A / A-BAR PARTITION IN DERIVATION

by

HIROAKI TADA

B.A., The University of Tsukuba
(1982)

M.A., The University of Tsukuba
(1985)

Submitted to the Department of Linguistics and Philosophy
in Partial Fulfillment of the Requirements
for the Degree of

DOCTOR OF PHILOSOPHY

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

May 1993

Signature of Author _____
Department of Linguistics and Philosophy
May 1993

Certified by _____
Noam Chomsky
Institute Professor

Accepted by _____
Wayne O'Neil
Head, Department of Linguistics and Philosophy

A / A-BAR PARTITION IN DERIVATION

by

HIROAKI TADA

Submitted to the Department of Linguistics and Philosophy
on May 23, 1993, in Partial Fulfillment of the
Requirements for the Degree of

DOCTOR OF PHILOSOPHY
in Linguistics

This thesis investigate some relations of the problem of A/A-bar partition of movement types and the proper formulation of economy principles.

In Chapter 2, I will explore two interrelated problems of scrambling. The first one, called the landing site problem, is why and how the apparently single operation scrambling behaves A-movement and A-bar-movement. The second one, called the optionality problem, is whether scrambling is an optional operation, and if so, why it can violate the last resort principle. The answer to the first question leads to the derivational view of A/A-bar partition. The answer to the second question lead to a system of effect-based economy principles. In particular, the last resort principle is replaced by the compensation principle which requires the external effect of movement to be compensated for by its internal effect.

In Chapter 3, I will discuss the problem of uniformity of chain-steps and suggest that the uniformity can be derived from step-wise application of compensation principle, and discusses complex cases such as German partial wh-movement and Mayan focus antipassives in light of the compensation principle and derivational view of A/A-bar-partition.

In Chapter 4, I will discuss two phenomena related to the problem of multiple specifier in A and A-bar systems: extraction out of multiple specifier configuration and absorption of multiple wh-phrases. They are claimed to support Cheng's(1991) view that wh-movement is not driven by feature-checking as NP-movement is.

Thesis Supervisor: Noam Chomsky
Title: Institute Professor

ACKNOWLEGEMENTS

It has been a special privilege to have Noam Chomsky as my thesis supervisor. In particular, he has been generous enough to continue to supervise my thesis this year, even when he was on his sabbatical. Meetings with him were always inspiring and challenging, with full of innovative ideas and penetrating argumentation. I hope the following pages reflect even only a bit of his enormous influence on me and my work. His continuous moral support enabled me to go through this agonizing period of thesis writing, for which I am forever thankful to him.

My deep appreciation goes to my other thesis committee members, Jim Higginbotham and Alec Marantz: I find myself extremely fortunate to have been able to work with Jim, who is leaving MIT this year. His insights into formal aspects of language and linguistic representations always stimulated me into pursuing a higher level of formalism in my thesis. Alec arrived at MIT well in time to raise my interests in ergativity. Discussions with him always reminded me of issues and aspects that I had left untouched. Readers will immediately notice his influence on many pages.

My life at MIT has been all the more richer for the excellent linguists and teachers I have met here: Ken Hale, Morris Halle, Jim Harris, Irene Heim, Michael Kenstowicz, Jay Keyser, Richard Larson, Howard Lasnik and David Pesetsky. They have contributed to my education leading to this thesis in ways I cannot describe in short passages.

Wayne O'Neil, the Department Chair, and Shigeru Miyagawa deserve a special mention: They were always concerned about me, linguistically and otherwise, and they were always there when I needed them, for which I am most grateful.

I would like to express my gratitude to the secretaries at the Department of Linguistics and Philosophy: Rachel Pearl, Nancy Peters, Marylin Sylva, Wendy Weber and Jamie Young, for their help in many ways: without their efficiency, I would have been at a loss with administrative paperwork, appointments, and so on.

Every acknowledgements is filled with the names of fellow students, as well as teachers, the reason for which I dare not mention: I would like to thank those who spent so much time at MIT discussing linguistics and having fun: Harry Ladar, Itziar Laka, Yafei Li, Anoop Mahajan; Eularia Bonet, Lisa Cheng, Hamida Demirdache, Mike Hegarty, Sabine Iatridou, Perter Ihionu, Utpal Lahiri, Paul Law; Tom Green, Doug Jones, Toshifusa Oka, Akira Watanabe; Pilar Barbosa, Jonathan Bobaljik, Tony Bures, Diana Cresti, Hubert Truckenbrodt and Dylan Tsai. Among them, special thanks to Anoop (and Gyanam Mahajan, my TA for Ken Hale's class on Hindi) for innumerable discussions on agreement and scrambling. I am also indebted to Peter for his Igbo judgments as a native speaker and insights as a linguist when I was working on my phonology generals. Toshi and Akira were my housemates for a year, and were always ready to talk about a variety of topics, and that, in Japanese.

I am particularly thankful to my classmates Phil Branigan, Chris Collins, Jill Gaulding, Bill Idsardi, Miori Kubo, Kumiko Murasugi and Chris Tancredi, who made my coursework so much more enjoyable and post-generals period more fruitful.

As is the case with anyone working in any field, I have benefited much from a larger linguistic community beyond MIT: I would like to thank the late Osvaldo Jaeggli, Joseph Aoun, Muvet Enç, Doug Pullyblank and Tim Stowell for their help and encouragements while I was around the University of Southern California. Special thanks go to Hajime Hoji and Caroline Scherzer for the friendship they showed to me.

I thank Mamoru Saito for his constant encouragement and interest in my work: It was his efforts that enabled me to visit USC back in 1986 to broaden my linguistic perspectives. Many, long discussions with him have led to significant improvements in my thesis, too many and too deep to mention every occasion. Naoki Fukui has also been a great help ever since I got initiated to this area and MIT. His enthusiasm with linguistics has always made me aim for the higher.

I owe many other Japanese linguists including Nobuko Hasegawa, Yoshihisa Kitagawa, Shige-Yuki Kuroda and Koichi Takezawa for so many fruitful discussions, insightful comments and suggestions. Each has been directly or indirectly reflected in what follows.

I would like to thank Yasuaki Abe for his generous editorial help in publishing my paper. I owe Yoshihiro Kubo so much for re-entering the Japanese linguistic academia.

My work on Igbo would have been of even poorer quality but for the revealing comments and suggestions from Victor Manfredi and Mary Clark, which I deeply appreciate. Thanks are in order for Jean-Pierre Koenig, my last-minute help for French data and theory: He put up with my incessant e-mail messages asking the most subtle of the grammaticality judgment.

Access to the now-almost-extinct Brandeis linguistic community, made possible partly by my marital connection, enriched my life, both linguistically and socially: I would like to thank Claudia Borgonovo, Piroska Csuri, Henrietta Hung, Soowon Kim and Gyanam Mahajan for their linguistic enthusiasm and friendship.

Thanks to my Japanese colleagues I encountered over the course of my linguistic studies: Among them are Jun Abe, Keiko Murasugi, Fusa Katada and Noriko Yoshimura.

Thinking back my roots of linguistics, the one important figure back in Japan is Minoru Nakau, my advisor at the University of Tsukuba: I would like to express my deep appreciation to his persistent attitude towards linguistics and constant help for me and my work. Without his suggestion that I come to the U.S., I would have never continued linguistics.

I cannot thank too much my family: My parents Hiroshi and Shigeko Tada have never spared their emotional and financial support throughout my life as a student. Encouragement from my brother Tetsuya Tada have always filled me with energy to pursue my goal. They have always believed in me and what I have been doing, and I will never be able to pay them back.

Finally, to Saeko Urushibara, a salute. She contributed to this thesis as much as I did, in a variety of forms from linguistic discussions to secretarial work. Without her patience, encouragement, and above all love and devotion (even during her postpartum days!), this thesis could not even have been filed. This thesis is dedicated to her and our son Shun-ichi Tada, who entered this world just in time to be included here.

TABLE OF CONTENTS

CHAPTER ONE

INTRODUCTION

1.1. The paths of syntactic derivations appears to be deterministic and lead to at most a unique well-formed result. To explain this "function-like" (or more precisely, "partial function-like") character of them within the "principles-and-parameters" approach, where the most generous operation Move a (or Affect a) is assumed, there have been proposed a number of conditions and principles which exclude non-well-formed alternatives. Whether these proposals always give a unique and right result is an empirical issue. The minimalist approach program in Chomsky(1992), however, approaches this directly: alternative derivations are directly compared by optimality measures.

Partition of syntactic positions and, subsequently, movement operations into A and A-bar types is one of the most well-supported empirical generalizations. In the minimalist program, this partition of movement directly follows from the partition of types of morphological features of the moving element to be checked at the landing site. Thus NP with an unchecked Case-feature moves to a Spec-IP position with a checking Case-feature, and a wh-phrase moves to a Spec-CP position with a checking [+wh] feature.

This thesis addresses two problems about partition of movement into A/A-bar: (i) how can scrambling, which appears to be a single operation, show both A and A-bar properties? (ii) uniformity of chain steps: if the driving force of movement comes from the final landing site, why are the intermediate steps are of the same type? These questions lead to a view that economy principles do not directly apply to movement operations per se, but they crucially refers to the effects they would produce in the course of derivation.

The above problems of A/A-bar partition are solved if we focus on the morphological effects the movement operations produce.

1.2. Summary of the Following Chapters

In Chapter 2, I will explore two interrelated problems of scrambling. The first one, called the landing site problem, is why and how the apparently single operation scrambling behaves A-movement and A-bar-movement. The second one, called the optionality problem, is whether scrambling is an optional operation, and if so, why it can violate the last resort principle. The answer to the first question leads to the derivational view of A/A-bar partition. The answer to the second question lead to a system of effect-based economy principles. In particular, the last resort principle is replaced by the compensation principle which requires the external effect of movement to be compensated for by its internal effect.

In Chapter 3, I will discuss the problem of uniformity of chain-steps and suggest that the uniformity can be derived from step-wise application of compensation principle, and discusses complex cases such as German partial wh-movement and Mayan focus antipassives in light of the compensation principle and derivational view of A/A-bar-partition.

In Chapter 4, I will discuss two phenomena related to the problem of multiple specifier in A and A-bar systems: extraction out of multiple specifier configuration and absorption of multiple wh-phrases. They are claimed to support Cheng's(1991) view that wh-movement is not driven by feature-checking as NP-movement is.

1.3. Definitions

The category α dominates β if every segment of α dominates β.

The category α contains β if some segment of α dominates β.

For a head α, Max(α) is the least full-category maximal projection dominating α.

The domain of a head α is the set of nodes contained in MAX(α) that are distinct from and do not contain α.

The complement domain of α is the subset of the domain of α reflexively dominated by the complement of the construction.

The residue of α is the domain of α minus the complement domain of α.

For a set S of categories, MIN(S) (minimal S) is the smallest subset K of S such that for any $\gamma \in$ S, some $\beta \in$ K.reflexively dominates γ.

The internal domain of α is the minimal complement domain of α.

The checking domain is the minimal residue of α.

For a chain CH = (α_1, ..., α_n), the domain of CH is the set of of nodes contained in MAX(α_1) and not containing any α_i.

L-features of a lexical item L are such morphological features as tense, Case, and ϕ-features of L

The L-features of an inflectional element I checks those of a lexical item L in the checking domain of I.

A position p is L-related (to a head H) if p is in the minimal domain of H and H has L-features.

A position P is narrowly L-related if p is L-related and a nonadjoined position.

A position p is broadly L-related if p is L-related and an adjoined position.

p is an A-position if p is narrowly L-related.

p is an A-bar-positions if p is not L-related.

CHAPTER TWO

A/A-BAR PARTITION WITHOUT CHECHING: SCRAMBLING

2.1. Introduction

Free-word order phenomena in some alleged "non-configurational" languages such as Japanese have been rather successfully analyzed in terms of the movement operation called 'scrambling' so that we do not have to assume that the thematic information of lexical items is projected in syntax in different ways between Japanese and configurational languages such as English except the direction of theta-role assignment. Saito(1985), which is the first extensive study of scrambling in Japanese, argues that scrambling is an adjunction operation which takes place at S-structure, an instance of A-bar-movement. Recent studies on scrambling in Japanese and in other scrambling languages such as German and Hindi, however, have shown that scrambling has not only properties of A-bar movement but also properties of A-movement.[1] This duality of scrambling is a challenge to the exclusive partition of XP-positions in to A / A-bar positions in the LGB system developed in Chomsky(1981)[2]. This challenge is a serious one, since in most (or, perhaps, all) "principles-and parameter" approaches since Chomsky(1981), the A / A-bar distinction is a cornerstone in determining which principle applies where, and if the definition of A / A-bar positions is not successfully made independent of the principle in question, the explanation becomes circular.[3] I call this problem of scrambling the landing site problem.

---

[1] cf. Webelhuth(1989) for German, Mahajan(1989, 1990) for Hindi, and Saito(1992) for Japanese, among others.

[2] As Mahajan(1989, 1990) points out, the definition of A-position as a potential theta-position in Chomsky(1981) is also in consistent with the VP-internal subject hypotheses (cf. Kuroda, Koopman and Sportiche, Kitagawa, Fukui, among other), where Spec-IP, a typical A-position, may not be a theta-position, even potentially.

[3] Frampton(??) explicitly makes this point with respect to the explanatory power of Rizzi's(1990) Relativized Minimality Principle.

Before the above-mentioned extensive discussion began, scrambling had been felt to be outside the core processes of UG and often assumed to be a "stylistic" operation applying at PF. This latter assumption must be abandoned given the effects of scrambling on other syntactic processes such as weak crossover and the binding theory, which are used as tests to know whether scrambling behaves as A-movement or A-bar-movement.in recent literature on scrambling. One of the reasons for this conception of scrambling as a "stylistic" operation, however, remains intact: Scrambling apparently lacks any syntactic "motivation" such as Case for NP-movement and [+wh] feature for wh-movement, in current terms. This point is sharpened by Saito(1989), who shows that A-bar-movement-like scrambling differs from "standard" A-bar-movement such as wh-movement and topicalization in that it lacks any scope-defining property. This raises another serious problem for one of the cornerstones of the "minimalist program" in Chomsky(1992): the Last Resort Principle, which states that movement of α is possible only when necessary for licensing (or checking) morphological features of α such as Case or [+wh]. I call this problem the optionality problem.

The point of this chapter is to argue that the landing site problem and the optionality problem are correlated and consideration of them leads to a perspective of movement in terms of geometry and dynamics. The summary of the following sections is as follows:

In § 2.2., the landing site problem is discussed using several syntactic tests (weak crossover, reciprocal binding, strong crossover, and ECP). It is argued that there is a correlation between the distance of scrambling and the possibility to have properties of A-movement: S(hort)-scrambling (direct object over indirect object) must show properties of A-movement, M(iddle)-scrambling ((in) direct object over subject) may or may not, and L(ong)-scrambling must not. These results partially argue for Mahajan's(1989, 1990) non-uniform analysis, where scrambling is sorted to A-scrambling and A-bar-scrambling, and

the distributions of the two types of scrambling are explained by independent principles. "Partially" because M-scrambling does not pass all the tests for A-movement

In § 2.3. , the optionality problem is discussed based on the three-way distinction of scrambling and it is shown that each type of scrambling lacks the "motivation" it is expected to have. First, it is argued, following Saito(1989), that L-scrambling unlike wh-movement or topicalization is not scope-driven. Second, it is argued that S-scrambling is not Case-driven. Last, it is argued that M-scrambling is neither. The motivation problem, thus, seems to support Webelhuth's(1989) uniform approach.

In § 2.4., it is claimed that the contradiction between the non-uniform approach and the uniform approach is solved by distinguishing two aspects of movement: geometrical and dynamic aspects. The geometrical aspect of an instance of movement is characterized by the geometrical properties of the positions occupied by the members of the chain created. In particular, the A / A-bar distinction is to be made here. The dynamic aspect of an instance of movement, on the other hand, is characterized by what is "gained" by that instance of movement. The last resort principle is assumed to be defined dynamically. This weakened formulation of the last resort principle allows movement of α without motivation only if nothing is"gained" by that movement. It is argued that scrambling is of this type of "ineffective" movement. A certain type of short V-movement in English and wh-imperatives in German are claimed to be "ineffective" optional movement.

In § 2.5., a representational solution for the typing of scrambling is proposed which is based on a peculiar property of XP-adjoined position, that is, it is in the minimal domain of both X and the head selecting XP. Although this analysis correctly predicts that VP-adjunction (S-scrambling) always behaves as A-movement, it predicts that IP-adjunction always have properties of both A- and A-bar-movement, contrary to fact.

In § 2.6., a derivational solution is proposed which claims that the overlapping of minimal domains are only potential, and when an adjunction takes place in the course of

generalized transformation determines whether the XP-adjoined phrase actually belongs to the domain of X or that of the head selecting X. This amounts to saying that the strict cycle is to be formulated in terms of monotonic extention of the domain of the target head, and adjunction as well as substitution obeys it. It is suggested that this version of strict cycle may also extend to singulary adjunction operation and explain the distribution of anti-reconstruction effects in Lebeaux's(1989) sense.

In § 2.7., the problem of QR is discussed. It is claimed that a dynamic analysis allows to distinguish scrambling and QR, which are geometrically identical: XP-adjunction.

2.1. The Landing Site Problem

Two conceptually distinct views of scrambling have been proposed to account for the landing site problem. One is in Mahajan(1989, 1990), in which he essentially argues, based on Hindi data, that 'scrambling' is the cover term for two distinct movement operations: A- and A-bar-movement, and free word order phenomena can be derived by either of the two operations if no grammatical principle is violated. The other is in Webelhuth(1989), in which he argues, based on German data, that the landing site of scrambling, which he assumes to be an adjoined position, is neither A -nor A-bar-position, but has both of their properties with respect to binding. The two proposals have different predictions about the distribution of A- /A-bar-like properties of scrambling: In Webelhuth's framework, all instances of scrambling should show the same amount of A- and A-bar-properties, given the assumption that the landing site of scrambling is uniformly an adjoined position. In Mahajan's framework, whether the landing site of scrambling may show properties of A (A-bar)-position or not depends on whether A (A-bar)-movement to that position is possible or not. The fact that the landing site of long-distance scrambling in Hindi lacks A-like properties is, thus, nicely explained in Mahajan's

framework, since in the long-distance case, only A-bar-scrambling is available, given that NP-movement out of a tensed clause is prohibited by the binding theory, as Mahajan argues. This fact does not seem to be explained straightforwardly in Webelhuth's framework.

