and 2 of *SS* are devoted respectively to developing the theory of the relative scope of two QPs in Chinese and English and the interaction between QPs and *Wh*-phrases. In Chapter 3 Aoun and Li (henceforth A&L) give a unified analysis of the phenomena dealt with in the previous chapters. Chapters 4 and 5, in turn, provide an account of the interactions between operators within simplex NPs and complex NPs. Chapter 6 discusses the interaction between QPs and adjunct *Wh*-phrases. Finally, Chapter 7 touches on the syntax of scope in Japanese, which exhibits behavior different from Chinese or English.

This review article is organized as follows. Section 1 introduces the basic facts and principles that underlie A&L's analyses of scope, referring to some specific analyses offered, and section 2 deals with the elimination of NP-traces in scope determination. I will go through in some detail the analyses found in *SS*; for Chapters 1 and 2 roughly correspond to A&L (1989) and A&L (1991), respectively, but the analyses are radically modified in the following chapters. It will be helpful first of all to consolidate the arguments that motivate these modifications. With respect to the modifications, I will focus my attention on intermediate traces in section 3, and show in section 4 that A&L's approach to island effects on quantification is insufficient on theoretical and empirical grounds. Section 5 will cover *wh*-movement in the Minimalist framework, into which I will incorporate the analysis of quantifier scope in section 6. In section 7 I will discuss what place QR fits into in the Minimalist framework. Some concluding remarks will be made in section 8.

1. Basic Facts and Principles

In this section I first recapitulate some basic facts and principles that will be the starting point for later discussions, and then I focus on the specific analyses offered by A&L.² The generalization which A&L seek to capture is summarized in (3), with the relevant examples shown in (4) to (8):

- (3) a. Active sentences are ambiguous in English (4) but similar ambiguity does not arise in Chinese (5).

² All of the examples I will use from section 1 to section 3 are from *SS*.

- b. In Chinese, active sentences (5) do not exhibit ambiguity, though passive sentences (6), like English active sentences, do show such ambiguity.
 - c. There is a subject-object asymmetry in scope interaction between QPs and *Wh*-phrases (7)-(8) in English and Chinese.
- (4) a. Everyone loves a woman. (everyone = a woman)³
 b. A woman loves everyone. (a woman = everyone)
- (5) Meigeren dou xihuan yige nuren. (meigeren > yige nuren)
 every all like one woman
 'Everyone loves a woman.'
- (6) Meigeren dou bei yige nuren zhuazoule.
 (meigeren = yige nuren)
 everyone all by one woman arrested
 'Everyone was arrested by a woman.'
- (7) a. Who bought everything (for Max)? (who > everything)
 b. Shei (gei Zhangsan) maile meige dongxi?
 (shei > meige dongxi)
 who (for Zhangsan) bought every thing
 'Who bought everything (for Zhangsan)?'
- (8) a. What did everyone buy (for Max)? (what = everyone)
 b. Meigeren dou (gei Zhangsan) maile shenme?
 (shenme = meigeren)
 everyone all (for Zhangsan) bought what
 'What did everyone buy (for Zhangsan)?'

In order to account for the facts in (4)-(6), A&L propose that quantifier scope is determined by the interaction of the Minimal Binding Requirement (MBR) and the Scope Principle (SP):

- (9) MBR: Variables must be bound by the most local potential A-binder.
- (10) SP: A quantifier A may have scope over a quantifier B iff A c-commands a member of the chain containing B.
- (11) The Potential A-binder: A qualifies as a potential A-binder for B iff A c-commands B, A is in an A-position, and the

³ The following notations for scope interpretation will be used in this paper:

- (i) $A > B$ iff A has scope over B.
- (ii) $A = B$ iff A and B are ambiguous with respect to scope.

assignment of the index of A to B would not violate Principle C of the binding theory.

A&L revise the SP later in SS in order to give a unified account of the relative scope of QPs and the interaction between QPs and *Wh*-phrases, but (9) and (10) suffice for the introduction of A&L's claim concerning scope determination. The MBR prohibits the crossing quantifiers (12a) and nested quantifiers (12b), while allowing (12c):

- (12) a. *QP₁ ... QP₂ ... x₁ ... x₂ ...
 b. *QP₂ ... QP₁ ... x₁ ... x₂ ...
 c. QP₁ ... x₁ ... QP₂ ... x₂ ...

Given the MBR and the SP, VP-Internal Subject Hypothesis is essential for the success of SS. If we assume that at LF, QPs adjoin to VP and IP, then the simplified LF representation of (4a) is (13), where *t_i* indicates a subject NP trace in VP:

- (13) [IP everyone_i [IP x_i [VP a woman_j [VP t_i [VP loves x_j]]]]]

It should be noted here that NP traces are not subject to the MBR. In (13), *everyone* c-commands *a woman*, yielding the reading where the former has scope over the latter. In turn, *a woman* c-commands *t_i*, the NP trace of *everyone*, yielding the wide scope reading of *a woman*. Therefore, (4a) is ambiguous. A pressing question then is why the Chinese sentence in (5) is unambiguous. A&L interpret the difference in scope ambiguity as being due to the difference in constituent structures between Chinese and English, contra Huang (1982), who stipulates that c-command relations at S-Structure are isomorphic to ones at LF in Chinese but not in English. This stipulation is, however, unwarranted both empirically and theoretically. Given the fact that LF-operations are "invisible," it is unlikely that LF varies from language to language. According to the *Barriers* framework, on which A&L build their theory, V-to-I raising is required to deprive VP of its barrierhood. But due to a defective system of verbal inflection, Chinese lacks the subject raising and therefore a VP internal subject trace responsible for the wide scope reading of the object in (13).⁴ The Chinese active sentence in (5) has the LF representation shown in (14):

⁴ To be fair with A&L, the explanation here is from A&L (1989). They still assume in SS that there is no subject trace in VP, but do not say how a subject is generated. Judging from the representation given in SS, they seem to assume that it is base-generated in SPEC IP.