In this section, I will show, based on Japanese data, that although the landing site of long-distance scrambling exhibits properties of A-bar-position consistently, the landing site of short-distance scrambling does not always exhibit properties of A-position even if A-movement is required in order for the sentence to be grammatical, and that two types of scrambling are to be distinguished even among cases of short-distance scrambling, depending on the distance between the landing site and the original position. More precisely, I will show that three types of scrambling exemplified in (1a,b,c) are to be distinguished with respect to the properties of the landing site[4]:

(1) a. John-ga kono hon-o$_i$ Mary-ni t_i ageta.
-nom this book-acc -dat gave
'John gave this book to Mary.'
b. Kono hon-o$_i$ John-ga Mary-ni t_i ageta.
this book-acc -nom -dat gave
'(lit) This book, John gave to Mary.'
'John read this book.'
c. kono hon-o$_i$ Bill-ga [John-ga Mary-ni t_i ageta]-to omotteiru.
this book-acc -nom -nom -dat gave -comp think
'(lit) This book, Bill thinks that John gave to Mary.'
'Bill thinks that John gave this book to Mary.'

---

[4]As observed by Saito(1985), long-distance scrambling to a position between the subject and the dative in a matrix clause is at best marginal:

(i) ?*John-ga kono hon-o$_i$ Mary-ni [Bill-ga t_i yonda]-to itta..
-nom this book-acc -dat -nom read-comp said
'(lit) John said, this book, to Mary that Bill read.'

I willl return to this problem in § 2.2.5.

In (1a), the direct object is scrambled to a periphery position of the VP immediately dominating the original position. In (1b), the direct object is scrambled to the initial position of the clause immediately dominating the original position. In (1c), the direct object is scrambled out of the clause to the initial position of the higher clause. I will call (1a, b, c) S-, M-, L-scrambling, respectively. In Section 1, I will examine the properties of the landing sites of the three types of scrambling using several syntactic tests which require A-movement for the sentence to be grammatical, and show that L- and S-scrambling have typical A-bar-and A-movement properties, respectively, but M-scrambling behaves as A-movement with respect to some tests and as A-bar-movement with respect to the others. In Section 2, I will, however, argue that the three types of scrambling have a common property which neither 'pure' A-bar-movement such as WH-movement nor 'pure' A-movement such as NP-movement in passives has: optionality. In Section 3, I will attempt to account for the 'distance-dependency' problem of scrambling, relating it to its optionality.

2.2.1. Weak Crossover Neutralization

Weak crossover (WCO) effects take place if neither the trace of an operator (WH or quantifier) nor the pronoun to be bound by the operator c- commands the other, as shown in (1):

(1) a. Who$_i$ t$_i$ loves his$_i$ mother?
b. *Who$_i$ does his$_i$ mother loves t$_i$?

In (1a), the pronoun can be bound by the WH-phrase, since it is c-commanded by the trace left behind by WH-movement. In (1b), however, the pronoun, which is not c-commanded

by the trace, cannot be bound by the WH-phrase. The same contrast shows up in Japanese if we use 'so-' expressions in stead of (so-called) lexical pronouns, as shown in (2)<fn-5>:

(2) a.?Dare$_i$-ga soitsu$_i$-no sensei-o hihansita no.
who-nom the-guy-gen teacher-acc criticized Q.
'Who$_i$ criticized the guy$_i$'s teacher?'
b.*Soitu$_i$-no sensei-ga dare$_i$-o hihansita no?
the-guy-gen teacher-nom who-acc criticized Q
'(lit) the guy$_i$'s teacher criticized who$_i$.'
'Who did the guy's teacher criticized?'

The contrast in (2a,b) is to be explained by the WH-movement at LF, which creates the same configurations as (1a,b).

WCO, however, is neutralized if the WH-phrase is preposed to the position where it c-commands the 'so-' phrase by either S-scrambling, as shown in (3), or M-scrambling, as shown in (4)[5]:

(3) a. *John-ga [[e soitsu$_i$-ni aitagatteiru] hito]-ni dare$_i$-o shookaishita no
-nom the guy want-to-meet person-dat who-acc introduced Q
'(lit) John introduced (to) [the person who wanted meet the guy$_i$] who$_i$'
'Who did John introduce to the guy who wanted meet the guy$_i$?'
b.?John-ga dare$_i$-o [[e soitsu$_i$-ni aitagatteiru] hito]-ni t_i shookaisita no
-nom who-acc the guy want-to-meet person-dat introduced Q
'(lit) John introduced [who$_i$ [(to) the person who wanted to meet the guy$_i$ t_i]]

(4) a.*[e soitsu$_i$-o hitome mita]hito-ga dare$_i$-o sukininatta no
-acc one-glance saw person-nom who-acc fell-in-love-with Q
'(lit) the person who took a glance at him$_i$ fell in love with who$_i$?'
'Who did the person who took a glance at him fall in love with?'
b. ?dare$_i$-o [e soitsu$_i$-o hitome mita]hito-ga t_i sukininatta no
who-acc the-guy-acc one-glance saw person-nom fell-in-love-with Q
'(lit) Who$_i$, the person who took a glance at the guy$_i$ fell in love with t_i?'

[5]Cf. Yoshimura(??).

In (3a) and (4a), the 'so-'phrase is not c-commanded by the WH phrase in an A- position and, thus, cannot be bound by it. In (3b) and (4b), where the WH phrase is preposed to the position c-commanding the 'so-' phrase by S- and M-scrambling, respectively, the WCO effect disappears. This may suggest that S- and M-scrambling are cases of A-movement, since NP movement saves the violation of weak crossover effect, as shown below:

(5) Who$_i$ t_i seems to his$_i$ mother [t_i to be sick]?

(6) ?Dare$_i$-ga soitu$_i$-no sensei-ni t_i shookaisareta no.
who-nom the-guy$_i$-gen teacher-dat was-introduced Q
'(lit) Who$_i$ was introduced (to) his$_i$ teacher t_i.'
'Who was introduced t to his teacher?'

L-scrambling, however, does not seem to neutralize WCO effect, as shown in (7)[6]:

(7) a. *[e soitsu$_i$-o hitome mita]hito-ga [Mary-ga dare$_i$-o sukininaru]
the-guy-acc one-glance saw person-nom -nom who-acc fell-in-love-with-
-to omotta no
-comp thought Q
'(lit) The person who took a glance at the guy$_i$ thought that Mary would fall in love with who$_i$'
'Who did the person who took a glance at the guy thought that Mary would fall in love with?'

b. *Dare$_i$-o [e soitsu$_i$-o hitome mita] hito-ga [Mary-ga t_i
who-acc the-guy-acc one-glance saw person-nom -nom
sukininaru]-to omotta no
fell-in-love-with -comp thought Q
'(lit) Who$_i$, the person who took a glance at the guy$_i$ thought that Mary would fall in love with t_i.'

[6]See Mahajan(1989, 1990) for corresponding facts in Hindi. Saito(1992) claims that for some Japanese speakers, L-scrambling does marginally neutralize WCO, and that for those speakers, not just A/A-bar distinction but operator/non-operator distinction is crucial to WCO. See Lasnik and Stowell(??) for a similar formalization of WCO.

In (7b), which is derived from (7a), L-scrambling of WH-phrase does not license the binding of the 'so-' expression in the matrix subject by the WH- phrase, resulting in WCO violation. L-scrambling, however, exhibits WCO neutralization with respect to the 'so-' expression in the embedded subject, as shown below[7]:

(8) a.*Mary-ga [[e soitsu$_i$-o hitome mita]hito]-ga dare$_i$-o
-nom the-guy-acc one-glance saw person-nom who-acc
sukininaru]-to omotta no
fell-in-love-with -comp thought Q
'(lit) Mary thought that the person who took a glance at the guy$_i$ fell in love with who$_i$'
'Who did Mary think that the person who took a glance at the guy fall in love with?'

b. ?Dare$_i$-o Mary-ga [[e soitsu$_i$-o hitome mita]hito-ga t_i
who-acc -nom the-guy-acc one-glance saw person-nom
sukininaru]-to omotta no
fell-in-love-with -comp thought Q
'(lit) Who$_i$, Mary thought that the person who took a glance at the guy$_i$ fell in love with t_i '

We may explain the WCO neutralization in (8b) by assuming, following Mahajan(1989), that (8b) is derived by succesive application of M- and L- scrambling, and that the intermediate trace does neutralize the WCO neutralization.

The above examples show that with respect to WCO effects, both S- and M-scrambling behaves as A-movement, whereas L-scrambling behaves as an A-bar-movement.

2.2.2. Reciprocal Binding

[7]See Mahajan(1989, 1990) for corresponding facts in Hindi.

Let us turn to the second diagnosis, reciprocal binding, to examine the properties of the landing site of the three types of scrambling. The landing site of NP-movement is, of course, a licit position from which to bind a reciprocal, as shown below:

(9) They$_i$ seem to each other$_i$'s mother to be stupid.

(10) Karera$_i$-ga otagai$_i$-no sensei-ni t_i shookaisareta.
they-nom e.o.-gen teacher-dat was-introduced
'(lit) They$_i$ were introduced (to) each other's mother t_i'
'They were introduced to each other's mother.'

Pure A-bar-movements such as WH-movement or topicalization, however, do not license reciprocal binding, as shown in (11):

(11) a. *Which students did each other's mother scold?
b. *These students, each other's mother scolded.

L-scrambling, as is expected, behaves as A-bar-movement, as shown in (12):

(12) a. *Otagai$_i$-no ryoosin-ga [Bill-ga [John-to Mary]$_i$-o sikatta]-to omotteiru
each-other-gen parents-nom -nom -and -acc scolded-comp think
'Each other's parents think that Bill scolded John and Mary.'

b. *[John-to Mary]$_i$-o otagai$_i$-no ryoosin-ga [Bill-ga t_i sikattta]-to omotteiru
-and -acc each-other-gen parents-nom -nom scolded -comp think
'(lit) [John and Mary]$_i$, each other$_i$'s parents think that Bill scolded t_i.'

The violation of reciprocal binding in (12a) is not saved by L-scrambling of the intended antecedent of the reciprocal in (12b).

S-scrambling, as is also expected, behaves as A-movement, as shown in (13):

(13) a. ?*Bill-ga otagai$_i$-no ryoosin-ni [John-to Mary]$_i$-o shookaisita.
-nom each-other-gen parents-dat -and -acc introduced

'(lit) Bill introduced (to) each other's parents John and Mary.'
'Bill introduced John and Mary to each other's parents.'

b. ?Bill-ga [John-to Mary]$_i$-o otagai$_i$-no ryoosin-ni t_i shookaisita.
-nom -and -acc each-other-gen parents-dat introduced
'(lit) Bill introduced [[John and Mary]$_i$ [(to) each other's parents t_i]]

In (13a), the reciprocal is not c-commanded by the antecedent, violating the binding condition A. In (13b), the S-scrambled antecedent c-commands, and licenses, the reciprocal. M-scrambling, however, may marginally feed reciprocal binding, as shown in (14):

(14) a. ?*Otagai$_i$-no ryoosin-ga [John-to Mary]$_i$-o sikatta.
each-other-gen parents-nom -and -acc scolded.
'Each other's parents scolded John and Mary.'

b. ??[John-to Mary]$_i$-o otagai$_i$-no ryoosin-ga t_i sikatta.
-and -acc each-other-gen parents-nom scolded
'(lit) [John and Mary]$_i$, each other$_i$'s parents scolded t_i.'

For some speakers, the interpretation of (14b) is not 'standard', in that the antecedent of the reciprocal is not distributed. Thus, (14b) means not (15a) but (15b):

(15) a. John's mother scolded Mary, and Mary's mother scolded John.

b. John's mother scolded John and Mary, and Mary's mother scolded John and Mary.

This seems to show that the landing site of M-scrambling has an intermediate status between A- and A-bar-position, with respect to reciprocal binding[8].

2.2.3. Strong Crossover

[8] I will return to this dual character in § ??.

The third diagnosis is strong crossover effects. A descriptive characterization of the phenomenon is given in (16):

(16) A pronoun may not c-command a member of the A-bar-chain containing the quantified NP coindexed with the pronoun at S-structure[9].

(16), thus, rules out (17):

(17) *Whose$_i$ mother did he$_i$ see t_i?

In (17), 'he$_i$' c-commands t_i, which is a member of the chain containing 'whose$_i$'. As is explicitly stated in (16), only an A-bar-chain is relevant to strong crossover effects. Thus, (17) does not violate (16):

(17) [Whose$_i$ mother]$_j$ t'$_j$ seems to him$_i$ [t_j to be stupid]?

In (17), although 'him$_i$',c-commands 't_i', which in the D-structure position of the WH-phrase, 'him$_i$' can be interpreted as a variable bound by 'whose$_i$' since 't_i' is not a member of an A-bar-chain. A similar example in Japanese is given in (18) and (19)[10]:

(18) [Dare$_i$-no sensei]$_j$-ga soitu-ni t_j shookaisareta no.
who-gen teacher-nom the-guy-dat was-introduced Q
'(lit) [Whose$_i$ teacher] was introduced (to) the guy$_i$ t_i.'

[9]See Higginbotham(1983) and §4.3. for more details of this condition.
[10]See Nishigauchi(1986) for syntactic and semantic properties of wh-constructions with the scope marker *mo*.

Strong crossover, thus, seems to be a good test to examine whether the relevant movement is A- or A-bar-movement. Let us consider S-scrambling cases given in (18) and (19)<fn-12>:

(18) a. *John-ga $soitu_i$-ni $dare_i$-no sensei-o shookaisita-no?
-nom the guy-dat who-gen teacher-acc introduced-Q
'(lit) John introduced (to) the guy_i $whose_i$ teacher'
'Whose teacher did John introduce to the guy?'
b. ?John-ga [$dare_i$-no sensei]$_j$-o $soitu_i$-ni t_j shokaisita-no?
-nom who-gen teacher-acc the guy-dat introduced-Q

(19) a. *John-ga $soitu_i$-ni [[e $dare_i$-ni aitagatteiru] hito]-mo shookaisita
-nom the-guy-dat who-dat want-to-meet person-MO introduced
'(lit) John introduced (to) the guy_i [MO person who wanted to who_i]
'For all x,y, x a person, y a person, x wanted to meet y, John introduced x to y.'
b. John-ga [[e $dare_i$-ni aitagatteiru] hito]-mo$_j$ $soitu_i$-ni t_j shookaisita.
-nom who-dat want-to-meet person-MO the-guy-dat introduced

In (18a) and (19a), 'soitu' c-commands the WH-phrase, violating Principle C at S-structure. (18b) and (19b) show that S-scrambling neutralizes a Principle C violation without violating (16). This result again suggests that S- scrambling has a typical property of A-movement.

L-scrambling consistently behaves as A-bar-movement with respect to (16), as shown in (20) and (21):

(20) a. *$Soitu_i$-ga [John-ga $dare_i$-no hahaoya-o nagutta]-to omotteiru-no?
the guy-nom -nom who-gen mother-acc hit -comp think-Q
'(lit) The guy_i thinks that John hit $whose_i$ mother'
'$Whose_i$ mother does the guy_i think that John hit?'
b. *[$Dare_i$-no hahaoya]$_j$-o $Soitu_i$-ga [John-ga t_j nagutta]-to omotteiru-no?
who-gen mother -acc the guy-nom -nom hit -comp think -Q
'(lit) $Whose_i$ mother, the guyi thinks that John hit t_i'

(21) a. *Soitu$_i$-ga [John-ga katteni [[e dare$_i$-ni kita] tegami]-mo
the-guy-nom -nom without-permission who-dat came letter -MO
yondesimau]-to omotteiru
read -comp think
'(lit) The guy$_i$ thinks that John reads [MO letter that comes to who$_i$] without permission.
'For all x,y, x a person, y a letter, y comes to x, John reads y without permission'
b. *[[e dare$_i$-ni kita] tegami]-mo$_j$ soitu$_i$-ga [John-ga katteni
who-dat came letter -MO the-guy-nom -nom without-permission
yondesimau]-to omotteiru
read -comp think
'(lit) [MO letter that comes to who$_i$]$_j$, the guy$_i$ thinks that John reads t$_j$'

(20b) and (21b) are derived from (20a) and (21a),respectively, by L- scrambling, and they show strong crossover effects.

M-scrambling, however, behaves, not as A-movement, but as A-bar-movement, as shown in (22) and (23):

(22) a. *Soitu$_i$-ga dare$_i$-no sensei-o nagutta-no?
the guy-nom who-gen teacher-acc hit-Q
'(lit) The guy$_i$ hit whose$_i$ teacher.'
'Whose teacher did the guy hit?'
b. *[Dare$_i$-no sensei]$_j$-o soitu$_i$-ga t$_j$ nagutta-no?
who-gen teacher-acc the guy-nom hit-Q
'(lit) [Whose$_i$ teacher]$_j$, the guy$_i$ hit t$_j$'

(23) a. *Soitu$_i$-ga [[e dare$_i$-o sikatta] sensei]-mo hihansita
the-guy-nom who-acc scolded sensei -mo criticized
'(lit) The guy$_i$ criticized [MO teacher who scolded who$_i$.'
'For all x,y, x a person, y a teacher, y scolded x, x criticized y.'

b. *[[e dare$_i$-o sikatta] sensei]-mo soitu$_i$-ga t$_i$ hihansita
who-acc scolded teacher-MO the-guy-nom criticized.

'(lit) [MO teacher who scolded who$_i$]$_j$, the guy$_i$ criticized t$_j$

(22b) and (23b), which are derived from (22a) and (22b), respectively, by M- scrambling, exhibit strong crossover effects. One might suppose that their ungrammaticality is reducible to weak crossover effects, since WH-phrase does not c-command 'soitu' at S-structure. This, however, does not work well, since if 'soitu' does not c-commands the NP containing the WH-phrase at D-structure, M-scrambling does exhibit weak crossover neutralization, as shown below:

(24) a. *Soitu$_i$-no hahaoya-ga dare$_i$-no sensei-o nagutta-no?
the guy-nom mother-nom who-gen teacher-acc hit-Q
'(lit) The guy/i's mother hit whose$_i$ teacher.'
'Whose teacher did the guy's mother hit?'
b. ?[Dare$_i$-no sensei]$_j$-o soitu$_i$-no hahaoya-ga t$_j$ nagutta-no?
who-gen teacher-acc the guy-nom mother-nom hit-Q
'(lit) [Whose$_i$ teacher]$_i$, the guy/i's mother hit t$_i$'

(25) a. *Soitu$_i$-no hahaoya-ga [[e dare$_i$-o sikatta] sensei]-mo hihansita
the-guy-gen mother-nom who-acc scolded sensei -mo criticized
'(lit) The guy/i's mother criticized [MO teacher who scolded who$_i$].'
'For x,y,z, x a person, y a teacher, z is x's mother, y scolded x, z criticized y.'
b. [[e dare$_i$-o sikatta] sensei]-mo soitu$_i$-no hahaoya-ga t$_i$ hihansita
who-acc scolded teacher-MO the-guy-gen mother-no criticized
'(lit) [MO teacher who scolded who$_i$]$_j$, the guy$_i$'s mother criticized t$_j$.'

In (24b) and (25b), which are derived from (24a) and (25a), respectively, by M-scrambling, WCO is neutralized even though the WH-phrase contained in the M-scrambled NP does not c-command the 'so-' expression.

2.2.4. Adjunct Extraction

The Condition on Extraction Domains (CED) bars against the extraction out of a domain which is not properly governed[11]. Two cases are generally covered by CED: extraction out of subjects and out of adjuncts, as illustrated in (26) and (27), which are taken from Chomsky(1986b):

(26) *the man who [[pictures of t] are on the table]

(27) *Who did [they leave [before speaking to t]]

In Japanese, however, only extraction out of adjuncts is constrained by CED, as shown by Lasnik and Saito(1990) and Kikuchi(1987). Consider the following examples from Kikuchi(1987)[12]:

(28) *[[Op$_i$ Minna-ga [Paul-ga t_i yonda ato]-de sampo-ni dekaketa] yorimo]
everyone-nom -nom read after-at walking-for went-out than
John-wa takusan hon-o yondeita
-top many book-acc have-read
'(lit) John has read more books than everyone went for a walk after Paul read'
(Kikuchi(1987), P37)

(29) ?Paul-wa [[OP$_i$ [[[John-ga t_i yonda] koto]-ga akiraka-na]] yorimo
-top -nom read fact-nom clear is than
takusan hon-o yondeita
many book-acc have-read

---

[11]Cf. Huang(1982) and Chomsky(1986a).

[12]The slight marginality is to be related to Complex NP Condition induced by the nominal character of the subject clause, since even if the it appears in an object position, extraction out of it results in marginality of the same degree:

(i) ?Paul-wa [[OP$_i$ [Mary-ga [[John-ga t_i yonda] koto]-o akiraka-ni site]] yorimo
-top -ga -nom read fact-acc clear did than
takusan hon-o yondeita
many book-acc have-read
'(lit) John has read more books than Mary made clear the fact that Paul read'

'(lit) John has read more books than the fact that Paul read is clear.'
(Kikuchi(1987), P35))

In (28), the empty operator is extracted out of an adjunct, resulting in the violation of CED. In (29), however, extraction of the empty operator out of the clause in subject position does not induce a CED violation. Moreover, even extraction out of the derived subject in a passive construction does not induce a CED violation, as illustrated in (30)[13]:

(30) ?Paul-wa [[OP$_i$ [[[John-ga t_i yonda] koto]-ga akiraka-ni sareta]]
-top -nom read fact-nom clear was-done
yorimo] takusan hon-o yondeita
than many book-acc have-read
'(lit) John has read more books than the fact that Paul read was made clear.'

NP-movement in English, on the other hand, does yield subjects that induce a CED violation, as shown in (30)[14]:

(30) a. Who did John see pictures of t ?
b. *Who were pictures of t seen?.

In order to explain the non-existence of CED effects with respect to subjects in Japanese, we must assume that every argument position, whether base generated or derived, is properly governed in Japanese. Given this assumption, we may expect CED to be a possible diagnosis for examining whether the relevant movement is A-bar-movement or NP-movement. Let us now consider (31):

(31) a. *John-ga [[e sore$_i$-o sinjiru hazunonai] hito]-ni Mary-ga
-nom it -acc believe would-not person-dat -nom
(ittai) dare-o korosita]-tte$_i$ tutaeta-no?

[13]See Hoji, Miyagawa, and Tada(1989) for several arguments for an NP-movement analysis of direct passives in Japanese.
[14]See Lasnik and Saito(1992) for relevant discussion.

the-hell who-nom killed -comp told-Q
'(lit) John told the person who would not believe it$_i$ [that Mary killed who (the hell)]$_i$
'Who(the hell) did John say to the person who would not believe it$_i$ [that Mary killed t]$_i$?'
b. John-ga [Mary-ga (ittai) dare-o korosita] -tte$_j$ [[e sore$_i$-o
-nom war-nom the-hell who-acc killed -comp it-acc
sinjiru hazunonai] hito]-ni] t$_j$ tutaeta no?
believe would-not person-dat told Q

In (31), 'sore' cannot be coindexed with the CP containing a WH-phrase, which does not c-command 'sore'. If the CP is S-scrambled to a position which c-commands 'sore', the result is grammatical. We may consider this effect to be a special case of WCO neutralization (cf. Sec.1.1), if we assume that any expression containing a variable bound by a quantifier induces WCO violation. This is confirmed by the behaviors of M- and L-scrambling, as illustrated in (32) and (33), respectively:

(32) a. *[[e Sore$_i$-o sinjitemoinai] hito] -ga [Mary-ga (ittai) dare-o
it-acc did-not-believe person-nom -nom the-hell who-acc
korosita]-tte itta no
killed -comp said Q
'(lit) The person who did not believe it$_i$ said [that Mary killed who]$_i$
'Who$_j$ did the person who did not believe it$_i$ say [that Mary killed who]$_i$?'
b. [Mary-ga (ittai) dare-o korosita]-tte$_i$ [[e sore$_i$-o sinjitemoinai
-nom the-hell who-acc killed -comp it-acc did-not-believe
hito]-ga t$_i$ itta no.
person-nom said Q
'(lit) [That Mary killed who (the hell)], the person who did not believe it$_i$ said t$_i$.

(33) a. *[[e sore$_i$-o hazime-ni iidasita] hito]-ga [John-ga [Mary-ga (ittai)
it-acc originally proposed person-nom -nom nom the-hell
dare-o korosita]-to hajimeni iidasita]-to omotteiru no
who-acc killed -comp originally proposed-comp thinks Q
The man who originally proposed it$_i$ thinks that John originally proposed that

Mary died who?'

b. *[Mary-ga (ittai) dare-o korosita]-to$_i$ [[e sore$_i$-o hajimeni
-nom the-hell who-acc killed-comp it-acc originally
iidasita] hito]-ga [John-ga hajimeni t_i iidasita]-to omotteiru no
proposed person-nom -nom originally proposed-comp think Q

'(lit) [That Mary killed who]$_i$, the person who originally proposed it$_i$ thinks that John originally proposed t_i'

M-scrambling of the CP containing a WH-phrase makes the coindexing of 'sore' with the CP possible, as shown in (32), but L-scrambling of the CP does not, as shown in (33). This pattern is consistent with the generalization we gave in Section 1.1. that S- and M-scrambling behaves as A-movement, whereas L-scrambling behaves as A-bar-movement.

This pattern, however, breaks down, if the WH-phrase contained in the CP is a 'true' adjunct, as shown in (34-36)[15]:

(34) a. *John-ga [[e sore$_i$-o sinjiru hazunonai] hito]-ni [sensoo-ga
-nom it -acc believe would-not person-dat war-nom
(ittai) naze okotta]-tte$_i$ t tutaeta-no?
the-hell why took-place-comp told-Q

'(lit) John told the person who would not believe it$_i$ [that the war took place why (the hell)]$_i$

'Why (the hell) did John say to the person who would not believe it$_i$ [that the war took place t]$_i$?'

b. ?John-ga [sensoo-ga (ittai) naze okotta] -tte$_j$ [[e sore$_i$-o
-nom war-nom the-hell why took-place -comp it-acc
sinjiru hazunonai] hito]-ni] t_j tutaeta no?
believe would-not person-dat told Q

'(lit) [That the war took place why (the hell)]$_i$, John said that the person who would not believe it$_i$'

(35) a. *[[e Sore$_i$-o sinjitemoinai] hito] -ga [sensou-ga naze okotta]-tte itta no
it-acc did-not-believe person-nom war-nom why took-place -comp said Q

[15](34-36) are of course grammatical if *sore* is not correferential with the CP.

'(lit) The person who did not believe it_i said [that the war took place why]$_i$
'Why$_j$ did the person who did not believe it_i say [that the war took place t/j]$_i$?'

b. *[Sensou-ga naze okotta]-tte$_i$ [[e sore$_i$-o sinjitemoinai
war-nom why took-place -comp it-acc did-not-believe
hito]-ga t_i itta no.
person-nom said Q
'(lit) [That the war took place why]$_i$, the person who did knot believe it_i said t_i.

(36) a. *[[e sore$_i$-o hazime-ni iidasita] hito]-ga [John-ga [sensou-ga
it-acc originally proposed person-nom -nom war-nom
naze okotta]-tte hajimeni iidasita]-to omotteiru no
why took-place -comp originally proposed-comp thinks Q
'(lit)The man who originally proposed it_i thinks that John originally proposed [that the war took place why]?'
'Why does the person who originally proposed it thinks that John originally proposed [that the war took place t]

b. *[Sensou-ga naze okotta]-tte$_i$ [[e sore$_i$-o hajimeni
war-nom why took-place -comp it-acc originally
iidasita] hito]-ga [John-ga hajimeni t_i iidasita]-to omotteiru no
proposed person-nom -nom originally proposed-comp think Q
'(lit) [That the war took place why]$_i$, the person who originally proposed it_i thinks that John originally proposed t_i'

In (34b), which is derived from (34a) by S-scrambling of the CP, WCO neutralization takes place. In (36b), which is derived from (36a) by L- scrambling of the CP, WCO neutralization does not takes place. These two cases are consistent with the generalization given in Section 1.1. M- scrambling of the CP, however, does not induce WCO neutralization, contrary to the generalization, as illustrated in (35b), which is derived from (36a).

We may assume that this break-down is caused by a CED (or more precisely, the Empty Category Principle (ECP)) effect with respect to extraction of the adjunct Wh-phrase out of an adjunct at LF. We may, thus, regard the contrast between (31b) and (35b) as comparable to that between (37a,b):

(37) a. [Mary-ga nani-o sita]-node John-ga okotta no
-nom what-acc did-because -nom got-angry Q
'(iit)John got angry because Mary did what?'
b.*[Mary-ga naze kita]-node John-ga okotta no
-nom why came -because -nom got-angry Q
'(lit)John got angry because Mary came why?'

The parallelism between the standard ECP phenomena and the "ECP" induced by WCO neutralization is consistent if we replace 'naze' by 'donna riyuu' (= 'for what reason'), a near synonym, as shown in (38) and (39)[16]:

(38) [Mary-ga donna riyuu-de kita]-node John-ga okotta no
-nom what reason-for came -because -nom got-angry Q
'(lit)John got angry because Mary came for what reason?'

(39) [Sensou-ga donna riyuu-de okotta]-to$_i$ [[e sore$_i$-o sinjitemoinai
war-nom what reason-for took-place -comp it-acc did-not-believe

[16]English also exhibits this kind of argument-adjunct asymmetry with respect to the possibility of correference between a pronoun and a CP containing a wh-trace:

(i) What did you say [John bought t]$_i$, although no one would believe it$_i$?
(ii) Who did you say [t bought your car]$_i$, although no one would believe it$_i$?
(iii) *Why did you say [John died t]$_i$, although no one would believe it$_i$?

The bracketed CP can be coreferential with the pronoun if the trace is an object, as in (i), or a subject, as in (ii). This coreference, however, is impossible if the trace is a "true" adjunct, as in (iii). This pattern can be accounted for if we assume that the CP, which is not a referring expression, must undergo QR in order to c-command and, hence, bind the pronoun at LF, and that the CP in A-bar position becomes a barrier. It should be noted that the configuration resulting from QR is immune to WCO, since the pronoun is contained in an adjunct clause (cf. Stowell(??)). The contrast between (ii) and (iii) strongly suggests that antecedent government takes place at S-structure for arguments and at LF for adjuncts, Interestingly enough, pied-piped adjuncts patterns with arguments, as in Japanese:

(iv) For what reason did you say [John died t]$_i$, although no one would believe it$_i$?

hito]-ga t_i itta no.
person-nom said Q
'(lit) [That the war took place why]$_i$, the person who did not believe it$_i$ said t_i.

In order to explain the pattern illustrated in (34-36) in terms of the ECP, which prevents extraction of 'true' adjunct out the A-bar-position, but not out of A-position in Japanese, we must conclude that S-scrambling behaves as A-movement, whereas M- and L-scrambling behave as A-bar-movement.

2.2.5. Summary

Let us summarize the result given above in (40):

(40)	S-scrambling	M-scrambling	L-scrambling
WCO-neutralization	A	A	A-bar
Reciprocal Binding	A	A and A-bar?	A-bar
Strong Crossover	A	A-bar	A-bar
Adjunct Extraction	A	A-bar	A-bar

We may thus conclude that S- and L-scrambling has typical properties of A- and A-bar-movement, whereas M-scrambling has properties of both A- and A-bar- movement, but only partially[17]. A natural question immediately arises: Are the three types of scrambling

---

[17]This characterization accounts for Saito's(1985) observation that long-distance scrambling to a position between the subject and the dative is at best marginal, as illustrated in (i):

(i) ?*John-ga kono hon-o$_i$ Mary-ni [Bill-ga t_i yonda]-to itta..
-nom this book-acc -dat -nom read-comp said
'(lit) John said, this book, to Mary that Bill read.'

Scrambling to a post-subject position must be always A-movement, as the tests for S-scrambling shows, and scrambling out of a tensed clause must be always A-bar movement, as those for L-scrambling shows. These two requirements are in contradiction in sentences such as (i).

distinct operations in reality, or are they different manifestations of the same single operation? We will see some evidence for the second possibility below.

2.3. The Optionality Problem

In this section, we will show that all the three types of scrambling, which are phenomenally to be distinguished, as we have seen in §2.1., share an essential property : optionality.

2.3.1. Optionality of L-scrambling

In §2.2., we have seen that L-scrambling has all the A'-movement properties, as far as the four syntactic tests can tell. Saito(1989), however, shows that L-scrambling has an important property which is not shared by 'pure' A'-movement such as WH-movement, giving the following examples:

(41) a. [$_{IP1}$ Mary-ga [$_{CP2}$ [$_{IP2}$ minna-ga [$_{CP3}$ [$_{IP3}$ John-ga dono hon-o toshokan-kara
-nom all -nom -nom which book-acc library-from
karidasita] to] omotteiru] ka] siritagatteiru] (koto)
checked-out COMP think Q want-to-know fact
'(lit) [$_{IP1}$Mary wants to know [$_{CP2}$ Q[$_{IP2}$ everyone thinks [$_{CP3}$that John checked out which book from the library]]]]'
'Mary wants to know which book everyone thinks that John checked out?'
b. ??[[John-ga dono hon-o toshokan-kara karidasita] to]$_i$ [Mary-ga [[minna-ga t_j omotteiru] ka] siritagatteiru]] koto
'(lit) [$_{IP1}$[$_{CP3}$That John checked out which book from the library]$_i$ [$_{IP1}$Mary wants to know [$_{CP2}$ Q [$_{IP2}$everyone thinks t_j]]]]

(41b) is derived from (41a) by L-scrambling of the most deeply embedded CP containing a WH-phrase, resulting in a bit marginal status. The point in these examples is that the CP is L-scrambled out of the scope domain of the Q-maker to which the WH-phrase must move at LF. If only the WH-phrase moves to Q, the resulting structure violates the proper binding condition, which is schematically illustrated in (42):

(42) $[_{IP1}\ [_{CP3} \ldots t_i \ldots]_j\ [_{IP1} \ldots [_{CP2}\ [_{IP2} \ldots t_j \ldots]\ wh_i\text{-}Q] \ldots]]$

(41b) must be as bad as (43a), since (43b), the schematic structure of the LF of (43a), is representationally as bad as (42), with respect to the proper binding condition:

(43) a. *[IP1 John-ga dare-ni [CP2 [IP2 Mary-ga kuru] ka] osieta] (koto)
-nom who-dat -nom come Q taught fact
'(lit) [IP1 John told who [CP2 [IP2Q Mary is coming]]]'

b. $[_{IP1} \ldots t_i \ldots [_{CP2}$ IP2 wh_i-Q]...]

(41b), however, is much better than (43a). In fact, (43) is uninterpretable. Given these facts, Saito concludes that the (L-) scrambled CP is undone at LF, saving the violation of the proper binding condition. Thus, the final LF representation of (41b) is schematically (44):

(44) $[_{IP1} \ldots [_{CP2}\ [_{IP2} \ldots [_{CP3} \ldots t_i \ldots] \ldots] wh_i\text{-}Q] \ldots]$

Saito claims that this kind of 'literal reconstruction' is available to scrambling, which is 'semantically vacuous', but not to 'semantically significant' A'-movement such as topicalization, as shown in (45):

(45) *Mary thinks that [the man that bought what]$_j$, John knows who$_i$ t_i likes t_j

A similar phenomenon is exhibited in the interaction of scrambling and QP- scope interpretation. As is claimed by Kuroda(1969,1970) and extensively discussed by Hoji(1985), in the basic word order, QP scope interpretation is determined by the S-structure configuration, but scrambling may change the interpretation. Thus in (46a), 'someone' must have scope over 'everyone', whereas the scope interpretation of (46b) is ambiguous.

(46) a. Dareka-ga daremo-o aisiteiru.
someone-nom everyone-acc loves
'Someone loves everyone.'
b. Daremo$_i$-o, dareke-ga t_i aisiteiru.
everyone-acc someone-nom loves
'(lit) Everyone, someone loves.'

Let us consider the interaction between L-scrambling and QP scope interpretation, as illustrated in (47):

(47) a. Dareka-ga [John-ga daremo-o aisiteiru]-to omotteiru.
someone-nom -nom everyone-acc loves -comp think
'Someone thinks that John loves everyone.'
b. Daremo$_i$-o, dareke-ga [John-ga t_i aisiteiru]-to omotteiru.
everyone-acc someone-nom -nom loves -comp thinks
'(lit) Everyone, someone thinks that John loves.'

Surprisingly, (47b) as well as (47a) are unambiguous, that is, 'someone' must have scope over 'everyone'. This means that L-scrambling of QP cannot determine its scope, coinciding with Saito's characterization of (L-)scrambling as 'semantically vacuous' A'-movement.

2.3.2. Difference between S-Scrambling and 'Pure' A-movement

In Section 1, we showed that S-scrambling has all the properties of A- movement detectable in terms of the four syntactic tests. In this Section, we will consider one more typical (or essential) property of A-movement, and examine whether S-scrambling has the property.

2.3.2.1. 'Last Resort' Principle

Consider (48), which is from Lasnik(??):

(48) a. It strikes me that Mary is peculiar.

b. *I_i strike t_i that Mary is peculiar.

The subject of 'strike' is in a theta-bar position, as shown in (48a), but the NP-movement to that position is impossible, as shown in (48b). Neither theta-criterion nor the binding condition A is violated. (48b) seems to be ruled out only by the 'last resort' principle in Chomsky(1986a):

(50) If C = (α_1,...,α_n) is a maximal CHAIN, then α_n occupies its unique theta-

position and α_1 occupies its unique Case-marked position.

(48b), thus, is ruled out, since in the maximal CHAIN (I, t), both the members are in a Case-marked position. This principle essentially rules out unnecessary NP-movement, having a flavor of the 'least effort' principle in Chomsky(1989).

We can show that the NP-movement in Japanese also obeys the 'last resort' principle. Let us consider so-called 'intransitivizing resultatives' (IR) such as (27)(cf. Martin(1975)):

(51) Kabin-ga$_i$ tsukue-ni oi-tearu.
vase-nom desk-dat put-TEARU
'A vase has been put on the desk.'