- (14) [_{IP} *meigeren*_i [_{IP} *x_i* [_{VP} *yige nuren_j* [_{VP} *xihuan x_j*]]]]

In this configuration, *meigeren* has scope over *yige nuren*. It should be clear from the contrast between (13) and (14) that the existence of a subject NP-trace in VP produces scope ambiguity. A&L's analysis and Huang's analysis make the same predictions about almost all active sentences, but the former is more attractive than the latter insofar as it reduces the differences in scope between English and Chinese to visible (inflectional) properties and makes unnecessary the dubious stipulation mentioned above.

A&L observe that the plausibility of their analysis is enhanced by considering the problem noted in (3b), which poses a challenge to Huang (1982). The isomorphic effect just mentioned above cannot be observed in Chinese passive sentences such as (6), where *meigeren* c-commands *yige nuren* but not vice versa. Huang's analysis predicts that only the wide scope interpretation of *meigeren* should be possible, which is contrary to the empirical evidence. With the VP-internal trace in mind, consider the LF representation of (6):

- (15) [_{IP} *Meigeren_i* [_{IP} *x_i* [_{VP} *yige nuren_j* [_{VP} *dou bei x_j zhuazoule t_i*]]]]

It can easily be observed that in addition to the fact that *meigeren* c-commands *yige nuren*, the latter c-commands the NP-trace *t_i*. Accordingly, scope ambiguity in (6) is explained by using the same rationale as found in the explanation of ambiguity in English active sentences such as (4). Thus, A&L's approach is descriptively and theoretically superior to Huang's approach. One of the most appealing features of SS's approach to scope ambiguity is its straightforward account of the sharp asymmetries observed in (1a-b) by making effective use of VP-internal subject traces. However, extending the analysis to the scope interaction of QPs and *Wh*-phrases leads A&L to the conclusion that NP traces are not relevant in determining scope.

With this caveat concerning the VP-internal subject trace, let us look at the LF representation of (8a):

- (16) [_{CP} *what_j* [_{IP} *everyone_i* [_{IP} *x_i* [_{VP1} *t_i* [_{VP2} *buy x_j*]]]]]]

Note that in violation of the prohibition of the stacking of two QPs in (12a, b), the *wh*-phrase and the QP are stacked in (16). The difference comes from the definition of the potential $\bar{A}$ -binder written in the language of the Generalized Binding Condition: the assignment of the index of *everyone* to the variable *x_j* would violate Principle C since this variable would be bound by *t_i* or *x_i*. As a result, *everyone* is not the

potential $\bar{A}$ -binder for x_j and *what* serves as the most local $\bar{A}$ -binder, respecting the MBR. The SP predicts that (8a) should be ambiguous. (16) shows that *what* c-commands *everyone* and its variable, explaining the reading where *what* has scope over *everyone*. In turn, *everyone* has the variable x_j bound by *what* in its c-command domain, yielding the interpretation where *everyone* takes scope over *what*. Note here that in this account the variable plays a role though the NP-trace does not play any role.

However, consider the following two LFs of (7a) involving the adjunction of *everything* to VP₁ or VP₂:

- (17) a. [_{who_i} [_{x_i} [_{VP1} _{t_i} [_{VP2} *everything*_j [_{VP2} V _{x_j}]]]]]]
 b. [_{who_i} [_{x_i} [_{VP1} *everything*_j [_{VP1} _{t_i} [_{VP2} V _{x_j}]]]]]]

(17a) represents the reading with *who* taking scope over *everything*. This is to be expected under A&L's analysis because the former c-commands the latter. However, an incorrect interpretation is to be predicted in the LF representation of (17b) under the assumption that NP-traces play a crucial role in the determination of scope. *Everything* c-commands the VP-internal trace _{t_i}, in addition to *who* c-commanding *everything*. The analysis predicts that (7a) should be ambiguous, but it is not the case. The conclusion that A&L embrace is that NP-traces play no role whatever in scope determination, which is at odds with the conclusion they reached in the case of (4)-(6).⁵ The next section will be devoted to spelling out their revised analysis of scope without any reference to NP-traces.

2. NP-Traces and QR

SS differs from A&L (1989, 1991) in that it eliminates the reference to NP-traces in scope determination. In order to do so, they propose two types of QR: NP-adjunction and Q(uantifier)-adjunction. The first adjoins the whole QP and the second adjoins only the bare Q. The crux of their proposal, following *Barriers'* assumptions, is the prohibition on adjunction to phrases in θ -marked positions. QP-raising is obligatory if the QP is in a θ -position but optional otherwise.

⁵ A&L's proposal amounts to parametrizing the VP-Internal Subject Hypothesis, but see Huang (1993) for VP-internal subject effects in Chinese.

A&L (p. 79) derive this assumption from the Theta Theory: "Since quantificational phrases, like other operators, are not referential expressions, these elements cannot remain in a θ -position at LF; otherwise, the θ -Criterion would be violated." On this assumption, typological differences between English and Chinese should be the result of the theta-status of subjects, assuming that objects are in θ -positions in both languages. If we adhere to the assumption that SPEC IP is in a θ -position in English active sentences and Chinese passive sentences and that it is in a θ -position in Chinese active sentences, it is possible to give a unified account of the observational generalization in (3). First, consider active sentences in English. The subject is in a θ -position, so the NP-adjunction of the subject is optional, while the NP-adjunction of the object is obligatory. From the S-Structure of (18), QR yields the following licit representations with the irrelevant details disregarded (In what follows, VP-internal traces are not included in view of the assumption that they are irrelevant to scope assignment):

(18) [IP someone [VP loves everyone]] (S-structure)

(19) a. [IP someone_m [IP x_m [VP everyone_n [VP loves x_n]]]]
(NP-adjunction of both *someone* and *everyone*)

b. [IP [NP some_i [NP x_i one]]_m [IP x_m [VP [NP every_j [NP x_j one]]_n [VP loves x_n]]]] (Q-adjunction)

(20) a. [IP everyone_n [IP someone [VP loves x_n]]] (NP-adjunction of the object only)

b. [IP [NP every_j [NP x_j one]]_n [IP [NP some_i [NP x_i one]] [VP loves x_n]]] (Q-adjunction)

In order to account for scope ambiguity in terms of the proposed QR, A&L (p. 205, fn. 9) revise the SP as (21):

(21) The (revised) SP: An operator A may have scope over an operator B iff A or the minimal $\bar{\theta}$ -phrase immediately dominating the operator and its restriction c-commands B or an $\bar{A}$ -element coindexed with B.

In (19b) the minimal $\bar{\theta}$ -phrase immediately dominating *some* and its restriction *one* c-commands *every*. This is taken as the interpretation of *some* having scope over *every*. The opposite c-command relations hold in (20b), which represents the wide scope of *every*. It is important to note that in this analysis the adjoined Q does not c-command anything outside the QP it is adjoined to. If *c-command* were defined in terms of *exclusion*, (20b) would violate the MBR since

some_i would be the closest $\bar{A}$ -binder for x_n .⁶ However, scope is determined not by the c-command relation of Qs but by that of the QPs to which Qs are adjoined, as (19b) and (20b) show. Unfortunately, this discrepancy in the function of c-command with respect to the MBR and scope determination, while correctly describing the facts, strips SS of its theoretical simplicity.

The strongest motivation for not restricting QR to Q-adjunction but including NP-adjunction as well is found in the evidence concerned with the antecedent-contained deletion (ACD), which A&L claim shows that QR raises the whole QP.⁷ This is in fact the only argument there is in SS for the claim that LF operation involves pied-piping and that QR can raise the whole NP as well. However, the QR approach to ACDs is not compatible with the Minimalist framework, where the LF movement of pied-piped phrases is avoided (Chomsky 1993: 25). Hornstein (1994) presents a solution to ACDs in terms of A-movement to SPEC AGRoP at LF. If this solution is tenable, there is no need for QR to include NP-adjunction.

⁶ The definition of *c-command*, which is essential to the analyses in SS, is defined as in (i):

- (i) Node A c(onstituent)-commands node B iff the branching node α_1 most immediately dominating A either dominates B or is immediately dominated by a node α_2 that dominates B, and α_2 is of the same category type as α_1 (p. 201, fn. 8).

However, in an approach that assumes that *domination* and *c-command* are defined as in (ii) and (iii), *some_i* c-commands x_n in (20b):

- (ii) α is dominated by β only if it is dominated by every segment of β (Chomsky (1986: 7).
- (iii) α c-commands β iff α does not dominate β and every γ that dominates α dominates β (ibid.: 8).

⁷ ACD sentences such as (i) show that a null VP cannot be reconstructed at S-Structure:

- (i) Dulles suspected everyone who Angleton did.

If the reconstruction involved a copy of the antecedent at S-Structure, an infinite regress would emerge, as shown in an infinite representation (ii):

- (ii) Dulles [_{VP} suspected everyone who Angleton [_{VP} suspected everyone who Angleton [_{VP} suspected everyone who Angleton ...]]]

May (1985) argues that this regress can be avoided by first QRing the whole quantifier phrase as in (iii) and then copying the antecedent VP as in (iv):

- (iii) [_{IP} [everyone who Angleton did]_i [_{IP} Dulles [_{VP} suspected x_i]]]
- (iv) [_{IP} [everyone who Angleton suspected x_i]_i [_{IP} Dulles [_{VP} suspected x_i]]]

It is important to note that this explanation hinges crucially on the pied-piping of the whole QP at LF.

- (23) a. [what_i do [_{IP} you wonder [_{CP} whether [_{IP} everyone_i [_{IP}

- x_i [_{VP} bought x_j]]]]]]
- b. [_{what_j} do [_{IP} you think [_{CP} t_j [_{IP} everyone_i [_{IP} x_i [_{VP} bought x_j]]]]]]]]]

Scope ambiguity is to be expected in (22b), since in (23b) *everyone* c-commands x_j and *what* c-commands *everyone*. However, the same c-command relationships predict the same ambiguity in (22a), but this prediction is false: the universal QP cannot take scope over *what*. The difference between (22a) and (22b) lies in the presence of a weak island. A&L conclude that variables do not play a role in scope determination, and instead focus on the role of intermediate traces in VP-adjoined positions. Consider the LF representations of (22a) and (22b) with the VP-adjunction of the *Wh*-phrase included:

- (24) a. *[_{what_j} do [_{IP} you wonder [_{CP} whether [_{IP} everyone_i [_{IP} x_i [_{VP} $\underline{x}_j$ [_{VP} bought x_j]]]]]]]]]
- b. [_{what_j} do [_{IP} you think [_{CP} t_j [_{IP} everyone_i [_{IP} x_i [_{VP} $\underline{x}_j$ [_{VP} bought x_j]]]]]]]]]

In order to distinguish (24a) from (24b), A&L invoke the ECP, such as the one formulated in Lasnik and Saito (1984)/Chomsky (1986), according to which $\underline{x}_j$ is not antecedent-governed in (24a) but it is in (24b). They assume that $\underline{x}_j$ has to be deleted in (24a), which makes it impossible for *everyone_i* to take scope over any member of the chain headed by *what*.⁸ In (24b), however, each intermediate trace is properly bound, obeying the ECP. In this representation *what* c-commands *everyone* and the latter c-commands the intermediate trace $\underline{x}_j$, accounting for the ambiguity in (23b). A&L's decision to invoke the ECP amounts to saying that only the A-members of an $\bar{A}$ -chain are relevant to scope assignment. They also give an additional corroborating example for the claim that intermediate traces play a role in scope determination:

- (25) a. what didn't everyone buy? (what > everyone)
- b. *[_{CP} what_j [_{didn't} [_{IP} everyone_i [_{IP} x_i [_{VP} $\underline{x}_j$ [_{VP} buy x_j]]]]]]]

The intermediate trace $\underline{x}_j$ adjoined to VP is not antecedent-governed by *what* because the negation intervenes between *what* and $\underline{x}_j$. Thus, the intermediate trace is deleted, so that the universal QP cannot c-

⁸ It is not clear how to delete the intermediate trace under the Generalized Binding Condition, which they use in the definition of the Potential A-binder.

command any $\bar{A}$ -member of the chain headed by *what*. A&L take this as indicating the narrow scope of *everyone*.