IR is created by attaching the affix '-tearu' (or more precisely '-te-aru') to a verb, resulting in the suppression of the external theta-role and optional case conversion (acc -> nom). Hoji, Miyagawa, and Tada(1989) argues that the case conversion is established by NP-movement from the object position to the subject position, giving the following kind of evidence:

(52) a. Kabin-ga$_i$ tukue-ni t_i 3-tu oi-tearu
vase-nom desk-dat -cl. put-TEARU
'Three vases have been put on the desk.'
b. Nanika-ga$_i$ subete-no-tukue-ni t_i oi-tearu
something-nom all-gen-desk-dat put-TEARU
'Something has been put on all the desks.'

c.?[[sore$_i$-o huita]zoukin]-ga$_j$ dono-tukue-ni-mo$_i$ t$_i$ oi-tearu[18]

it-acc wiped cloth-nom which-desk-dat-MO put-TEARU

'The cloth that was used to wipe$_i$ it has been put on every desk$_i$.'

In (52a), the numeral quantifier which is not adjacent to its 'antecedent' is licensed by the adjacent NP-trace. In (52b), the subject quantifier can be interpreted as within the scope of the quantifier in the indirect object position, since the latter c-commands the trace of the former. In (28c), an empty category (pro) can be construed as a bound variable of the quantifier in the indirect position, since the quantifier c-commands the trace of the NP containing the pro (cf. Barss(1986)). All the three phenomena show some sort of 'reconstruction effect.'

Given the NP-movement analysis of IR, let us consider a case of IR without case conversion:

(53) pro tsukue-ni kabin-o 3-tu oi-tearu.

desk-dat vase-acc -cl put-TEARU

'(lit) There have been put three vases on the desk.'

'Three vases have been put on the desk.'

In (53), the object NP is assigned accusative Case by the verb and stays in- situ. This raises a problem, since if the verb with '-tearu' can assign Case to the NP object, as in (53), we might expect the object trace in (51) and (52) to be assigned Case, violating the 'last resort' principle. To examine whether this is the case or not, Consider (54)<fn->:

---

[18]Whether NP-movement may show reconstruction effects is a controversial issue. For at least some speakers, (i) is better than standard WCO cases such as (ii):

(i) His$_i$ mother seems to everyone$_i$ [t to be sick]

(ii) His$_i$ mother loves everyone$_i$.

(54) a. pro John-ni kabin-o 3-tu kaw-ase-tearu.

-dat vase-acc -cl. buy-cause-TEARU

'(lit) There has been made John buy three vases.

'John has been made to buy three vases.

b. *Kabin-ga$_i$ John-ni t_i 3-tu kaw-ase-tearu

vase-nom -dat -cl. buy-caus-TEARU

'(lit) Three vases have been made John buy t.'

If '-tearu' is attached to the causative affix which is attached to a transitive verb, the object of the verb can show up as accusative NP, but not nominative NP. One might assume that this is the violation of the binding principle A, since the NP trace, an anaphor, is not bound within the complement of the causative, which appears to be the governing category of the NP-trace. This explanation, however, seems to be problematic, since, as Kitagawa(1986) discusses, The governing category for the anaphor in that position is not the embedded clause, but the matrix, as the grammaticality of (31b) against the ungrammaticality of (55a) shows:

(55) a. ?*John-ga$_i$ [Mary-ga zibunzisin-o$_i$ semeta to] omotteiru

-nom -nom self-acc criticized COMP think

'*John thinks that Mary criticized himself.'

b. John-ga$_i$ Mary-ni zibunzisin-o$_i$ seme-sase-ta

-nom -dat self-acc criticize-caus-past

'*John made Mary criticize himself.'

Miyagawa(1989) gives an interesting account to similar cases, which contains, not IR, but passives. Consider (56):

(56) a. John-ga$_i$ t_i kusuri-o nom-as-are-ta

-nom medicine-acc take-caus-pass-past

'John was made to take a medicine.'

b. *Kusuri-ga$_i$ John-ni t_i nom-as-are-ta

medicine-nom -dat take-caus-pass-past

'*A medicine was made John take.'

If the passive morpheme is attached to the causative morpheme which is attached to a transitive verb, only the dative subject, but not the accusative object, of the verb can be NP-moved. Miyagawa claims that this phenomenon can be explained if we assume that passive morpheme '-rare' must absorb case, and that case absorption obeys an adjacency condition. Thus, (56a) is well-formed, since '-rare' absorbed the case assigning feature of causative adjacent to it. (56b), on the other hand, is ruled out, since '-rare' failed to absorb the case assigning feature of the verb which is not adjacent to it.

Now, let us return to (53), (52a), and (54) repeated as (57a), (57b) and (58), respectively:

(57) a. pro tsukue-ni kabin-o 3-tu oi-tearu.

desk-dat vase-acc put-TEARU

'Three vases have been put on the desk.'

b. Kabin-ga$_i$ tsukue-ni t_i 3-tu oi-tearu.

vase-nom desk-dat -cl. put-TEARU

'Three vases have been put on the desk.'

(58) a. pro John-ni kabin-o 3-tu kaw-ase-tearu.

-dat vase-acc -cl. buy-cause-TEARU

'(lit) There have been made John buy three vases.'

'John has been made to buy three vases.'

b. *kabin-ga$_i$ John-ni t_i 3-tu kaw-ase-tearu

vase-nom -dat -cl. buy-caus-TEARU

'(lit) Three vases have been made John buy.'

The contrast between (57b) and (58b) shows that NP-movement in IR is possible only when Case-absorption is possible, according to Miyagawa's theory, which prevents 'long-distance' Case-absorption through a causative morpheme. We may explain this contrast, if we assume that '-tearu' optionally absorbs the Case-assigning property of the verb, and that NP- movement takes place only if the Case assigning property is absorbed, obeying the 'last-resort' principle. (58b) is, thus, ruled out, since the 'trace' is assigned the Case which '-tearu' failed to absorb. We must, now, conclude that NP-movement in Japanese obeys the 'last-resort' principle[19].

2.3.2.2. Optionality of S-scrambling

One way to show whether S-scrambling obeys the 'last resort' principle is to construct a context where S-scrambling moves an element in Case- marked position to another position (either Case-marked or not), and examine whether the landing site exhibits properties of A-movement. This is, however, difficult to pursue, since recently it has been proposed by Chomsky(1988) that structural Case assignment is licensed by some functional category within an articulated IP structure (cf. Pollock(1989)). These abstract

[19]In §4.2., I will give an object-shift analysis of nominative objects constructions, and argue that object shift in that sense obeys the last resort principle.

functional categories are poorly known so far, in particular, in Japanese, where no agreement morphology has been detected. So, it is extremely difficult to tell whether the landing site of such a short distance movement as S-scrambling is a Case-marked position or not for independent grounds.

There, however, seems to be another way to examine whether S-scrambling obeys the 'last resort' principle or not. Consider the following:

(58) a. John believes that Mary will win.

b. John believes the claim.

(59) a. It is believed that Mary will win.

b. *It is believed the claim.

(60) a. That Mary will win is believed.

b. The claim is believed.

As shown in (58), both CP and NP can appear in a Case position. But, if Case is not available there, only CP can stay there, as shown in (59). In that context, NP must move to the subject position, whereas CP may move there, as shown in (60). These examples show that NP must be assigned Case, whereas CP can be, but need not. The optionality of Case assignment, however, is limited only in the complement position, as Lasnik and Uriagereka(1988) points out, giving the following examples:

(61) a. I believe [[that John loves Mary] to be surprising].

b. *It is likely [[that John loves Mary] to be surprising].

To explain this mystery, the following data are suggestive[20]:

[20] I thank David Pesetsky for informing me that this pattern is discussed in Kitagawa(1986).

(62) a. It is likely [t to be believed [that John loves Mary]].

b. *It is likely [[that John loves Mary] to be believed t].

c. [That John loves Mary] is likely [t to be believed t]

(62) shows that CP need not get Case, but if it NP-moves, it must reach a Case marked position, that is, if it moves, it must obey the 'last resort' principle[21][22] To extend this analysis to (61), all we have to do is to assume is the VP-internal subject hypothesis which implies that all IP subjects are derived by NP-movement. If this analysis is on the right track, we should conclude that the 'so-called' small clauses are headed by a functional category, to explain the ungrammaticality of the following example:

(63) *It seems [[that John loves Mary] surprising].

Given the assumption that CP cannot NP-move to a non-Case marked position, we can, now, examine whether S-scrambling obeys the 'last resort' principle. Let us take (34), repeated here as (64):

(64) a. *John-ga [[e sore$_i$-o sinjiru hazunonai] hito]-ni [sensoo-ga
-nom it -acc believe would-not person-dat war-nom
(ittai) naze okotta]-tte$_i$ tutaeta-no?
the-hell why took-place-comp told-Q

[21]Even if we assume, following Koster(??), that sentential subjects occupy the topic position, this argument will not be affected. In that case, NP-movement of the CP to a subject position is (obligatorily) followed by its topicalization, and if nominative Case is not assigned to the variable in the subject position, it violates the Last Resort.

[22]In §3.2.4., I will give an alternative account within Chomsky's(1991, 1992) Case Theory, where the subject of the embedded clause in ECM constructions is not a Case-marked Position, and moves to Spec-AGR_OP to get Case.

'(lit) John told the person who would not believe it$_i$ [that the war took place why (the hell)]$_i$

'Why (the hell) did John say to the person who would not believe it$_i$ [that the war took place t]$_i$?'

b. ?John-ga [sensoo-ga (ittai) naze okotta] -tte$_i$ [[e sore$_i$-o
-nom war-nom the-hell why took-place -comp it-acc
sinjiru hazunonai] hito]-ni] t$_i$ tutaeta no?
believe would-not person-dat told Q

'(lit) [That the war took place why (the hell)]$_i$, John said that the person who would not believe it$_i$'

As we have seen in Section 1.4., (64b), which is derived from (64a) by S- scrambling of CP, shows a typical A-like property of S-scrambling, that is, it neutralizes weak crossover without creating a barrier for adjunct extraction. We may now examine whether S-scrambling to a non-Case position is possible, if we passivize (64):

(65) a. *[[e Sore$_i$-o sinjiru hazunonai] hito]-ni [sensou-ga (ittai) naze
it/acc believe would-not person-dat war-nom the-hell why
okotta]-tte tutaerareta no
took-place -comp was-told Q

'(lit) It was said to the person who would not believe it$_i$ [that the war took place why
(the hell).'

'Why$_j$ (the hell) was it$_i$ said to Mary [that the war took place t$_j$]$_i$?'

b. ?[Sensou-ga (ittai) naze okotta]-tte [[e Sore$_i$-o sinjiru
war-nom the-hell why took-place -comp it$_i$-acc believe

hazunonai] hito]-ni tutaerareta no

would-not person-dat was-told Q

(65b) seems to be as good as (64b). One might suppose that (65) is derived not by S-scrambling, but by NP-movement to the subject position, which does not exhibit CED effects, as we saw in Section 1.4., since the expletive subject in Japanese is not lexical, but empty (cf. Section 2.2.1). There, however, is evidence against the existence of sentential subjects in Japanese. Let us consider the following:

(66) a. [[Niti-bei-kankei-ga akka shi-teiru] koto]-ga kokumin-ni tsutae-rare-ta

Japan-US-relation-nom worse do-prog fact-nom nation-dat announce-pass-past

'The fact that the Japan-US relation is becoming worse was announced to the Japanese nation.'

b. [[Niti-bei-kankei-ga akka shi-teiru]-to kokumin-ni tsutae-rare-ta

Japan-US-relation-nom worse do-prog -comp nation-dat announce-pass-past

'It was announced to the Japanese nation that the Japanese-US relation is becoming worse.'

or 'That the Japan-US relation is becoming worse was announced to the Japanese nation.'

The minimal difference between (66a) and (67a) is that the theme argument of the verb 'tutaeru'(announce) is NP in (67a), but it is CP in (67a). The theme NP is clearly moved to the subject position and assigned nominative Case there. The surface structure of (66b) does not tell whether the theme CP is in the subject position or not, since the CP is not assigned a visible case morpheme. To examine it, let us consider (67a,b) next:

(67) a. [[Niti-bei-kankei-ga akka shi-teiru] koto]-ga kokumin-ni tsutae-rare-nikui
Japan-US-relation-nom worse do-prog fact-nom nation-dat announce-pass-hard
'The fact that Japanese-US relation is becoming worse is hardly announced to the Japanese Nation.'

b.*[Niti-bei-kankei-ga akka shi-teiru]-to kokumin-ni tsutae-rare-nikui
Japan-US-relation-nom worse do-perf. -comp nation-dat announce-pass-hard

The adjectival suffix '-nikui' can take as its complement an infinitival version of (66a), as shown in (67a), but not an infinitival version of (66b), as shown in (66b). This contrast seems to be related to the following contrast:

(68) a. ??Kono-te-no kabin$_i$-ga onnanoko-no tukue-ni t_i oi-teari-nikui.
this-kind-gen vase-nom girl-gen desk-on put-TEARU-hard
'This kind of vase has hardly be put on a girl's desk.'

b. *pro kono-te-no kabin-o onnanoko-no tukue-ni oi-teari-nikui.
this-kind-gen vase-acc girl-gen desk-on put-TEARU-hard

(68a) has a nominative subject as is clear from the case morphology. In (68), the matrix subject is expletive pro, since the theme object of IR is in-situ (cf. Section 2.2.1). This contrast suggests that 'nikui' must take a non-pleonastic subject. We may explain the ungrammaticality of (67b) if we assume that subject CPs do not exist in Japanese.

Let us return to (65), repeated here as (69):

(69) a. *[[e Sore$_i$-o sinjiru hazunonai] hito]-ni [sensou-ga (ittai) naze
it/acc believe would-not person-dat war-nom the-hell why
okotta]-tte tutaerareta no

took-place -comp was-told Q

'(lit) It was said to the person who would not believe it$_i$ [that the war took place why (the hell)]$_i$.'

'Why$_j$ (the hell) was it$_i$ said to Mary [that the war took place t$_j$]$_i$?'

b. ?[Sensou-ga (ittai) naze okotta]-tte$_i$ [[e sore$_i$-o sinjiru

war-nom the-hell why took-place -comp it$_i$-acc believe

hazunonai] hito]-ni t$_i$ tutaerareta no

would-not person-dat was-told Q

In (69b), which is derived from (69a), the preposing of the CP containing the WH-adjunct neutralizes WCO without inducing an ECP violation. Given the discussion so far, the preposing may not be NP-movement to the subject position, since subject CPs do not exist in Japanese, but it must be S- scrambling to a VP-periphery position, where no Case is available because of Case-absorption by passive morphology. This conclusion is supported by the following :

(70) ?[Sensou-ga (ittai) naze okotta]-tte John-ga [[[e sore$_i$-o sinjiru

war-nom the-hell why took-place-comp -nom it$_i$-acc believe

hazunonai] hito]-ni t$_i$ tutaerareta]-tte omotteiru no

would-not person-dat was-told -comp think Q

'(lit) [That the war took place why]$_i$, John thinks that it was said to the person who would not believe it$_i$ t$_i$.

'Why does John think [that it was said to [the person who would not believe it$_i$] [that the war took place t]]

(70) is created by embedding (69) in a bridge verb complement and L- scrambling the CP which contains 'naze'. (70) seems to be as good as (69). Given that L-scrambling may not neutralize WCO (cf. Section 2.2.1.), it is neutralized by the same preposing operation as the one in (69), though this is followed by L-scrambling in (70). This preposing may not be NP-movement to a subject position, since, as Saito(1985) argues, L-scrambling of a subject is prohibited, as illustrated in (71):

(71) ?*[[sensou-ga okotta] koto]-ga$_i$ John-ga [t_i Mary-ni tutaerareta]-to omotteiru.
war-nom took-place fact-nom -nom -dat was-told comp thinks
'(lit) [The fact that the war took place]$_i$, John thinks that t_i was said to Mary.'

The preposing of the CP within the embedded clause in (70) must be S-scrambling to a VP-periphery position where no Case is available because of the Case absorption by the passive morpheme 'rare'. Namely, S-scrambling does not obey the 'last-resort' principle, but it still shows properties of A-movement.

2.3.3. Optionality of M-Scrambling

Given that M-scrambling has both A- and A'-movement properties, as we saw Section 1, we need to examine whether it is optional or not in both respects, namely, whether it may undergo 'literal reconstruction' or not (optionality of A'-movement) and whether XP may be M-scrambled to a non-Case position without losing its A-movement property (optionality of A-movement). As for the first point, let us consider (72-74);

(72) John-ga [dono kodomo-o sikari]-mo sinakatta.
-nom which child-acc scold -MO did-not

'John did not scold any child.'

(73) *Dono sensei-ga [John-o sikari]-mo sinakatta.
which teacher-nom -acc scold -MO did-not

(74) ?[Dono kodomo]-o_i John-ga [t_i sikari]-mo sinakatta.
which child -acc -nom scold -MO did-not
'John did not scold any child.'

In (72), the wh-phrase in the object position is licensed by the scope marker 'mo', which is attached to VP, giving negative polarity 'any'-like reading (cf. Nishigauchi(1986)). In (73), the wh-phrase in the subject position is not licensed by 'mo', which does not c-command it. This is ruled out by the proper binding condition, since the wh-phrase moves to 'mo' leaving an unbound trace behind at LF. In (74), however, the M-scrambled wh-phrase is licensed by 'mo' outside its c-command domain, though a bit marginally. The relative acceptability of (74), as compared with (73), is explained if we assume that at LF, the M-scrambled wh-phrase is undone before wh- WH-movement takes place.

This assumption is also supported by (75):

(75) [Senso-ga naze okotta]-tte_i John-ga t_i itta no?
war-nom why took-place -comp -nom said Q
'(lit) [That the war took place why]$_i$, John said t_i.'
'Why did John say [that the war took place t]?'

In (75), the CP containing the 'true' adjunct 'naze' is M-scrambled without inducing an ECP violation. As Saito(1986) argues, this is only explained if we assume that at LF, the

CP is literally reconstructed before extraction of 'naze', since the landing site of M-scrambling creates a barrier for the ECP, as we discussed in Section 1.4.

Let us turn to the second question: does M-scrambling show optionality when it has the properties of A-movement? The answer is again 'yes', as shown below:

(76) a. *[John-ga $sore_i$-o shuchoosite]-irai daremo-ni [Mary-ga nani-o
-nom it-acc asserted -since everyone-by -nom what-acc
shita]-tte_i omow-are-teiru no
did -comp think-pass-perf Q
'(lit) Since John claimed it_i, it has been believed by everyone [that Mary did what]$_i$.'
'What has it been believed by everyone [that Mary did t]$_i$, since John claimed it_i?'

b. ?[Mary-ga nani-o sita]-tte_i [John-ga $sore_i$-o shuchoosite]-irai
-nom what-acc did -comp -nom it -acc claimed -since
daremo-ni t_i omow-areru-yooni natta no
everyone-by think-pass-comp became Q
'(lit) [That Mary did what]$_i$, since John claimed it_i, it has been believed t_i by everyone.'

In (76a), the 'so-' expression in the adverbial clause, which I assume is an IP-modifier, fails to be bound by the CP containing a wh-phrase, a special case of WCO, as we discussed in Section 1.4. In (76), M-scrambling of the CP shows WCO-neutralization, an A-movement-like property. The point here is that Case is not available at the landing site, since the Case-assigning feature of the matrix verb is absorbed by the passive morpheme. The possiblility of NP-movement to the matrix subject where nominative Case is available is also excluded, since as we saw in Section 2.2.2, CP subjects do not exist in Japanese.

One might suppose that the scrambling which takes place in (76b) is not M-scrambling, but S-scrambling, whose optionality as A-movement we discussed in Section 2.2.2. This, however, does not seem to be true, as the following shows:

(77) *[Mary-ga naze sinda]-tte$_i$ [John-ga sore$_i$-o shuchoosite]-irai
-nom why died -comp -nom it -acc claimed -since
daremo-ni t_i omow-areru-yooni natta no
everyone-by think-pass-comp became Q
'(lit) [That Mary died why]$_i$, since John claimed it$_i$, it has been believed t_i by everyone.'
'Why$_j$ has it been believed by everyone [that Mary died t_j]$_i$, since John claimed it$_i$?'

In (77), scrambling of the CP containing the 'true' adjunct 'naze' does not show WCO-neutralization, as in (76b) in which the scrambled CP contains an argument wh-phrase. In Section 1.4, we discussed that the lack of WCO- neutralization in these cases is induced by the ECP, and that L- and M- scrambling, but not S-scrambling, shows this kind of ECP effect. We must, thus, conclude that the scrambling involved in (76b) and (77) is M-scrambling, and that M-scrambling shows a property of A-movement (i.e. WCO-neutralization) even if its landing site is a non-Case position.

2.4. A Solution to the Optionality Problem (outline)

The apparent contradiction between the non-uniform approach as in Mahajan(1989,1990) and the uniform approach to scrambling as in Webelhuth(1989) is solved by distinguishing two aspects of movement: geometrical and dynamic aspects. The geometrical aspect of an instance of movement is characterized by the geometrical

properties of the positions occupied by the members of the chain created. In particular, the A / A-bar distinction is to be made here. For the formal characterization of geometrical aspects of several types of movement, Chomsky's(1992) minimal domain theory is adopted. The dynamic aspect of an instance of movement, on the other hand, is characterized by the effects caused by that instance of movement. Following Chomsky(1992), I assume that the effects relevant to economy principles are restricted to morphological ones such as Case and ϕ-feature checking. The last resort principle is assumed to be defined dynamically: if movement of α contributes to the checking of β, the movement also contributes to the checking of α. This weakened formulation of the last resort principle allows movement of α without checking motivation only if for any β, checking of β never takes place because of the movement. Thus, assuming that XP-adjoined position is not checked , it follows that scrambling as adjunction to XP is uniform with respect to checking, since no checking takes place. On the other hand, assuming that the A/A-bar distinction is made in the domain-theoretic dimension, it follows that the adjunction site is crucial to determining the type of scrambling. The assumption that an XP-adjoined position is not checked is supported by the nonexistence of a selectional relation between X and a "base-generated" XP-adjunct, given the generalized transformational view of lexical insertion as singulary operation and move α as binary operation.

2.4.1. Geometrical and Dynamic Aspects of Movement

2.4.2. Other Types of Optional Movement

The discussion of scrambling suggests that movement is not so strictly constrained as the last resort principle claims. Rather only the cases where any results toward convergence are gained are so constrained. This point can be made in other types of

movement too. In the following two subsections , we consider optional short V-movement in English and "semantically vacuous" wh-movement in German imperatives.

2.4.2.1. Short V-movement in English: Pesetsky(1989)

Though it is often assumed (cf. Emonds(??), Pollock(1990),Chomsky(1991)) that nonauxiliary verbs do not move in English, Pesetsky(1989) shows, convincingly I think, that certain types of verbs do move overtly:

(78) a. People usually ate apples.
b. *People ate usually t apples.

(79) a. People usually talk about their countries.
b. People talk usually t about their countries.

VP-adverbs may not intervene between V and NP-object, but may intervene between V and PP-object, as shown in (78b) and (79b), respectively. Pesetsky gives nice arguments for an V-movement analysis, which we will not go into here. Pesetsky further shows that this type of V-movement does not pass negation, as shown in (80c):

(80) a. People do not usually talk about their countries.
b. People do not talk usually t about their countries.
c. *People talk not t' usually t about their countries.

Though Pesetsky calls the landing site of this type of V-movement μ rather than AGR, I assume , following Branigan and Collins(1992), that it is AGRo.

Pesetsky accounts for the contrast between (1b) and (2b) in terms of "Case-opacity", a generalization of Pollock's(1990) notion of "theta-opacity": the landing site of this type of V-movement is Case-opaque so that the V loses its Case assigning property if it moves. Thus (1b) is ruled out by Case Filter. (2b), however, has no problem, since it

does not have a Case assigning property from the outset. Neat though his account is, it cannot be transferred to the framework assumed here, since AGRo does license the case assigning property of the V attached to it. What prevents V-movement in (2b) is the weakness of the features of AGRo, since the procrastinate principle requires that movement take place as late as possible, and weak features need not be eliminated by V-movement to have legitimate PF objects. To account for optional V-movement in (2b) with this strict procrastinate principle, we must assume, as Branigan&Collins(??) do, that verbs with no objects are optionally strong. This move looks too stipulative.

Let us rather assume that the procrastinate principle requires that "effective" movement take place as late as possible, and that movement is effective iff there is at least one instance of feature-checking toward convergence. Thus, if we assume that intransitive verbs and the associated AGRo lack Case / ϕ-features, then movement of intransitive verb to AGRo does not result in any feature-checking (i.e. it is ineffective). Therefore it does not violate the weaker procrastinate principle. It should be also noted that this movement violates the strong last resort but not the weak one, as in the case of scrambling. The point is that what is prevented by economy principles such as the procrastinate and the last resort is not just movement as change of position, but rather movement as "action."

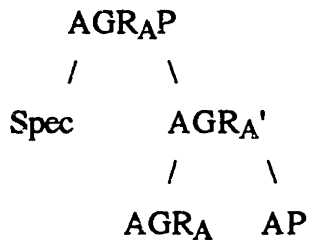
The possibility of optional short V-movement, thus, depends crucially on the existence of "useless" AGRo, which we should assume to be there only because a verb is downstairs. This point can be made clear by the observation that adjectives with PP objects do not show short X_0-movement unlike verbs. Thus, we have the following minimal pair:

(81) a. John made Bill heavily depend on Mary.
b. John made Bill depend heavily t on Mary.

(82) a. John consider Bill heavily dependent on Mary.
b. *John consider Bill dependent heavily t on Mary.

Since adjectives never take part in the assignment of structural Case to their object in English, it is natural to assume that there are no AGRo for them[23]. If the internal structure of adjectival small clauses is (82), as Chomsky(1992) suggests, we should assume that AGR_A has weak morphological features which always effectively check the corresponding features of adjectives at LF:

(83)



2.4.2.2. Wh-Imperatives in German: Reis and Rosengen(1992)

Reis and Rosengen(1992) discusses strange cases of imperatives with wh-movement, which they call wh-imperatives. In German, imperative clauses with indirect questions such as (84) may have another version (85):

(84) Sag mir bitte doch mal gleich, wohin Peter gegangen ist
Tell me please right away where Peter went

(85) Wohin sag mir bitte doch mal gleich, daß Peter gegangen ist
Where tell me please right away that Peter went

Contrary to appearance, the scope of the wh-phrase is invariant between (84) and (85): They are both imperative clauses with an embedded question. Reis and Rosengen show that wh-imperatives are derived by standard wh-movement to Spec of [+wh] C followed by further wh-movement to Spec of the matrix imperative C. This "semantic vacuousness" of

[23]In other languages, however, adjectives may assign structural Case. In fact, in Chapter 4, I will propose that adjectives as well as stative verbs in Japanese take part in Nominative Case assignment via AGRo.

wh-movement seems to be parallel to that of scrambling of wh-phrase out of its scope domain we discussed in § 2.2.

Reis and Rosengen claim that imperatives also allow topicalization of [-wh] phrases to Spec-CP, which behave exactly in the same way as topicalization in declaratives. They, however, point out a crucial difference between declaratives and imperatives: Declaratives never allow topicalization of [+wh] to Spec-CP:

(86) a. Sagte er ja/doch, auf wen er er vertrauen kann.
He said, in whom he could have faith.

b. *Auf wen sagte er ja/doch, daß er vertrauen kann.
In whom he said that he could have faith.

To account for the unselectivity of the features of moved phrases in imperatives, Reis and Rosengren suggest that in imperatives, the preverbal position is neither marked [+wh], as it is in wh-interogatives nor [-wh] as it is in declaratives.

Reis and Rosengren's suggestion nicely matches with our hypothesis: If there is no feature in C of imperatives, there will be no feature checking, hence, no "action" by movement. This situation allows movement of phrases of any type. The standard last resort principle predicts that no movement to the Spec-C in imperative would be possible.

2.4.3. Reformulation of Some Economy Principles in terms of Morphological Effects

The above discussion of some optional movement suggests that at least some economy principles are to be weakened and formulated with reference to the morphological effects caused by movement operation. We may naturally assume that the checking relations between a head H and its specifier SP are distinguished with respect to the direction of licensing: checking relations from H to SP and from SP to H. Let us call them checking and counter-checking relations, respectively. Thus, AGRs checks the subject SU

with respect to Case and SU counter-checks AGRs with respect to ϕ-features in the configuration [$_{AGRsP}$ SU [$_{AGRs'}$ AGRs]]. When a movement operation O causes as its effects a checking relation E1 and counter-checking relation E2, let us call E1 and E2 external and internal effects of O, respectively. Now the procrastinate principle are reformulated as follows:

(87) Minimize internal and external effects before spell-out up to PF-convergence.

The self-serving last resort principle is radically reformulated as follows:

(88) The external effect of movement operation must be compensated for by its internal effect.

I will call (88) the compensation principle.

2.5. A Representational Solution of the Landing Site Problem

The landing site problem discussed in § 2.1., seems to support Mahajan's(1990) nonuniform analysis of scrambling, whereas the optionality problem discussed in § 2.2. seems to support Webelhuth's (1989) uniform analysis of scrambling. This contradiction, however, seems to be resolved if we distinguish two aspects of the movement analysis: the geometric aspect to be captured by the minimal domain theory, and the dynamic dimension to be captured by the checking theory. Thus, these two problems are claimed to be derived from the two dimensions of the XP-adjoined position, which we assume to be the landing site of scrambling: (i) the XP-adjoined position is representationally both in the minimal domain of X and that of the head selecting XP. (ii) the XP-adjoined position is not checked at S-structure. The second problem is solved by (ii) and the assumption that LRP

is relative to checking of a feature, namely scrambling vacuously satisfies LRP. The first problem is partially solved by (i) and (ii), since without the implication of checking, IP-adjoined NP can be either in the domain of I or of C.

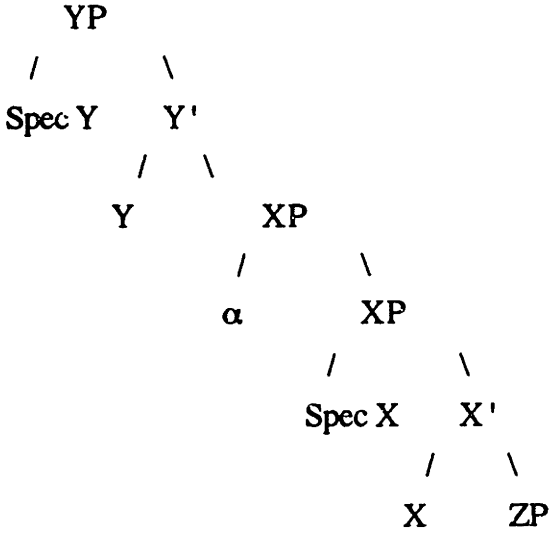
2.5.1. L-Relatedness

Chomsky(1992) defines A/A-bar position in terms of L-relatedness:

(89) a. p is an A-position if p is narrowly L-related.
b. p is an A-bar-position if p is not L-related.

Chomsky leaves open the question whether broadly L-related (adjoined) positions are A-positions or A-bar positions. The peculiarity of XP-adjoined position becomes clear if we consider it from a higher node:

(90)



MIN(MAX(X)) = {ZP, Spec X, α}
MIN(MAX(Y)) = {XP, Spec Y, α}

α is in the minimal domain of X, since α is contained by XP and no category contained by XP except the projections of X dominates.α. But α is also in the domain of Y, since α is

contained by YP and no category contained by YP except the projections of Y dominates α. The overlapping of minimal domain seems to be useful to characterize types of scrambling. Thus, if we assume that S-scrambling is adjunction to VP and M-scrambling is adjunction to IP, it follows that the S-scrambled phrase is in the domain of V and I, and the M-scrambled phrase is in the domain of I and C. We may, then, slightly revise the definition of A/A-bar-positions in the following way:

(91) a. P is an A-position if P is L-related.
b. P is an A-bar-position if P is non-L-related.

(92) a. P is L-related to H if P is in the domain of H and H has L-features.
b. P-is non-L-related to H if P is in the domain of H and H does not have L-features.

According to this definition, the landing site of S-scrambling is an A-position, since it is L-related to V and I, whereas the landing site of M-scrambling is simultaneously an A- and A-bar-position, since it is L-related to I and non-L-related to C. This seems nicely characterize the contrast between S-scrambling and M-scrambling that we observed in § 2.1.1.

2.5.2. Problems

The solution given above, however, faces some problems. First, to account for the fact that L-scrambling behaves only as A-bar-movement, we must consider L-scrambling to be CP-adjunction rather than IP-adjunction, since in the latter case it should behave also as A-movement as M-scrambling does. This works well for the cases where L-scrambling terminates in the matrix clause, since no higher head takes the scrambled phrase in its minimal domain . This analysis predicts that L-scrambling inside a embedded clause behaves as both A- and A-bar-movement, since the scrambled phrase belongs both to the

minimal domain of the embedded C and that of the matrix V. This prediction, however, is not borne out:

(93) *Mary-ga [dare$_i$-o soitsu-no hahaoya-ga [John-ga t_i sikatta]-to itta]-to
-NOM who-ACC the guy-GEN mother-NOM -NOM scolded-that said-that
omotteiru.
think
'(lit) Mary thinks who, his mother said that John scolded.'
'Who does Mary think that his mother said that John scolded?'

In (93), *dare-o* (who-ACC), which is L-scrambled within an embedded clause, still fails to neutralize WCO.

Second, as observed by Miyagawa(1990), M-scrambling may behave as either A- or A-bar-movement , but not as both simultaneously:

(94) a.Karera$_i$-o otagai$_i$-no ryoosin-ga Bill-ni t_i shookaisita
they-ACC each other-GEN parents-NOM -DAT introduced
'Them, each other's parents introduced to Bill.'
b. Karera$_i$-o Susan-ga [John to Mary]$_i$-ni t_i shookaisita
they-ACC -NOM -DAT introduced
'Them, Susan introduced to John and Mary
c.*Karera$_i$-o otagai$_i$-no ryoosin-ga [John to Mary]$_i$-ni t_i shookaisita
they-ACC each other-GEN parents-NOM -DAT introduced
'Them, each other's parents introduced to John and Mary.'

In (94a), M-scrambling behaves as A-movement, since the plural pronoun *karera* A-binds the reciprocal *otagai*. In (94b), M-scrambling behaves as A-bar-Movement, since the binding of *John to Mary* by *karera* does not result in the violation of Principle C. These two type of binding are not available simultaneously, as the ungrammaticality of (94c) shows. Therefore, attributing both A- and A-bar properties to one position seems to be empirically problematic.

2.6. A Derivational Solution of the Landing Site Problem

Although it fails to explain the exclusive disjunction of A/A-bar properties, the previous approach seems to be on the right track in that it predicts the difference between S-scrambling and M-scrambling while keeping the assumption that scrambling is uniformly XP-adjunction. All we need is to derive in a principled way that overlapping of minimal domains is only potential, and either the higher head Y or the lower head X, but not both, takes the adjoined phrase α in (90) in its minimal domain. In this section, we provide such a solution in terms of the strict cycle.

2.6.1. The Strict Cycle and Adjunction

Abandoning postulation of D-structure on conceptual and empirical grounds, Chomsky(1992) gives a single generalized transformation GT. GT is a substitution operation which targets K, add Δ, and substitutes K1 for Δ, forming K*, which must satisfy X-bar Theory. K1 can be either a tree already built by GT, or a phrase contained in K. The former case, which serves the function of phrase structure rules, is a binary operation, and the latter, which corresponds to movement transformation, is a singulary operation. They are illustrated below:

(91) a. K = [V see]
K1 = [NP John]
K* = [V' see John]

b. K = [I' was seen John]
K1 = [NP John]
K* = [IP John was seen t]

Chomsky, then, defines the strict cycle for GT:

(92) The substitution site Δ in a GT operation must be external to the target phrase K.

This implies that the result of GT K* always includes K as a proper part. As for adjunction operations, either binary or singulary, Chomsky assumes that they do not obey the "extension" version of the strict cycle, since the empirical and conceptual motivation he gives for (92) does not apply to adjunction operations. This assumption seems to be even necessary if we consider X0-movement as adjunction to X0:

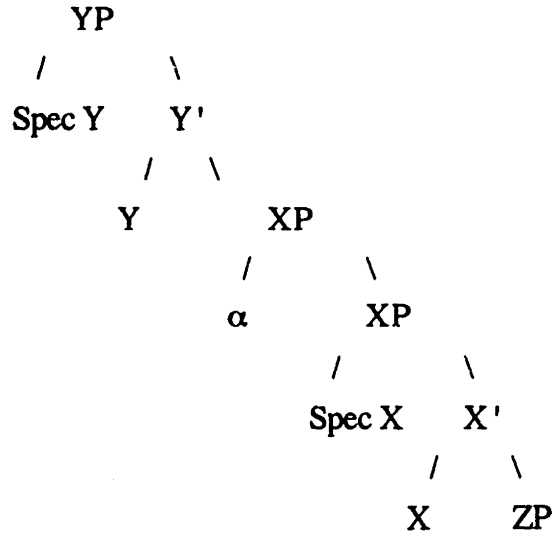
(93) $K = [_{I'}\ I\ [_{VP}\ V\ XP]]$
$K1 = V$
$K^* = [_{I'}\ [_{I}\ V\ I]\ [_{VP}\ t_V\ XP]]$

When we reach the stage K where V to I is possible, I is already too deeply embedded for V-movement to extend the target phrase.