Let us look at the examples in (7) and (8), which are accounted for on the assumption that variables are involved in scope determination. Consider first (7a), which is repeated in (26a) for convenience. Its LF representation is given in (26b):

- (26) a. Who bought everything? (who > everything)
 b. [_{CP} who_i [_{IP} x_i [_{VP} everything_j [_{VP} buy x_j]]]]]

In this configuration, the wide scope of *who* is evident. Consider (8a), represented in (27a):

- (27) a. what did everyone buy? (what = everyone)
 b. [_{CP} what_j did [_{IP} everyone_i [_{IP} x_i [_{VP} x_j [_{VP} buy x_j]]]]]

In the LF represented in (27b), *what* c-commands *everyone* and the latter c-commands the intermediate trace $\underline{x}_j$. Thus, (27a) is ambiguous. The picture of scope determination that A&L have arrived at is as follows: only operators and intermediate traces are involved in computing scope. Therefore, the success of *SS* crucially relies on the validity of intermediate traces in mental computation of scope interactions. In the next section, we will see that there is some evidence against A&L's conclusion.

4. Intermediate Traces in VP-Adjoined Positions

SS is theoretically superior to the earlier A&L (1989, 1991) in that it eliminates the unnatural role of NP-traces, but the very fact that A&L refer to VP-adjoined traces in the explanation of *Wh/Q* interactions opens a Pandora's box. I will argue below that A&L's crucial assumption that intermediate traces are relevant to scope determination is supported on neither theoretical nor empirical grounds. Consider once again (24a) and (25b):

- (24) a. *[what_j do [_{IP} you wonder [_{CP} whether [_{IP} everyone_i [_{IP} x_i [_{VP} $\underline{x}_j$ [_{VP} bought x_j]]]]]]]]]
 (25) b. *[_{CP} what_j [didn't [_{IP} everyone_i [_{IP} x_i [_{VP} $\underline{x}_j$ [_{VP} buy x_j]]]]]]]

A&L assume that $\underline{x}_j$ in VP-adjoined positions is not present at LF. If *whether* acts as the first $\bar{A}$ -binder in (24a) and negation acts as the first $\bar{A}$ -binder in (25b), both representations should violate the MBR, since x_j in the object position is not bound by the first $\bar{A}$ -binder. However, the potential MBR violations can be circumvented if we assume an IP-

(28) a. [what_j do [_{IP} you wonder [_{CP} whether [_{IP} everyone_i [_{IP} x_j [_{IP} x_i [_{VP} x_j [_{VP} bought x_j]]]]]]]]]
 b. [_{CP} what_j [_{CP} didn't [_{IP} everyone_i [_{IP} x_j [_{IP} x_i [_{VP} x_j [_{VP} buy x_i]]]]]]]]]

The following sentences also pose serious problems for A&L's approach to quantifier scope:

- (29) a. What do you wonder whether Mary said everyone
bought? (what > everyone)
b. What didn't you think everyone bought?
(what > everyone)

(30) a. [what_j do [you wonder [whether [Mary said [x_j [everyone_i [x_i [_{VP} x_j [_{VP} bought x_i]]]]]]]]]]]]]]]]]]]]
 b. [what_j [didn't you think [x_j [everyone_i [x_i [_{VP} x_j [_{VP} bought x_i]]]]]]]]]]]]]]]]]]]]

(i) *_{[CP How do _{[IP you _{[VP t₃ _{[VP wonder _{[CP whether _{[IP t₂ _{[John _{[VP t₁ _[VP fixed the car t]]]]]]]]]]]]]]]}}}}}}}}

- (ii) a. A lexical category L-marks its complement.
- b. A non-L-marked category is a barrier.
- c. adjunction to an argument is prohibited.

Barriers are all inherent, an assumption which makes it possible to adjoin to IP.

In these representations, $\underline{x}_j$ in the VP-adjoined position is properly governed by $\underline{x}_j$, allowing $\underline{x}_j$ to be present at LF. However, this predicts that since *everyone_i* c-commands $\underline{x}_j$, *everyone* can have scope over *who*, yet this is not the case.

A further look at cases not involving islands also reveals drawbacks with A&L's approach. Consider the following examples from Sloan (1991):

- (31) a. Who does everyone think you saw? (who > everyone)
 b. Who do you think everyone saw? (who = everyone)

According to A&L, ambiguity should be manifest in both sentences since the QPs are in subject positions and the *Wh*-phrases move from object positions in (31), where no island-inducing factors are involved. Consider the following LF's of (31) with irrelevant adjunction of *who* omitted:

- (32) a. [_{CP} who_j does [_{IP} everyone_i [_{IP} x_i think [_{IP} you [_{VP} $\underline{x}_j$ [_{VP} saw x_j]]]]]]]
 b. [_{CP} who_j do [_{IP} you think [_{IP} everyone_i [_{IP} x_i [_{VP} $\underline{x}_j$ [_{VP} saw x_j]]]]]]]

In both representations, *who* c-commands *everyone* with the latter c-commanding $\underline{x}_j$ in the VP-adjoined position, which wrongly predicts that the examples in (31) should both be ambiguous. It is easy to see here that the inverse scope of *everyone* is possible only when the *Wh*-phrase and the QP are clausemates at D-Structure.

In concluding this section I would like to emphasize the fact that A&L's approach to scope relies in a critical way on intermediate traces, which have turned out to cause some problems for their analysis. The data which they cite and I cite in this section do not establish the conclusion that they draw.

5. Subjacency and ECP in the Minimalist Framework

In this section we will examine how island conditions are treated in the Minimalist framework. A key feature distinguishing the Minimalist framework from the Pre-Minimalist framework is the absence of the notion of *government*, which downgrades the ECP into "descriptive taxonomy." (The main motivation for the elimination of *government* from grammar is that the notion is not characterized by "virtual conceptual necessity.") Thus, A&L's *government*-oriented approach does not fit well with the Minimalist Program. Chomsky (1993) and

Chomsky and Lasnik (1993) derive the Subjacency and ECP effects from economy considerations.