2.6.2. A Reformulation of the Strict Cycle

Now, let us return to the problem of the exclusive partitioning of adjoined phrases. In (94), an adjoined phrase α representationally belongs to the minimal domain of X and to that of Y:

(94)



However, we want α to belong to either domain, but not both, in order to explain the distribution of A/A-bar-scrambling. In the GT framework, this exclusive partition may be obtained derivationally. Suppose that α belongs to the minimal domain of H only if adjunction of α takes place when a projection of H is in process, or, more concretely, immediately after a projection of H is created in the course of (substitutional) GT. Thus, α is in the minimal domain of X if adjunction takes place immediately after Spec X is substituted creating XP, and α belongs to the minimal domain of Y if adjunction takes place immediately after either Y' or YP is created. Hence, overlap of minimal domains becomes impossible, since in GT framework, each operation gives only one projection. But, this conception of domain extension by adjunction seems to have redundancy with the strict cycle, since if we do not want a situation where adjunction of α takes place when a node higher than YP is in process and α is neither in the minimal domain of X nor that of Y (i.e. scrambling without either A- or A-bar-movement properties), the adjunction operation also must be ordered in the course of GT. So, let us reformulate the strict cycle in terms of minimal domain extension[24]:

(95) If operation O (substitution or adjunction) applies to a target K, then only the minimal domain of the head of K is extended.

2.6.3. Anti-reconstruction Effects

The "minimal domain extension" version of the strict cycle has interesting consequences with respect to the prediction of anti-reconstruction effects in Lebeaux's(1988) sense, illustrated below:

(96) a.*He$_i$ believes the claim that John$_i$ is nice.
b.*He$_i$ likes the story that John$_i$ wrote.

[24]Chris Collins(p.c.) points out to me that (15) is rather closer to the classical strict cyclicity in that more than one operation can be done in one cycle.

c.*Whose claim [that John$_i$ is nice] did he$_i$ believe?

d. Which story [that John$_i$ wrote] did he$_i$ like? (Lebeaux(1988:146))

Adopting Lebeaux's(1988) insight, Chomsky(1992) claims that the difference of reconstruction effects in (96c,d) is reducible to the difference in the applicability of the strict cycle to the introduction of the bracketed clauses. Thus, the complement clause must be introduced cyclically before wh-movement in (96c), but the relative (adjunct) clause may be noncyclically introduced after wh-movement. The same contrast is observed in Japanese with scrambling as A-bar-movement:

(97) a.*Kare$_i$-ga [Mary-ga [[John$_i$-ni ki-ta] tegami]-o yon-da]-to
He-NOM -NOM -DAT come-PAST letter-ACC read-PAST-that
it-ta
say-PAST
'He said that Mary read a letter that came to John.'

b. [[John$_i$-ni ki-ta] tegami]$_j$-o kare-ga [Mary-ga t$_j$ yon-da]-to.
-DAT come-PAST letter-ACC he-NOM -NOM read-NEG-PAST-that
it-ta
say-PAST
'The letter that came to John, he said that Mary read.'

(98) a.*Kare$_i$-ga [Mary-ga [[John$_i$-ni tegami-ga ki-ta] koto]-o sir-anai]-to
He-NOM -NOM -DAT letter-NOM come-PAST fact-ACC know-not-that
omot-tei-ru
think-PROG-PRES
'He thinks that Mary doesn't know the fact that a letter came to John.'

b.?*[[John$_i$-ni tegami-ga ki-ta] koto]$_j$-o kare$_i$-ga [Mary-ga t$_j$
-DAT letter-NOM come-PAST fact-ACC kare-NOM -NOM
sir-anai]-to omot-tei-ru
know-not-that think-PROG-PRES
'The fact that a letter came to John, he thinks that Mary doesn't know.'

We may incorporate Lebeaux-Chomsky's account in our framework without abandoning the "minimal domain extension' version of the strict cycle. Even introduction of the relative clause immediately after wh-movement (or scrambling) is cyclic, since it extends the minimal domain of the local C (or the head of adjunction). However, our account predicts, contrary to Lebeaux-Chomsky's, that when a relative clause is more deeply embedded in the preposed phrase, it may not be introduced after movement. This prediction seems to be born out:

(99) a.*kare$_i$-ga tsuma-ni [[John$_i$-ni ki-ta] tegami]-o suteru-yooni] meiji-ta.
he-NOM wife-DAT -DAT come-PAST letter-ACC throw away-TO order-PAST
'He told his wife to throw away the letter that came to John.'

b.[[John$_i$-ni ki-ta] tegami]$_j$-o kare$_i$-ga tsuma-ni [t$_j$ suteru-yooni] meiji-ta.
-DAT come-PAST letter-ACC he-NOM wife-DAT throw away-TO order-PAST
'The letter that came to John, he told his wife to throw away.'

c.?*[[John$_i$-ni ki-ta] tegami]-o suteru-yooni]$_j$ kare$_i$-ga tsuma-ni t$_j$ meiji-ta.
-DAT come-PAST letter-ACC throw away-TO he-NOM wife-DAT order-PAST
'To throw away the letter that came to John, he told his wife.'

In (b), the scrambling of the NP containing the relative clause exhibits anti-reconstruction effects. If the complement clause containing the NP is scrambled, reconstruction effects show up[25].

---

[25]Noam Chomsky(p.c.) points out that the although the contrast between (b) and (c) might be obtained in English to the extent that preposing of infinitival CP is accepted, preposing of an NP whose argument contains a relative clause does not show expected reconstruction effects:

(i) The award for the book that John$_i$ wrote, he$_i$ never received.

The same thing happens in Japanese:

(ii) [[John$_i$-ga kai-ta]hon-no hihan]-o kare$_i$-ga Mary-ni meiji-ta
-NOM write-PAST book-GEN criticism-ACC he-NOM -DAT order-PAST
'The criticism of the book John wrote, he ordered Mary (to do).'

Interestingly, (ii) minimally contrasts (iii) where the preposed element is not NP but CP:

(iii) ?*[[John$_i$-ga kai-ta]hon-o hihan-suru]-youni kare$_i$-ga Mary-ni meiji-ta
-NOM write-PAST book-ACC criticism-do-to he-NOM -DAT order-PAST

Further support to our account is given by the interaction between tense dependency and Principle C under reconstruction. As observed by Ogihara(1989), the present tense of a relative clause can be either dependent on the tense m-commanding it or independent (i.e. denoting the speech time):

(100) John-ga [[zitensha-ni not-tei-ru] otoko]-ni monku-o it-ta.
-NOM bicycle-DAT ride-PROG-PRES man-DAT complaint-ACC say-PAST
'John complained to the man who was/is riding the bicycle.'

Thus, in (20), the man was riding the bycycle when John complained to him or he is riding now. Consider next the following:

(101) [[zitensha-ni not-tei-ru] otoko]-ga [John-ga Mary-ni monku-o
bicycle-DAT ride-PROG-PRES man-NOM -NOM -DAT complaint-ACC
it-ta]-to omot-tei-ru.
say-PAST-COMP think-PRES
'The man who is riding the bicycle thinks that John complained to Mary.'

(101) implies that the man is riding the bicycle now, but not that he was not riding it when John complained him, since the past tense attached to *complain* does not m-command the present tense attached to *ride*. This tense dependency also shows up under reconstruction:

(102) [[zitensha-ni not-tei-ru] otoko]$_i$-ni Mary-ga [John-ga t_i monku-o
bicycle-DAT ride-PROG-PRES man-DAT -NOM -NOM complaint-ACC
it-ta]-to omot-tei-ru.
say-PAST-COMP think-PRES
'To the man who is/was riding the bicycle, Mary thinks that John complained.'

'To criticize the book John wrote, he ordered Mary .'

I have no account for this.

(102) may imply that the man was riding the bicycle when John complained to him.[26]

Let us now consider the following:

(103) [[John$_i$-no zitensha-ni not-tei-ru] otoko]$_j$-ni kare$_i$-ga t$_j$ monku-o
-GEN bicycle-DAT ride-PROG-PRES man-DAT he-NOM complaint-ACC
it-ta.
say-PAST
'To the man who is/was riding John's bicycle, he complained.'

In (103), *John* can take *kare* as its antecedent showing anti-reconstruction effects, but still the tense of the relative clause can be dedepentent on the matrix tense. To account for this, we may assume that the structral condition for tense dependency is "in the domain of" rather than m-command. Thus, the tense of the relative clause is in the domain of the matrix tense even when the relative clause is introduced after M-scrambling. However, tense dependency is in conflict with anti-reconstruction effects when the relevant movement is L-scrambling:

(104) [[John$_i$-no zitensha-ni not-tei-ru] otoko]$_j$-ni kare$_i$-ga [Mary-ga t$_j$
-GEN bicycle-DAT ride-PROG-PRES man-DAT he-NOM -NOM
monku-o iw-u]-to omot-tei-ta.
complaint-ACC say-PRES-COMP think-PAST

---

[26]Interestingly, if the relative clause contains the reflexive zibun bound from outside, the independent tense reading is impossible whether or not the NP containing the relative clause scrambles:

(i) John-ga [[zibun$_i$-no zitensha-ni not-tei-ru] otoko]-ni monku-o
-NOM self-GEN bicycle-DAT ride-PROG-PRES man-DAT complaint-ACC
it-ta.
say-PAST
'(lit.) John complained to the man who is riding self's bicycle.'

(ii) [[zibun$_i$-no zitensha-ni not-tei-ru] otoko]$_j$-ni Mary-ga [John$_i$-ga t$_j$
self-GEN bicycle-DAT ride-PROG-PRES man-DAT -NOM -NOM
monku-o it-ta]-to omot-tei-ru.
complaint-ACC say-PAST-COMP think-PRES
'To the man who is riding self's bicycle, Mary thinks that John complained.'

'To the man who is riding John's bicycle, he thought that Mary will complain.'

In (104), the tense of the relative may not be dependent on the matrix past tense if *the man* takes *he* as its antecedent. To obtain the tense dependency, the relative tense must be in the domain of matrix tense either by reconstruction or in the derived position. The former option is in conflict with the anti-reconstruction effects on Principle C. The latter option is also precluded by the derivational view of (minimal) domain extension, since L-scrambling must be non-L-related, that is, in the domain of C, and the relative clause is also in the domain of C if it is adjoined after L-scrambling to obey the strict cycle. Of course, if the pronoun is embedded in a noun phrase and fails to c-command the trace of the L-scrambled phrase, the tense dependency is available by reconstruction, since no Principle C violation would arise, as illustrated in (105):

(105) [[John$_i$-no zitensha-ni not-tei-ru] otoko]$_j$-ni kare$_i$-no hahaoya-ga
GEN bicycle-DAT ride-PROG-PRES man-DAT he-GEN mother-NOM
Mary-ga monku-o iw-u]-to omot-tei-ta.
-NOM complaint-ACC say-PRES-COMP think-PAST
'To the man who is/was riding John's bicycle, his mother thinks that Mary complained.'

2.6.4. A/A-bar Metamorphosis at LF

The mechanism given in the previous subsection allows two disjunctive results of adjunction of NP to XP: entering the minimal domain of X or that of the head Y which takes XP in its minimal domain. Either option is equally available with respect to the last resort principle, since both are assumed to be without any external effect and, hence, obeys it vacuously. Whether the landing site of the NP is A or A-bar position depends on whether the host head, whose minimal domain it entered, is a L or non-L category. In VP-adjunction, either host head (i.e. I or V) is a L-category and it shows necessarilly the

properties of A-movement. On the other hand, in IP-adjunction, if the host head is I, it behaves as A-movement, and if the host head is C, it behaves as A-bar-movement.

Actual disributions of A/A-bar scrambling, however, are determined with reference to other principles. Long-distance IP-adjunction (i.e. L-scrambling) must be A-bar-movement, since A-movement out of a tensed clause is prohibited by some locality condition (cf. Mahajan(1990), Saito(1992)). This principle also rules out long-distance VP-adjunction in either option, since both count as A-movement. What remains to be explained is some peculiar facts of short-distance IP-adjunction (i.e. M-scrambling) discussed in § 2.2. The tests for SCO and ECP for adjunct extraction, as opposed to the WCO test, indicate that M-scrambling fails to behave as A-movement. The idea I would like to persue is that this difference reflects that of the levela at which the relevant principles and conditions apply. Suppose that the SCO condition and the ECP for adjuncts apply at LF, but that the WCO condition applies at S-structure[27]. The impossibility of M-scrambling as A-movement for the former two tests may follow from Full Interpretation, which requires

all the elements in syntactic representation be interpreted at LF, and the assumption that XP-adjunction structure is interpretable only as a quantificational structure, namely, A-bar structure. Thus, the landing site of M-scrambling as A-movement at S-structure should become A-bar-position at LF by changing its host head form I to C without actually moving[28]. This A-bar-to-A morphosis may account for the dual character of M-scrambling for reciprocal binding for some speakers if we assume, following Heim,

---

[27]See Higginbotham(1983) and § 4.3. for discussion that the SCO condition applies at LF, and see Mahajan(1990) and Saito(1992) for the discussion that the WCO condition applies at S-structure. How this distinction is to be treated in Chomsky's(1992) minimalist program, where all the representational conditions apply at the interface levels (i.e. LF and PF), is an interesting question to be explored in future research.

[28]Saito(1992) proposes metamorphosis of the opposite direction (i.e. from A-bar to A) to account for some range of data concerning WCO and reciprocal binding tests which are not totally consistent with ours. See Saito(1992) for details. In this thesis, A-bar-to-A metamorphosis is rather used for the analysis of focus antipassives in Mayan languages in §3.5.2.

Lasnik, and May(??), that licensing of reciprocal consists of the binding condition A at S-structure and some interpretational requirements, and that those speakers with non-standard judgements prefer to constant A-binding relation between the antecedent and the reciprocal.

2.7. Scrambling versus QR

Any attempt to derive the properties of scrambling only from the representational properties of adjunction, such as Webelhuth's(1989), immediately faces the problem of conflict with the theory of QR as IP-adjunction at LF, which has been generally accepted since May(1977). QR is assumed to be pure A'-movement, in that the landing site must be an A'-position and it is not optional but driven by the scopal properties of quantifiers. Therefore, if we maintain our analysis of scrambling as XP-adjunction, we must give up May's(1985) analysis of QR as adjunction. It is possible but unrealistic to suppose that there is an abstract non-L-category between C and I, and QR moves a quantifier to its Spec position in order to have some of its features checked, since the number of QPs in a clause is in principle unlimited[29].

In our derivational approach to adjunction, however, there is a key to a solution. We assumed that M-scrambled (i.e. IP-adjoined) phrase is potentially in the domain of C and I, but derivationally partioned to either, since overlapping of minimal domains is unavailable. This gives the A / A-bar duality of M-scrambling. The lack of A-movement-like QR suggests that for some reason, only partition to the minimal domain of C is available in QR. It does not seem to be plausible to assume that QR is driven by a weak feature of C to an IP-adjoined position at LF. Rather the driving force seems to come from inside. This becomes clear if we adopt the view of quantifiers as second-order transitive predicates. Thus, in *every boy left* , the universal quantifier *every* takes the set B of boys

[29]Noam Chomsky(p.c.) points out that movement driven by feature-checking generally exhibits parametric variations among languages with respect to when it applies (i.e. SS or PF), but there is no such parametric variance for QR in that:, that is, no language seems to have overt QR.

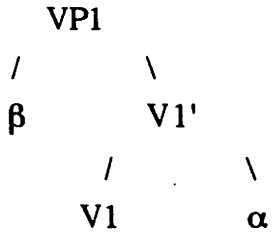
and the set L of all that left, and return the value true iff B is a subset of L. The two "arguments" of a quantifier Q are not realized in the same way: the restriction RE of Q is realized as the complement of Q , while the scope SC is not realized within the projections of Q. SC rather dominates Q when it is introduced in the course of derivation:

(106) $[_{SC} \ldots[_{QP}\ [_{Q'}\ Q\ RE]]\ldots]$

This configuration itself is not necessarily uninterpretable given an appropriate semantic interpretation system. Rather a reason internal to natural language seems to force QP to move to get SC as its scope.

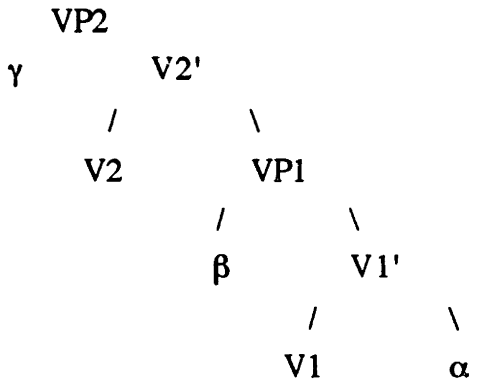
This situation reminds us of another type of movement which is not driven by a standard checking motivation: Larsonian V-movement. Let us consider (2):

(107)



If V1 is a ditransitive predicate like *put* , its theta-role assignment cannot be completed within its maximal projection VP1. Therefore, another "VP-shell" must be necessary for the completion of theta-role assignment:

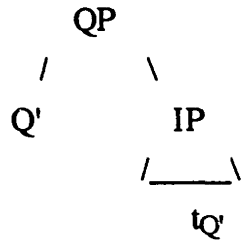
(108)



If V1 moves to V2 and V2 does not have any theta-role, V1 discharges all of its theta-roles {θ1, θ2, θ3} within its extended minimal domain (= {α, β, γ}).

Returning to QR, let us suppose that the lexical information of a quantifier Q includes a grid {σ1, σ2}, where σ1 is for Q's restriction-role and σ2 for Q's scope-role, and that Q may have an internal domain but not external domain for some reason in its maximal projection. Thus, QR is a device to extend the minimal domain of Q. A tricky way to do this is to assume that Q literally projects only up to Q' in its "D-structure" position, but "regenerates" (cf. van Remsdjik(19??)) when it adjoins to IP:

(109)



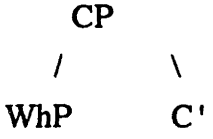
Though this works for QR without modifying the definitions of Chomsky's(1992) domain theory, it does not for wh-movement, which I will argue is an instance of QR in Chapter 3. So, I would rather like to assume that σ2 of Q is discharged strictly external to its maximal projection QP. A possible definition of this relation in terms of domains is as follows:

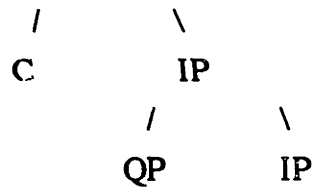
(110) The scope of a quantifier must be discharged in the external minimal domain of Q.

(111) α is in the external minimal domain of a head H
iff for some head H', α and the maximal projection HP of H is the minimal domain of H'.

To see how this works, let us consider the following:

(112)





In (112), the head of WhP takes IP in its external minimal domain, since C takes WhP and IP in its minimal domain,and then succeeds in discharging its scope. How about QP? Its head Q may have IP in the minimal external domain of Q if and only if it is in the minimal domain of C, that is, if and only if it "A-bar-scrambles" to IP. This is all we needed[30].