Let us now turn to the following representations:

- (33) a. [_{CP} which car do [_{IP} t₆ [_{IP} you [_{VP} t₅ [_{VP} think [_{CP} t₄ [_C that [_{IP} t₃ [_{IP} John [_{VP} t₂ [_{VP} fixed t₁]]]]]]]]]]]]]]]]]]]
 b. ?[_{CP} which car do [_{VP} t₅ [_{IP} you [_{VP} t₄ [_{VP} wonder [_{CP} whether [_{IP} t₃* [_{IP} John [_{VP} t₂ [_{VP} fixed t₁]]]]]]]]]]]]]]]]]]]
 c. * [_{CP} How do [_{VP} t₅ [_{IP} you [_{VP} t₄ [_{VP} wonder [_{CP} whether [_{IP} t₃* [_{IP} John [_{VP} t₂ [_{VP} fixed the car t₁]]]]]]]]]]]]]]]]]]]

Chomsky and Lasnik (1993: 546–547) claim that legitimate LF objects are uniform chains and operator-variable constructions. Roughly speaking, chains are uniform if and only if their members are all in positions of the same type. A'-movement of arguments creates nonuniform chains since the heads and the intermediate traces are in $\bar{A}$ -positions but the tails are in A-positions. In order to form legitimate LF objects, all intermediate traces must be deleted, forming operator-variable constructions. However, A'-movement of adjuncts results in uniform chains, due to the fact that the heads, all intermediate traces and the tails are in $\bar{A}$ -positions. When a chain is already uniform, no further operations are applicable to it since the derivation has converged. Deletion of intermediate traces is not permissible in uniform chains. With this background in mind, consider again the derivations in (33). (33a) is a case of A'-movement of an argument, forming a nonuniform chain. Deletion of intermediate traces will form an operator-variable construction (*which car*, t₁). (33b) and (33c) are cases of A'-movement of an argument and of an adjunct from the *Wh*-island, respectively. Here the step from t₃ to t₄ violates (34) (Chomsky and Lasnik (1993: 546)) since it should have moved into the embedded SPEC CP position already filled with *whether*. Thus, the offending trace t₃ is marked with an asterisk *.

(34) Minimize chain links.

The difference between the "Subjacency violation" in (33b) and the "ECP violation" in (33c) comes from the formation of uniform chains just mentioned: in the former, deletion of intermediate traces including t₃* is permitted and the operator-variable construction consisting of *which car* and t₁ is interpreted at LF; in the latter, the starred trace t₃* still survives at LF, producing a more severe violation.

Consider the examples in (22), which A&L explain in terms of intermediate traces:

In (ii), *himself* contained in TR1 can take *John* as its antecedent by LF-movement of the reflexive to *thought*. The same operation applies to the reflexive in TR2, allowing *himself* to be bound by *Tom*. Note here that this account is crucially dependent on the generalization that intermediate traces feed in the interpretation of the reflexive. The point here is not, of course, to present and defend a full-fledged theory of reconstruction problems, but rather to observe that the deletion of argument intermediate traces rests on the formation of uniform chains and the operator-variable construction. I assume here that only the operator feature is deleted in TR1, still leaving the reflexive intact there and making it possible for *John* to bind *himself*. See Ike-uchi (1993) for the problems inherent in reconstruction phenomena in the Minimalist framework.

particular person that every student admires; (36b) is usually interpreted as the universal QP having a wide scope; *his/her adviser* in (36c) is a function from graduate students into their advisers. (35b), however, only allows the individual reading.

The pair-list reading is not available with downward entailing quantifiers, such as *no* and *few*, and quantifiers such as *many* and *all the*:

- (37) a. Who does no Italian married man like?
 b. His mother in law. (functional reading)
 c. Giovanni, Maria; Paolo, Francesca ... (pair-list reading)

It can be seen from (36) and (37) that the functional reading is the prerequisite for the pair-list reading. It can also be seen from (38c) that the functional reading answer contains a bound variable (if we assume that (38b) is derived from (38c) for expository purposes):

- (38) a. Who does every graduate student admire?
 b. His or her adviser (functional reading)
 c. *Every graduate* student admires *his* or *her* adviser.

Chierchia (1991) proposes that when the *Wh*-phrase moves, it leaves a complex trace consisting of the f(unction)-index (*j* in (39)) and the a(rgument)-index (*i* in (39)). The former is bound by the *WH* in CP and the latter corresponds to a bound pronominal.

- (39) $WH_i \dots [_{NP} t_i pro_j]_i$

With this idea in mind, consider (40a) and (40b), which correspond to (35a) and (35b), respectively:

- (40) a. $[who_i [every\ graduate\ student_j [admires [t_i\ pro_j]_i]]]$
 b. $[who_i [[t_i\ pro_j]_i\ admires [every\ graduate\ student_j]]]$

The functional reading in (40b) induces a Weak Crossover (WCO) violation with respect to the configuration of *every graduate student_j* and *pro_j*. To get a pair-list reading, Chierchia suggests that the quantifier generates a domain. The pair-list reading is as if it were a list which pairs members in a domain and members in a range. "To draw a list, we need a domain to draw members from. What determines such a domain in the case at hand? Quite clearly the quantifier that binds the a-index. From which quantifier meanings can we immediately retrieve a domain? From those that have a generator set, viz. the universal ones." (Chierchia (1991: 83)) Chierchia argues that the lack of the pair-list reading can be subsumed under the WCO violation.

This analysis extends to the following examples from Chierchia (1991), where the pair-list reading is available only in (41a):

- (41) a. Tell me in which place_i John put every book t_i.
 b. He put *Formal Philosophy* on his desk, *LGB* on his night stand.
- (42) a. Tell me which book_i John put t_i in every drawer of his desk.
 b. *He put *Formal Philosophy* on his desk, *LGB* on his night stand.

Chomsky and Lasnik (1993: 536) suggest that *Wh*-phrases such as *who* and *whom* are composed of a *wh*-feature, an indefinite quantifier, and the restriction on the quantifier. We regard 'an indefinite quantifier' here as 'an indefinite pronoun', following the idea put forth by Chomsky (1964), Kuroda (1965) and Nishigauchi (1990) that the *Wh*-phrases such as *who* and *what* contain indefinite pronouns. Under the Copy Theory of Movement (43), it follows that the trace of *who*/*what* contains a *wh*-feature, an indefinite pronoun, and the restriction on the quantifier.

- (43) The trace left behind is a copy of the moved element (Chomsky (1993: 35)).

The indefinite pronoun inside the *wh*-phrase trace can turn into a bound variable when there is an appropriate binder as in (40a), and it gives rise to scope interactions with other quantifiers.

We extend our analysis to the following sentences from SS:

- (44) a. Where_i did everyone hit him t_i?
 b. When_i did everyone hit him t_i?
- (45) a. Why_i did everyone hit him t_i?
 b. How_i did everyone hit him t_i?

The pair-list reading is available only in (44). Huang (1982) notes that *where* and *when*, unlike *why* and *how*, can appear as a complement of a preposition, as in (46):

- (46) a. to where / till when
 b. *in how / *for why

Huang also points out that *where* and *when* have corresponding pronominal forms *there* and *then*, but that no pronominal counterparts can be found for *why* and *how*. Based on these observations, he concludes that *where* and *when* are NPs. We interpret this conclusion as indicating that traces of *where* and *when*, unlike those of *why* and *how*, contain indefinite pronouns. In (44), the indefinite pronoun inside the *wh*-phrase is bound by *everyone*, allowing the pair-list reading. However, *wh*-traces of *how* and *why* do not contain indefinite

pronouns, since they are not NPs. Thus, they cannot induce the pair-list reading.

Consider also the following examples from SS:

- (47) a. Where_i did he hit everyone t_i?
 b. When_i did he hit everyone t_i?

The pair-list reading is impossible here. This is to be expected if we assume that the *wh*-trace t_i is not c-commanded by *everyone*.

In this section I have incorporated Chierchia's ideas into the Minimalist Program and given a unified analysis of QP/*Wh*-adjunct interaction.

7. Some Speculations on QR

We have so far said nothing about the status of QR in the Minimalist framework. Kitahara (1992) and Yusa (1993) try to dispense with QR by the A-movement of QPs to SPEC AGRP for Case-checking. The intuitive idea behind these proposals is that in terms of *Greed* (i.e., operation is morphologically driven), the traditional QR is dubious. Before going into the discussion, let us look at the status of pied-piping at LF in the Minimalist Program. The relevant example is given in (48a), from Chomsky (1993: 25):

- (48) a. *Who [t said *he* liked [_α how many pictures that *John* took]]
 b. [[How many pictures that John took] who] [t said he liked t']
 c. [[How many] who] [t said he liked [[t' pictures] that John took]]

In the Pre-Minimalist framework, (48a) shows that the Binding Theory applies at S-Structure. The adjunction of *α* to *who* results in the LF representation (48b), where *he* does not c-command *John*. This LF, however, runs counter to the claim in the Minimalist Program that the Binding Theory applies at LF. Chomsky (1993) rejects the LF-movement of pied-piped phrases (*α* in (48a)) and instead proposes that only *how many* adjoins to *who* in (46c), an operation which he calls *Absorption*. In (48c), *he* c-commands *John* and cannot refer to *John*. The crucial idea here is that the operator position should be minimal.¹¹

¹¹ Chomsky (1993: 25) deals with *wh-in-situ* constructions, arriving at the con-

In this section I will propose that QR does exist but it moves only Q, the head of the QP, like LF *Wh*-movement. This explains the example in (1b), reproduced as (49):

- (49) **He* liked every book that *John* read.

QR moves only *every*, so that *he* continues to c-command *John* at LF. Beghelli (1993) observes that the traditional QR adjoining a QP of any kind overgenerates scope ambiguities, and proposes to restrict the application of QR only to distributive universal quantifiers such as *every N*.¹² In Minimalist terms, *every* has a weak feature [+Dis-(tributive)], since QR is a covert movement. It follows that QR involves feature-checking. For a concrete example, consider the following sentence:

- (50) Two boys met every man. (two boy = every man)

In order to incorporate Beghelli's idea into Kitahara (1992), we assume, following Schmitt (1993), that after *every man* gets Case-

clution that pied-piping is not legitimate for LF *wh*-movement. Hornstein (1994: fn. 12) observes that the prohibition on pied-piping at LF holds for QR as well.

- (i) *Mary said that Peter bought every picture of herself.

- (ii) Mary said that pictures of herself, Bill really likes.

If QR adjoined *every picture of herself* to IP, then we could not account for the difference between (i) and (ii). One way out is to assume that QR does not allow pied-piping, either.

¹² Consider the following examples from Beghelli (1993):

- (i) a. Every student passed fewer than six classes.
- b. Each student passed a (possibly) different set of fewer than six classes.
- c. *Each of fewer than six classes was passed by every student.
- (ii) a. Fewer than six students passed every class.
- b. Each individual in a set of less than six students passed every class.
- c. Every class was passed by a (possibly) different set of less than six students.
- (iii) a. Fewer than six students passed four classes.
- b. ?Each individual in a set of less than six students passed (possibly) different set of less than six students.