2.8. A Speculation on Checking and Discharging

In the preceding subsection, we assume QR to be similar to Larsonian V-movement rather than to NP-movement or V-to-I movement. This characterization is made of course in terms of its motivation or dynamic aspect, but not in terms of the size of the mover, or the geometrical aspect of the landing site. A question arises immediately: what kind of movement is possible in natural language from this dynamic view point? Feature-checking and role-discharging are already in the list of possible motivations of movement. However, not all instances of feature-checking are possible motivations for movement. As we will see, checking of ϕ-features or [+wh] alone does not counts as such a motivation for movement, though they may affect when and where movement takes place. The intuition is that ϕ-features and [+wh] are inherent for NPs and wh-phrases, respectively, and these pieces of information need not to be aquired in the course of derivation. Thus, whether some feature counts as a motivation for movement or not is relative to the bearer of the feature. Suppose, following Rizzi(199?), that the Infl that moved to C in English wh-

---

[30]The definition in (6) also allows us to revive the notion of Σ-sequence in May(1985) in a framework where the head of S' is distinguished from the head of S:

(i) OP1 and OP2 are in the same Σ-sequence iff OP1 and OP2 take the same clausal scope.

interrogatives agrees with the wh-phrase in Spec-CP with respect to [+wh]. The direction of checking is from the wh-phrase to the Infl (i.e. counter-checking). This means that though [+wh] does not count as a motivation for wh-movement, it counts as a motivation for I to C movement. This is illustrated by the following:

(113) *Was$_i$ glaubst [$_{IP}$ du [$_{CP}$t$_i$ daß [$_{IP}$ Hans meint [$_{CP}$ [mit wem]$_i$ Jakob t$_i$ gesprochen hat]]]]]?
WHAT do you believe that Hans thinks with whom Jakob talked?
(McDaniel(1989:(25d)))

(114) When did$_i$ you t$_i$ leave?

The scope marker *was* in partial wh-movement constructions may not wh-move, since it lacks quantificational force for QR, as we will discuss in § 3.5.1.. The periphrastic verb *did* , on the other hand moves to C for [+wh] checking. Thus, only non-inherent features drive movement.

This inherent / non-inherent asymmetry seems to be related to independent / dependent asymmetry in anaphoric reference systems, in the sense that the second part of the pair receives an "interpretation" from the first. The parallelism goes further: many people argue for anaphor-movement (cf. Lebeaux(??), Chomsky(1986b), Heim, Lasnik, and May(??), among others), but no one argues for antecedent-movement, which would license (3a) with the LF representation (3b):

(115) a. *Mary showed pictures of himself$_i$ to John$_i$.
b. Mary John$_i$ showed pictures of himself$_i$ to t$_i$.

If we adopt Williams'(1990) claim that the assignment relation of theta-role to argument is same as the linking relation of anaphor to antecedent in the sense of Higginbotham(1983), we have another asymmetry pair: theta-role / argument. Given this,

Larsonian V-movement, the motivation of which is theta-role assignment, joins other cases of movement for "interpretation". As is expected, an NP may not move to get a theta-role:

(116) *It [$_{VP}$ John$_i$ considered [$_{IP}$ t_i to be likely that it will rain]

The intended derivation of (116) is: *John* is inserted to the embedded Spec-IP, which is neither theta nor Case position, to satisfy the extended projection principle, and moves to Spec-VP, to which the external theta-role of *consider* is assigned at S-structure (and it will move to Spec-AGRo for Case-checking at LF).

The four licensing relations we have assumed as motivations of movement seems to have the following property:

(117) The licensee must be uniquely licensed by the licencer, but not necessarily vice versa.

In reflexive binding, an antecedent may bind more than one reflexive (John talked to himself about himself), but the reflexive may not be bound by split antecedents (*John introduced Mary to each other's parents). There may be unselective binders (if a man owns a donkey, he always beats it), but there hardly seem to be unselective bindee (example?). Multiple θ-role assignment is a plausible hypothesis for secondary predicate constructions (I ate meat raw), whereas a single θ-role does not seem to license more than one argument. Two quantifiers may share the same IP as their scope in the reading for their independence (Three girls kissed four boys), whereas no quantifier seems to take more than one IP as its scope. As we will discuss in § 4.2.3., Japanese allows multiple object agreement in Japanese , while Hindi does not. This is because only arguments are to be licensed with respect to the morphological realization relation in Japanese, whereas AGRs are also to be licensed by a unique argumentin Hindi.

CHAPTER THREE

UNIFORMITY OF CHAIN-STEPS

3.0. Introduction

3.1. Successive Cyclicity and the Notion of "Potential Step"

Since Ross(1967), a large number of contributions have been dedicated to the understanding of the nature of locality of syntactic movement. One of the most important concepts to attain descriptive and explanatory adequacy for the theory of long-distance movement is the succesive cyclicity ,which accounts for apparent non-local relations between the moved element and the trace it left in the original position such as (1) and (2)in terms of iterative application of local move:

(1) Who do you think [t"[that Mary believes [t' [that Bill hates t]]]]

(2) John seems [t" to be likely [t' to win]]

The intermediate landing sites used are generally assumed to be relative to the type of movement operation and, more specifically, of the same type as the final landing site. Thus, wh-movement uses Spec-CP positions and NP-movement uses Spec-IP positions.

This uniform nature of the landing sites of a chain created by syntactic movement has been recently given an insightful account by Chomsky and Lasnik(1991) (henceforth, C&L), who attempt to derive Rizzi's(1990) relativized minimality from the following simple economy principle[1]:.

---

[1]Rizzi's(1990) formulation is as follows:

(i) Relativized minimality: X a-governs Y only if there is no Z such that
a. Z is a typical potential a-governor for Y,

(3) Minimize chain links.

The crucial assumption for (3) is that only links to "potential" landing sites are considered for the calculation of optimal chain formation. Thus formation of a chain CH = (α_1, ..., α_i, α_{i+1}, ..., α_n) is blocked by formation of another chain CH' = (α_1, ..., α_i, α_j, α_{i+1}, ..., α_n) if α_j is in a potential landing site. Uniformity of the landing sites can be derived if only the landing site of the same type are potential one. Thus C&L claim:

Conditions quite independent of relativized minimality require that only heads can move to head positions, and only elements in A-positions to A-positions. Furthermore, again for independent reasons, XPs can move only to specifier positions, and α can move only to a position that c-commands it. (Chomsky&Lasnik(1991:58))

The above statement gives an impression that whether some position P1 is a potential landing site for some category C in some position P0 is to be defined strictly locally in the sense that no other category or position is necessary in order to define a potential landing site for C in P0. This impression, however, seems to be false. For example, what prevents movement of NP from A-position depends on the type of the global chain, as illustrated by the following:

(4) a. Something is t in the room.
b. There is something in the room.
c. What is there t in the room?
d. *Something is likely that it is in the room.

---

b. Z c-commands Y and does not c-commands X.
(Rizzi(1990:7))

(ii) a. Z is a typical potential governor for Y, Y in an A-chain
= Z is an A specifier c-commanding Y.
b. Z is a typical potential governor for Y, Y in an A-bar-chain
= Z is an A-bar specifier c-commanding Y.
c. Z is a typical potential governor for Y, Y in an X^0-chain
= Z is a head c-commanding Y.
(Rizzi(1990:7))

The NP in the post-copula position may move to Spec-IP at S-structure, as in (4a), or at LF (cf. Chomsky(1986b)), as in (4b). It may, however, also move to Spec-CP at S-structure without being blocked by a "potential" step to the Spec-IP, as in (4c). On the other hand, a potential step to the intermediate Spec-IP does block the movement of NP to the matrix Spec-IP, as in (4d). Thus, the notion of potential step relevant to (3) does not seem to be totally reducible to its local potentiality.

"Improper movement" as in (5) seems to be relevant to this problem:

(5) *John is possible [t' [t to leave]]

A standard explanation of (5) is that the trace t is a variable, since it is locally A-bar bound by t', but it is also A-bound by *John* in its chain domain (i.e. (John, t' t)), a violation of Principle C. This explanation nicely reduces illegitimacy of a certain type of non-uniform chain to Principle C, which is independent of the notion of well-formed chain. This might suggest that binding theory gives, or at least contributes to, the definition of potential landing site. The following example, however, indicates that this does not seem to be the case:

(6) *He_i seems to the girl who hates $John_i$ [t to be insane]

In (6), the NP-movement of *he* results in a Principle C violation. Thus, if Principle C contributes to the definition of potential step in that it excludes steps resulting in its violation from potential steps, the following super-raising example should not violate the shortest step condition (3) but violate just Principle C:

(7) *He_i is likely that it seems to the girl who hates $John_i$ [t to be insane]

Now consider (8):

(8) ?*John$_i$ seems to the girl who hates John$_i$ [t to be insane]

The difference between (8) and (6) is that the resulting Principle C violation is milder because of the binder is also the R-expression (cf. Lasnik(??)). If this Principle C violation also contributes to the definition of potential step in the same way, the following should only violate Principle C mildly:

(9) *John$_i$ is likely that it seems to the girl who hates John$_i$ [t to be insane]

However, (9) is as bad as (8). Therefor Principle C violation may not enter into the definition of potential step.

3.2. Non-uniform Chains and the Compensation Principle

In this section, I discuss three cases of non-uniform chains, and argue that the uniformity of chain-steps follows from the compensation principle, which I introduced in § 2.4.3.

3.2.1. A-bar-chain Containing Last Resort Violation

Consider the following examples of violation of the last resort principle (cf. Lasnik(??), Chomsky(1992)):

(10) a. *John strikes t that it is raining.

b. *John seems to t that it is raining.

A standard account for (10a,b) is that *John* is already assigned Case in the original position and unnecessary NP-movement is thus to be blocked. The illegitimacy of this step is intact even if it is embedded in well-motivated chain formation:

(11) *Who t' strikes t that it is raining?

*Who t' seems to t that it is raining?

The formation of the A-bar-chain (who, t', t) in (10a,b) is motivated by whatever motivates wh-movement, and the links of this chain is even more minimized than the well-formed A-bar chain (who, t) in (12):

(12) Who does it strike t that it is raining?

What makes impossible wh-movement through Spec-IP to Spec-CP, although it does not seem to violate binding principles as the improper movement in (5) does?

In Chapter 2, we introduced the compensation principle, repeated here as (13), in order to account for optional movement such as scrambling:

(13) The external effect of movement must be compensated for by its internal effect.

We may accounts for (11) in terms of the compensation principle if we consider the external effects of the intermediate steps as well as of the final one. Thus, the external effect of the final step in (11), which is checking of [+wh] on C, is compensated for by its internal effect, which is standardly assumed to be checking of [+wh] on the wh-phrase[2].

[2]I will argue in §?? and Chapter 4 that the internal effect of wh-movement is rather discharge of scope-role of the wh-phrase as a special type of existential quantifier.

However, the external effect of the first step, which is checking of ϕ-features on I (or more precisely AGRs), is not compensated for, since no internal effect is produced on *who* when it is in the subject position, since it possesses Case in the original position. Thus, the impossibility of the first step even embedded in a wh-chain follows from (13).

This step-wise application of (13) appears to be problematic to cases with successive cyclic movement such as (1) and (2):

(1) Who do you think [t"[that Mary believes [t' [that Bill hates t]]]]

(2) John seems [t' to be likely [t to win]]

We should assume that the intermediate steps in (1) and (2) have external effects of some sort. Otherwise, optional movement to any of them as the final landing site would be possible contrary to fact:

(14) *You think [Tom [that Mary hates t]]

(15) *It seems [the man to strike t [that it is raining]]

Moreover, other languages show direct evidence of the external effects of intermediate steps. For example, McCloskey(1979) argues that each step of successive cyclic wh-movement in Irish induces alternation of complementizer forms:

(16) a. Deir siad goN sileann an t-athair goN bposfaidh Sile e
say they thinks the father will marry Seila him
'They say that the father thinks that Seila will marry him.'

b. an fear aL Deir siad aL sileann an t-athair aL bposfaidh Sile _
the man say they thinks the father will marry Seila

`the man that they say the father thinks Sheila will marry'

(McCloskey(1979:??))

Thus, in (16b), all the intermediate Cs as well as the final one are *aL* in stead of *goN* , which appear when there is no element in its Spec as in (16a). As for successive cyclic NP-movement, Mahajan(1989) argues that each step to Spec-AGR induces morphological ϕ-feature agreement on a verb, as illustrated in (17):

(17) siitaa aayii lagtii thii

Sita(f.sg.) come(perf.f.sg) seem(imp.f.sg). be(pst.f.sg.)

Sita seemed to have come

(Mahajan(1989:??))

The assumption that intermediate landing sites also produce external effects is in conflict with the compensation principle, since the latter requires each external effect must be compensated for by an internal effect, but only the external effect produced by the final step is compensated for.

The Irish and Hindi data above suggest that not only the intermediate steps produce external effects, but also they are of the same type as the final step. Here, we detect uniformity of chain formation with respect to its external effects. We may now solve the problem with the step-wise application of the compensation principle if we assume one internal effect compensates recursively for the external effects of the intermediate steps as well in the following way[3]:

[3]Alternatively, one might think that the external effect e of a step $s = (\alpha_i, \alpha_{i-1})$ is to be defined as the effect which is available in α_i but not in α_{i-1} so that all the steps except the first one are externally "ineffective". I will not adopt this "accelation" approach, since it will face a problem in the analysis of German partial wh-movement construction below.

(18) The external effect E of a step s is compensated for by an internal effect E0 of a step s0 if

(i) s = s0, or

(ii) the step s' which immediately follows s is such that the external effect E' of s' is compensated for by E0, and E and E' are of the same type.

To illustrate how it works, let us consider the following:

(19) John seems [t'' to be likely [t' to win]]

(20)	members of a chain:	John	t''	t'	t
	steps:	s3	s2	s1	
	external effects:	ϕ3	ϕ2	ϕ1	
	internal effects:	NOM			

The external effect ϕ3, which overtly realizes on the matrix verb as inflection, is compensated for by NOM, since both are produced by the step s3(=(John, t'')). ϕ2 is also compensated for by NOM, since ϕ3 and ϕ2 are of the same type, ϕ3 is compensated for by NOM, and s3 immediately precedes s2.

Given this extention of the notion of compensation, we may consider a step s to be a potential step in a chain CH if adding s to CH does not violate the compensation principle. Successive cyclicity then follows from C&L's shortest step principle (3) and this conception of potential step.

3.2.2. L-*tous*

In light of the compensation principle, I will now discuss some properties of chains created by leftward quantifier movement in French as in (21a), which is extensively studied and called L-*tous* by Kayne(1975), in comparison with properties of Quantification at a Distance (QAD) as in (21b), which is studied by Obenauer(??):

(21) a. Il a tout consultés.
'They consulted everything.'
b. Il a beaucoup consultés.
'They consulted a lot.'

Rizzi(1990) claims that both of the quantifier in (a,b) occupy the Spec-VP position, which he assumes to be an A-bar position, by giving two arguments. First, Rizzi observes that these two quantifiers are incompatible:

(22) a. *Il a beaucoup tout consultés.
'He ate everything a lot.'
b. *Il a tout beaucoup tout consultés.

Second, Rizzi observes that both of them follow a floating quantifier linked to the subject:

(23) a. Ils ont tous tout mangés.
'They all everything ate.'
b. Ils ont tous beaucoup mangés.
'They all ate a lot.'

Rizzi assumes, following Sportiche(??), that the floating quantifier occupies the VP-internal subject position, and adopted Manzini(??)'s hypothesis that the VP-internal subject is in VP-adjoined position, which immediately precedes Spec-VP. This hypothesis is inconsistent with the definition of A/A-bar position in Chapter 2. But Rizzi's claim that L-*tous* is A-bar movement is supported by the following WCO test[4]:

(24) *Il faut tout$_i$ que son$_i$ proprietaire leur enleve.

'It is necessary that its$_i$ owner take everything$_i$ away from them.'

I leave open the question of how VP-internal A-bar position is possible, but only examine its properties relevant to the problem of uniformity in chain-steps.

Kayne(1975, 1983) show that unlike clitic placement, leftward quantifier movement, which he calls L-*tous*, can extract elements such as *tout* (everything) or *rien* (nothing) from certain infinitival CP:

(25) a. Marie a tout voulu faire.

'Mary has everything wanted to do .'

b.*Marie l'a voulu faire (Kayne(1983, P88))

Furthermore, L-*tous* can, for many speakers, extract *tout* or *rien* even out of a tensed CP:

---

[4]This test only shows that long-distance L-tous is A-bar movement, and the discussion of the landing site problem of scrambling might suggest that the short-distance L-tous is possibly A-movement. I have argument for or against it, but at least it can be said that short-distance L-tous is not Case-driven NP-movement, since as Branigan's(1992) observes, it may not induce past participle agreement, which is induced obligatorily in passives:

(i) a. *J'ai tous refaits
b. *L'étudiant a tous faits de ses devoirs.
(Branigan(1992: 37))

(ii) [Kayne's example]

(26) ?Je veux tout que tu leur enlèves.

'I want you to take everything (away) from them.' (Kayne(1983, P89))

This long distance extractability indicates that L-*tous* is A-bar-movement. There is, however, a crucial difference between L-*tous* and WH-movement. With WH-movement, the ECP effect with subject extraction as in (27a) can be nullified by the *que/qui* rule (cf. Moreau(1971), Kayne(1976)), as illustrated in (27b):

(27) a.*Qui veux-tu que vienne?

'Who do you want that come?' (Kayne(1983,P93))

b, Qui veux-tu qui vienne?

'Who do you want that come?' (Kayne(1983,P94))

With L-*tous*, however, the replacement of *que* by *qui* in (28b) does not nullify the ECP effect in (28a):

(28) a. *Je veux tout que leur soit enlevé.

'I want everything to be taken away from them.' (Kayne(1983, P93))

b.*Je veux tout qui leur soit enlevé.

'I want everything to be taken away from them.' (Kayne(1983, P93))

Following Kayne(1983), we assume that the failure of *que/qui* rule is reducible to the failure of movement through COMP (or Spec of COMP).

The same point is made by Obnauer(??), who observes that L-*tous* , unlike wh-movement, does not feed Case assignment to the subject of the embedded clause in ECM constructions:

(29) a. *J'avais cru NP être comprehénsible.

b. Que V NP cru t être comprehénsible.

c. *J'avais tous cru t être comprehénsible.

(Obnauer(??: 175)

Assuming, following Kayne(??), that the embedded infinitival clause in French is CP and the verb may exceptionally assign accusative Case only to Spec-CP[5], it follows that Spec-CP may not be used as an intermediate landing site for L-*tous*.

L-*tous* also has an interesting property with respect to the relativized minimality. As discussed by Obnauer(??), QAD blocks extraction of *combien* :

(30) a. Combien de problem a-t-elle beaucoup resolu t?