The wide scope reading of the object varies with the type of QPs in the object positions: impossible in (ia); possible in (iia); possible but more likely than the wide scope of the subject in (iiia). Beghelli proposes that only distributive universals undergo QR. Bare numeral QPs, such as *six men*, *many men* take 'virtual scope' by local existential closure at VP or IP, or they are bound by the specificity operator in CP. Modified numeral QPs, such as *fewer than six men* and *more than six men*, are quantifiers but are immune to the application of QR or the existential closure, acquiring scope *in situ*.

checked in SPEC AGRoP, *every* moves through [AGRo V] to T, which, I assume, has the feature [+Quantification] optionally.¹³ Then the amalgamated T moves to AGRs, resulting in the following representation:

- (51) [AGRsP two boys [AGRs' every_j + T_i + V]_i [TP t_i [AGRoP [DP t_j [NP man]]]_k [AGRo' t_v [VP t_v t_k]]]]]

If we assume that α takes scope over β (i) if there is a SPEC (β)-Head (α) agreement, or (ii) α c-commands β if there is no SPEC-Head agreement.¹⁴ Thus, the wide scope reading of *every* is captured by the SPEC-Head agreement between *two boys* and *every*. In the system proposed here, T is the locus of the feature that checks off the feature [+Dis] on quantifiers such as *every*. The intuitive idea behind this proposal is that scope is generally "clause-bounded". To check off its N-features of T against the features of the NP in SPEC AGRsP, the amalgamated T moves to AGRs.

Consider next the simplified structure which typically represents the pair-list reading, where the universal QP appears in the subject position and the *Wh*-phrase moves from the object position (see (8a)):

- (52) [CP what_k [C' every_i + V] [AGRsP [DP t_i NP]_j [AGRs' ... [TP ... [v_p t_v [t_k pro]_j]]]]]

Schmitt assumes that the DP containing *every* first moves to SPEC AGRsP to check its Case feature and the strong nominal features of T, and from there *every* further moves to C to incorporate into the [V+C] complex. In this structure, no WCO violation is observed and the SPEC-Head agreement in CP permits *every* to have wide scope.

However, this approach makes a wrong prediction in cases like (31), reproduced as (53):

- (53) Who_i does everyone think you saw t_i? (who > everyone)

This sentence takes on an LF structure similar to (52) in relevant respects. One way out is to suppose that an indefinite pronoun in the trace of a *wh*-phrase is subject to the Binding Condition A, so that the pronoun is not bound locally by *every* in (53).¹⁵ Another is to assume

¹³ Or it may be possible to postulate Quantifier Phrase between TP and VP, possibly under the NegP, if we consider the following example:

(i) John did *not* read *every* paper on QR. (not > every paper)

¹⁴ I diverge here from the following scope rule proposed in Schmitt (1993):

(i) α is in the scope of β if α is in the projection of β .

¹⁵ Sloan (1991) assumes that *Wh*-movement leaves a trace containing an anaphor

that *every* does not have to move into C with some stipulations on QR, more generally, LF-movement. QR does not have PF effects, so it is not clear whether *every* moves or [+Dis] moves. If *every* moves at LF, it functions like a clitic and finally head-moves to T to check the feature [+Dis]. Schmitt (1993) attributes to the head-movement the fact that QR does not license parasitic gaps, since the movement does not license parasitic gaps. On the other hand, if the feature [+Dis] moves at LF, it does not seem reasonable to refer to X-bar distinctions such as X/X'/XP. Recently, Fox (1994) extends economy considerations to semantics to explain VP-ellipsis, and suggests that QR applies only if it yields some semantic consequences or different interpretations.¹⁶ If this is tenable, the application of QR is more restricted than has been proposed. In (53) there might be no movement of *every* via QR. It might be the case that movement of *every* occurs only when it is checked against the T in the clause containing the other interacting quantifier or the trace of the *Wh*-phrase. In the Minimalist framework, *Procrastination* dictates that movement take place as late as possible, so that LF movement is preferable to overt movement.¹⁷ However, QR is costly in that movement affects semantics, unlike the movement of DP to AGRP for Case-checking. The latter movement has no effect on semantic interpretation. The movement of the object Q is motivated, since the object Q taking scope over the subject Q cannot be captured in terms of the linear order. However, this is not the case with the subject Q. Further research is necessary to clarify the exact nature of the subject Q raising.

It should now be clear that in order to get the pair-list reading, the quantifier is required to be marked with the feature [+Dis], in addition to the absence of a WCO violation. We will consider here the feature [+Dis] in Japanese. It is not unreasonable to assume that *sorezore* 'each,' unlike *subete* 'every/all,' has the feature [+Dis]. If this is valid, the following contrast can be expected on the assumption that

subject to the Binding Condition A. This is illustrated in the following ambiguous sentence from Sloan (1991):

- (i) Who do you think everyone saw?

¹⁶ Some extension has to be made of the notion *Greed*.

¹⁷ In the Minimalist framework, LF movement is in a sense "unmarked," in contrast to the idea that overt movement is unmarked in the Pre-Minimalist framework.

QR applies to *sorezore*, but not to *subete*.¹⁸

- (54) a. *Dono hon-o sorezore-no gakusei-ga*
which book-Acc each-Gen student-Nom
yomimashita-ka
read-Q
'Which book did each student read?'
- b. *John-wa LGB-o, Bill-wa SS-o, ...*
John-Top LGB-Acc, Bill-Top SS-Acc
'John read *LGB*, Bill read *SS*, ...'
- (55) a. *Dono hon-o subete-no gakusei-ga*
which book-Acc every-Gen student-Nom
yomimashita-ka
read-Q
'Which book did every student read?'
- b. **John-wa LGB-o, Bill-wa SS-o, ...*
John-Top LGB-Acc, Bill-Top SS-Acc
'John read *LGB*, Bill read *SS*, ...'

In (54), *sorezore* moves into C, inducing a SPEC-Head agreement with *dono hon* in SPEC CP. This allows (54a) to have a pair-list reading. However, no QR applies to *subete* in (55), resulting in the lack of the pair-list reading.

Let us turn to problems which have been left unanswered:

- (56) a. ?What do you wonder whether everyone bought?
 (=(22a) (what>everyone))
 b. What didn't you think everyone bought?
 (=(29b)) (what>everyone)

We have seen that *every* has a [+Dis] feature, but given the fact that it functions as an operator, we assume that it contains the operator feature as well. Considering (57a-b), it seems that *every* with the feature [+OP] cannot cross another operator on the way to *what*:

- (57) a. what [+Wh OP] ... whether [+Wh OP] ... every [+Dis OP] ...

 A horizontal line with an upward-pointing arrow at the left end (under 'whether') and a downward-pointing arrow at the right end (under 'every'). An asterisk is placed in the middle of the line.
- (58) a. what [+Wh OP] ... n't [+Neg OP] ... every [+Dis OP] ...

 A horizontal line with an upward-pointing arrow at the left end (under 'n't') and a downward-pointing arrow at the right end (under 'every'). An asterisk is placed in the middle of the line.

¹⁸ Schmitt (1993) assumes that *todo*, a universal Q in Brazilian Portuguese, is a modifier adjoined to DP and does not move to CP. So it might be the case that *subete*, though specified as [+Dis], does not raise, like *todo*.

If this observation is correct, *every* in (56) cannot cross *whether* or *Neg*, so that it acquires narrow scope. This is a kind of minimality effect in terms of features, but it does not refer to positions such as A/A, or bar levels such as X/X'/XP. On a very speculative note, the cases in (57) and (58) may follow from the generalized form (59):¹⁹

- (59) In a configuration such that .. X [+ α] ... Y [+ β] ... Z [+ γ], where X c-commands Y and Y c-commands Z, and α , β and γ are operator features, Z cannot cross Y on the way to X to get its operator feature checked. Otherwise it would result in a “Minimal Link Condition” violation.

Consider the following contrast:

- (60) a. *?Who said that Egbert drew *every* picture of *who*?
(Diesing (1992))
b. Who said that Egbert drew *many* pictures of *who*?

Wh-Absorption is not possible in (60a), where *every* is involved. We can account for this contrast by assuming (i) that *many* does not have the relevant OP feature, so it is immune to (59) or (ii) that *every* and *many*, both marked as [+OP], are in different positions as in (61):

- (61) a. [DP *every* [NP picture of who]]
 b. [DP [NP *many* pictures of who]]

In (61), *every* in D marks the whole DP with [+OP], which acts as an intervening element between the two *whos* in (60a).

The intervention effect of *every* can be seen in the licensing of a negative polarity item (NPI) like *any*:

- (62) a. *John *never* read *every* book that had *any* pages missing.
(Bowers (1987))
b. John *never* read *many* books that had *any* pages missing.

- (63) a. *I don't know that *everyone* read *anything*.
b. I don't know that *many* people read *anything*.

In (62a) and (63a), the operator feature [+Neg OP] on *any* cannot be properly checked against the [+Neg OP] on *never* or *n't* because of the intervening operator feature [+Dis OP] on *every*.

The interesting contrast can be seen in (64):

- (64) a. I don't know what everybody read. (what = everybody)
b. I don't know what anybody read. (anybody > what)

¹⁹ See Kitahara (1994) for the argument that a variety of movement effects can be captured by the economy condition called RESTRICT.

According to the Copy Theory of Movement, (64b) has the following structure, with irrelevant details omitted:

(65) I don't know *what_i anybody_j* read [_{t_i} pro_j]_i

In (65), the intervening *what* blocks the movement of *any* to NEG, so I assume that LF computation uses the lower copy of the *wh*-trace for interpretation. This is seen roughly as in (66):

(66) I don't know anybody_j read [wh pro_j]

The only scope we get in (66) is that *anybody* has scope over *what*. In (64a), however, no NPI is involved, so that ambiguity is induced.

The NPI also affects the ambiguity of negative scope:

(67) a. He didn't move *because* he was punished.

(Linebarger (1987))

b. His moving wasn't caused by his being punished.

c. His not moving was caused by his being punished.

(68) a. He didn't *budge an inch because* he was punished.

b. It was because he was punished that he didn't budge an inch.

If we assume that in order for *because* to be in the scope of negation, the optional feature [+Neg] assigned to *because* moves to NEG in the matrix clause at LF. When the [+Neg] feature exists in a *because*-clause, it moves to NEG and yields the interpretation in (67b). When the [+Neg] is not present in the subordinate clause, it does not move, giving rise to the reading as shown in (67c), where the *because*-clause is not affected by negation. However, in (68a) the *because*-clause cannot possess the [+Neg]. Otherwise, it would cross the [+Neg] on *budge an inch* on its way to the [+Neg] on *n't* in the matrix clause, resulting in the violation of (59). As a result, the *because*-clause does not have the [+Neg] and is outside the scope of negation, as indicated in (68b).

8. Concluding Remarks

The postulation of LF has been justified on the grounds that it can explain grammatical generalizations that could not be captured without reference to this level. Within the Pre-Minimalist versions of the Principles and Parameters approach as well, LF is the interface level between grammar and the conceptual-intensional system, but D-structure and S-Structure conditions and principles, which are discarded or subsumed under LF principles in the Minimalist Program, are also assumed to be responsible for wellformedness. Scope ambiguities are

represented at LF by applying LF-movements, QR being among them, to S-Structure. The ECP-oriented approach to scope cannot be incorporated into the Minimalist Program, because ECP is a “descriptive taxonomy” of no theoretical importance.

I have reviewed and discussed the analyses proposed in *SS*, pointing out some problems and revisions in terms of the Minimalist Program. We have seen that arguments which motivate the modifications of A&L’s analyses of scope phenomena do not establish their claims: two major problems in *SS* are the discrepancy in the function of c-command with respect to the MBR and the SP in the final version of their proposal, and the treatment of intermediate traces. I have proposed, essentially following the ideas put forth by Chierchia (1991) and Schmitt (1993), that QR does exist, but that it raises only Q or its operator feature. I have also extended the LF-Q movement analysis to the interactions between negation and quantified expressions. *SS* relies heavily on conditions and principles which have been reduced to interface conditions in the Minimalist Program, but the book should not be criticized for this reason since it was written before the advent of the Minimalist Program. Rather, A&L are to be praised for taking on the task of developing the most comprehensive theory of scope phenomena in the Pre-Minimalist Program. Finally, it is interesting to note that the MBR advocated by A&L is very close in spirit to the Minimal Chain Link as both conditions refer to the nearest relevant category.

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Department of English
Miyagi Gakuin Women's College
Sakuragaoka, Aoba-ku
Sendai-shi
Miyagi 981
e-mail: i22535@cctu.cc.tohoku.ac.jp/yusa@mgu.ac.jp