'How may of problems did she solve a lot?'

b *Combien a-t-elle beaucoup resolu t problems?

'How many did she solve of problems a lot?'

Rizzi(1990) further observes that QAD also blocks extraction of the manner adverb *comment* :

(31) *Comment a-t-il beaucoup résolu de problems?

'How did he solve may of the problems t ?'

[5]Alternatively, we may adopt Rizzi's(1990) assumption that only the C in agreement with Spec-CP may exceptionally assign Case to IP-Spec.

L-*tous* , however, does not seem to show these effects[6]:

(32) a. Combien de lignes a-t-elle tout laisse traverser t ?

'How may of lines did she let everything cross?'

b. Combien a-t-elle tout laisse traverser t de lignes?[7]

'How many did she let everything cross of lines?'

(33) Comment a-t-il tout résolu ?

'How did he solve everything?'

In C&L's framework, this simply follows from the assumption that movement to C via the landing site of L-*tous* is impossible, since only a potential landing site blocks movement when it is skipped.

The problem here is that the incompatibility of the step of L-*tous* -type and that of wh-movement-type is not derivable from a geometrical uniformity requirement on chain-steps, if we assume, following Rizzi's(1990), that the quantifiers occupy geometrically the same position in QAD and L-*tous*. The difference between QAD and L-*tous* may be rather reducible to that of the relations between the quantifier and the verb. We may assume, following Obnauer(??), that in QAD, the quantifier has some quantificational relation with the verb, possibly θ-identification of its event slot, in the sense of Higginbotham(??), and indirectly assigns quantificational force to the object, and that in L-*tous* , on the other hand, there is no such quantificational relation between them. Let us further assume that this special binding in QAD is an external effect of the same type as that of abstract A-bar

[6]I would like to thank Jean-Pierre Koenig for judgements. According to him, () is perfect, and, though (b) is weirder than (a), which is already weird, the weirdness of (b) does not seem to be another magnitude than (a).

agreement between C and its Spec. The incompatibility of L-*tous* and wh-movement then follows from the compensation principle, since the external effect produced by a step to Spec-CP may not be compensated for, since any L-*tous* step to Spec-VP does not have an external effect[8].

2 2.3. Partial NP-Movement in *there* -constructions

Descriptively speaking, in existential sentences in English such as (1), the expletive *there* occupies the Case position and its associate occupies a theta-position:

(34) There is [a book on the table].

In cases where the distance between *there* and its associate is nonlocal as in (2), we may assume that *there* has moved from the embedded Spec-IP to the matrix one leaving a trace behind[9]:

(35) There seems [t to be [a book on the table]].

If *there* were inserted in the matrix Spec-IP directly, it would violate the Extended Projection Principle (EPP), which applies at S-structure in English, requiring the subject of infinitival as well as finite clauses:

(36) a.It/*0 is certain that John will win.

b.I believe [it/*0 to be certain that John will win].

---

[8] This also accounts for Kayne's(1975) claim that L-*tous* is optional.

[9]Long-distance there -movement as in (i) is judged to be marginal at least by some speakers:

(i) There seems [t' to be likely [t to be [a book on the table]]]

For discussion, see Dresher and Hornstein(??), Aoun(??), and Abe(1992), among others.

(37) a. There/*0 is a book on the table.

b. I believe [there/*0 to be a book on the table]

NP-movement of there 's associate to satisfy EPP in the sentence corresponding to (35), however, is illicit[10]:

(38) *There seems [a book to be [t on the table]]

Lasnik(??) claims that examples like (38) violate the requirement that the landing site of NP-movement be a Case-position, namely, the Last Resort Principle. A problem for this approach, however, shows up if we consider (39):

(39) John believes [Mary to have been criticized t]

---

[10](i) might appear to involve movement of the associate of *there* to the subject of the small clause in a parallel way to (ii):

(i) There is [$_{\alpha}$ someone likely [t to win]]
(ii) John considers [$_{\beta}$ someone likely [t to win]]

α in (i), however, should have different structure from β in (ii), since only the AP in (ii) can be extracted:

(iii) *How likely to win is there [$_{\alpha}$ someone t]?
(iv) How likely to win does John consider [$_{\beta}$ someone t]?

The structure of α rather seems to be close to that of post-nominal modification such as γ in (v):

(v) I met [g someone [likely to win]]

For the AP may not be extracted out of γ either.

(vi) *How likely to win did you meet [$_{\gamma}$ someone t]

If we adopt Chomsky's(1991, 1992) Case theory, then the Spec of the embedded IP is not a Case-checking position and *Mary* must move to the Spec of AGRo at LF. Thus, the Last Resort would also rule out this, contrary to fact.

There is, however, a difference between (38) and (39) with respect to their covert processes: at LF, the embedded subject in (38) *someone* replaces *there* , whereas the embedded subject in (39) *Mary* moves on to the Spec-AGRo. Assuming, following Chomsky(1991), that *there* -replacement is LF affixation, we may consider that its external effect is different from that of movement to vacant Spec-AGRs. Call them r(eplacement)-type and s(ubstitution)-type. The ungrammaticality of (38) thus follows from the compensation principle: the s-type effect of the S-structure step is never compensated for, since the external effect of the LF step is r-type. On the other hand, (39) is grammatical, since both the external effects are uniformly s-type. (35) is also grammatical, since the external effects of the two covert steps (i.e. succesive replacement of the trace and *there*) are uniformly r-type[11][12]. The uniformity relevant here is not distinguished by the standard A/A-bar distinction, since both replacement and substitution steps are A-movement.

3.3. Complex Chains

In this section, I examine two cases of chains whose steps are to be decomposed into components in some way, and argues that these chains also obey the compensation principle.

3.3.1. Partial Wh-Movement Constructions

[11]Noam Chomsky (p.c.) points out to me that the step to the trace is unnecessary if we assume that the trace disappears after ϕ-feature checking takes place at S-structure, and long-distance expletive-replacement as adjunction at LF does not violate the Relativized Minimality. In this alternative account, (5) is also trivially satisfied.

[12]To account for the similar pattern with *it* -expletives we discussed in § 2.3.2.2., which is repeated here, we should assume that *it* is also to be replaced by the CP associate.

In this subsection, I discuss some strange properties of partial wh-movement constructions in German mainly based on McDaniel's(1989) data, comparing them with *there* -constructions and scope-reconstruction, and argue that those properties follow from the compensation principle together with the decomposition analysis of wh-movement in Chomsky(1992) and Cheng's(1991) idea that wh-phrases are not driven by [+wh].

3.3.1.1. Basic Data from McDaniel(1989)

According to McDaniel(1989), in some dialects of German and Romani, wide-scope WH-construal may be licensed by moving the true WH-operator partially to an intermediate Spec of CP and placing scope-markers in all the higher Spec-CP positions upto the one to which the construed scope is associated[13]. Let us consider the following German example:

(40) Was glaubst [IP du [CP was [IP Hans meint [CP mit wem [IP Jakob t gesprochen hat]]]]]
WHAT do you believe WHAT Hans thinks with whom Jakob talked
'With whom do you believe Hans thinks Jakob talked?'
(McDaniel(1989:??))

In (40), the true WH-phrase *mit wem* moves to the local CP-Spec and the other higher CP-Specs are occupied by instances of the scope-markers *was* , which means *what* if used as a true WH-phrase. McDaniel gives two other versions related to (40):

(41) Was glaubst [IP du [CP mit wem [IP Hans meint [CP t' [IP Jakob t gesprochen hat]]]]]
WHAT do you believe with whom Hans thinks that Jakob taked
'With whom do you believe Hans thinks Jakob taked?'
(McDaniel(1989:??))

[13]McDaniel also discusses partial movement constructions with more than one true wh-phrases, which we will not concern here.

(42) mit wem glaubst [IP du [CP t'' [IP Hans meint [CP t' [IP Jakob t gesprochen hat]]]]]

with whom do you believe that Hans thinks that Jakob taked

'With whom do you believe Hans thinks Jakob taked?'

(McDaniel(1989:??))

In (42), the true WH-phrase moves up to the intermediate CP-Spec and a scope-marker occupies the highest CP-Spec. In (42), the true WH-phrase moves to the highest CP-spec, and no scope-marker appears. If, however, the true WH phrase is in situ, the sentence becomes ungrammatical even if all the CP-Specs are occupied by scope markers:

(43) * Was glaubst [IP du [CP was [IP Hans meint [CP was [IP Jakob mit wem gesprochen hat]]]]]

WHAT do you believe WHAT Hans thinks WHAT Jakob taked with whom

'With whom do you believe Hans thinks Jakob taked?'

McDaniel extends the notion of chain in a way similar to Chomsky's(1986) CHAIN, which covers both chains created by NP-movement and expletive-argument pairs, so that base generated wh-expletives as well as a moved wh-phrase and its traces count as members of a wh-chain. For McDaniel, the feature [+wh] is distributed to the members of a wh-chain and only the head of the wh-chain is relevant to selectional requirement.

Quite interestingly, Thornton(1990) observes cases of partial wh-movement constructions spoken by children in certain stages of acquiring English, as in (44):

(45) What do you think where this froggy lives? (Kelly 3;11)

In (45), the true wh-phrase *where* moves to the Spec of the embedded CP and the scope marker *what* occupies the Spec of the matrix CP. This clearly shows that partial wh-movement is a UG available option of wh-chain formation, since those children may not hear adults speak that way.

3.3.1.2. Comparison of Partial Wh-Construction with *There* -Constructions

Let us tentatively assume, following McDaniel(1989), that scope markers and the chain created by partial wh-movement constitute a bigger chain, which we may call WH-CHAIN. A WH-CHAIN is characterized in the following way:

(46) The whole WH-CHAIN CH = $(\alpha_n, ..., \alpha_{i+1}, \alpha_i, ..., \alpha_0)$ is divided into two parts:

(i) MAIN(CH) = $(\alpha_i, ..., \alpha_0)$

, where α_i is the true WH-phrase and α_{i-1}, ..., α_0 are α_i's traces and $i > 0$.

(ii) RES(CH) = $(\alpha_n, ..., \alpha_{i+1})$

, where $\alpha_n, ..., \alpha_{i+1}$ are scope-markers, and $n \geq i+1$.

Note that in (46), if MAIN(CH) = CH, then the movement is total.

Now let us compare the partial WH-movement constructions with *there*--constructions, which involve NP-movement version of partial movement:

(47) a. There is [a book on the table].

b. There seems [t to be [a book on the table]]

c. There seems [t' to be likely [t to be [a book on the table]]]

We may assume that the "MAIN" for expletive-argument chains are the singleton chain headed by *a man* and the "RES" is the partial chain headed by *there*.. We may characterize them in the following way:

(48) The whole expletive-argument CHAIN CH = (α_n, ..., α_1, α_0) may be divided into two parts:

(i) MAIN(CH) = (α_0)

, where α_0 is the argument.

(ii) RES(CH) = (α_n, ..., α_{i+1})

, where α_n,is the expletive and α_{n+1}, ..., α_1 are the traces of the expletive.

The crucial difference between (46) and (48) is that partial movement applies to MAIN(CH) in (46) but to RES(CH) in (48), or equivalently, that non-movement part is RES(CH) in (46) but MAIN(CH) in (48). Thus, the scope-marker *was* , unlike *there* , may not move in partial wh-movement constructions:

(49) *Was$_i$ glaubst [$_{IP}$ du [$_{CP}$ daß [$_{IP}$ Hans meint [$_{CP}$ [mit wem]$_i$ Jakob t_i gesprochen hat]]]]]?

WHAT do you believe that Hans thinks with whom Jakob talked?

(McDaniel(1989:(25d)))

On the other hand, MAIN(CH) of *there* -constructions, unlike partial wh-constructions, may not be a non-trivial chain:

(50) *There seems [a book to be [t on the table]]

In §3.2.3., I argued that (50) is to be ruled out by the compensation principle, since NP-movement at S-structure and *there* -replacement at LF are non-uniform with respect to their external effects. The legitimacy of partial wh-movement corresponding to (50) then implies either that the relation between between scope markers and a true wh-phrase is established interpretively along the line of McDaniel's, or that *was* -replacement takes place without violating the compensation principle. I will argue below that the latter is the case.

3.3.1.3. Comparison with Scope-reconstruction

Rizzi(1991) points out that partial wh-movement constructions obey Ross's(??) negative island condition, which he reduces to the relativized minimality in Rizzi1990), although its total movement counter part does not:

(51) a. Mit wem glaubst du (nicht), dass Hans t gesprochen hat?
With whom do(n't) you believe that Hans has spoken
b. Was glaubst du (*nicht), mit wem Hans t gesprochen hat?
WHAT do(n't) you believe with whom Hans has spoken
(Rizzi(1991) / McDaniel(1989))

Given Chomsky and Lasnik's(1991) way of deriving the relativized minimality from the economy principle (3) (cf. § 3.1.), the ungrammaticality of (51b) suggests that *was* -replacement does take place in LF:

(3) Minimize chain-links.

Quite similarly, "scope-reconstruction" is also sensitive to weak islands such as negative and wh-islands (cf. Longobardi(??), Frampton(??)):

(52) a. Who do you think that everyone likes?

b. Who don't you think that everyone likes?

c. ?Who do you wonder whether everyone likes?

As is well-known, (52a) allows a paired answer (e.g. John, Mary, Bill, Susan ...), but neither (52b) nor (52c) does. Frampton(1991) derives this antecedent government requirement on scope reconstruction from ECP by assuming that only an intermediate trace can be the target of reconstruction, which he assumes to be an interpretive rule. Thus, all the traces in the embedded clause except the original one in (52b,c) are not antecedent governed and deleted so that scope-reconstruction becomes impossible. To incorporate Frampton's idea to our analysis of partial wh-movement, we need to assume that wh-expletive replacement takes place at LF. Furthermore, it should be derived that scope reconstruction is obligatory.

Murasugi&Saito(1993) (henceforth, M&S) also derives antecedent government requirement on scope reconstruction from ECP in a way slightly different from Frampton's. Based on Chomsky's(1992) decomposition analysis of wh-movement processes, M&S claims that wh-movement can be decomposed into two parts: QR part followed by wh-movement part. The QR-part is adjunction of the whole wh-phrase to the local VP, and the wh-part moves the wh-word of the adjoined wh-phrase to Spec-CP. The head of QR part, which is the wh-phrase minus wh-word, is the offending element in the whole chain if there is an island between it and the final landing site of the wh-movement, since it may not be deleted.

In light of M&S's idea, the antecedent government requirement on the link between wh-expletives and the wh-phrase which partially moved follows if we assume that only the wh-head but not the whole wh-phrase may take part in wh-expletive replacement. This

assumption is then derivable from the uniformity condition on chain steps if we assume that wh-expletive replacement and adjunction of wh-head to the whole wh-phrase are uniform with respect to their external effects[14]

There are two problems for incorporating M&S to our analysis of partial wh-movement. First, partial wh-movement of an argument XP itself does not show negative island effects[15]:

(53) a. Mit wem glaubst du daß Hans nicht meint daß Jakob gesprochen hat?
'With whom do you believe that Hans does not think that Jakob talked.'

b. Was glaubst du mit wem Hans nicht meint daß Jakob gesprochen hat?
'WHAT do you believe with whom Hans does not think that Jakob talked.'

c.*Was glaubst du was Hans nicht meint mit wem Jakob gesprochen hat?
'WHAT do you believe WHAT Hans does not think with whom Jakob talked.'

Wh-movement over the negation in the intermediate embedded clause, whether it is total as in (a) or partial as in (b), is legitimate, but partial wh-movement which does not pass the negation is ruled out. Therefore, only the relation between wh-expletives and the partially moved wh-phrase obeys the negative island condition, or the relativized minimality. In M&S's system, only local VP-adjoined position can be the position where offending QP with the trace of wh-word appear. This problem arises even in scope-reconstruction. Consider the following example given by Frampton(??):

(54) How many books does Bill need to find out whether Bertrand Russell owned?

14

[15]I thank Hubert Truckenbrodt for the judgments.

(55) a. What is the number x such that there are x many books that Bill needs to find out whether Bertrand Russell owned?

b. What is the number x such that Bill needs there to be x many books that he finds out whether Bertrand Russell owned?

c. *What is the number x such that Bill needs to finds out whether Bertrand Russell owned x many books?

The wh-phrase may not be scope-reconstructed into island, since its interpretation (c) is *. It may, however, reconstructed into the intermediate clause. This means M&S's QR-part should be non-local crossing even a wh-island.

The first problem is not a serious one, since M&S's analysis assumes, but does not depend on, the local nature of QR. The second one is more serious: (43), where all the Cs are occupied by scope markers and the wh-phrase is in-situ, should be grammatical if M&S's analysis extends to partial wh-movement constructions:

(43) *Was glaubst [IP du [CP was [IP Hans meint [CP was [IP Jakob mit wem gesprochen hat]]]]]
WHAT do you believe WHAT Hans thinks WHAT Jakob taked with whom
'With whom do you believe Hans thinks Jakob taked?'

Adjoin the wh-phrase in-situ to the local VP as the QR-part, and adjoin the wh-word first to the wh-phrase then successive cyclically to the scope markers.as the wh-part, the result should be grammatical contrary fact.

3.3.1.3. Cheng(1991)

Cheng's(1991) gives an interesting idea about the motivation of wh-movement, which can be summarized as follows:

What forces wh-movement at S-structure in languages such as English is not some strong feature in C_0, say [+wh], which "attracts" wh-phrases, as commonly assumed, but, rather, wh-phrases move to C_0 in order to "type" the clause as a wh-question, since these languages lacks wh-particles in C_0. On this assumption, wh-movement is the only option to "type" the clause as wh-question via Spec-Head agreement with C_0, since only wh-phrases are assumed to have the feature [+wh] in these languages.

The relevant difference between NP-movement and wh-movement, then, seems to be abstractly expressed in terms of the directionality of licensing: in NP-movement, the recipient of some Case feature moves, whereas in wh-movement, the assigner of [+wh] moves. Or in checking theoretical terminology, we may say that while AGR checks the Case feature of NP in its Spec, the [+wh] of C is counter-checked by the wh-phrase in its Spec. The compensation principle now requires some internal effect to compensate for counter-checking of [+wh]. Discharging the scope-role of the wh-word as existential quantifier seems to be the only internal effect a step in wh-phrase may produce. This is supported by the impossibility of movement of scope-markers:

(49) *Was$_i$ glaubst [$_{IP}$ du [$_{CP}$ daß [$_{IP}$ Hans meint [$_{CP}$ [mit wem]$_i$ Jakob t_i gesprochen hat]]]]]?

WHAT do you believe that Hans thinks with whom Jakob talked?

(McDaniel(1989:(25d)))

If a scope-markers is pure realization of of [+wh], then it lacks any quantificational force and it may not move for [+wh] counter-checking because of the compensation principle.

3.3.1.4. Uniformity under Decomposition

We may now answer why the landing site of partial wh-movement or QR-part must be Spec-CP rather than IP or VP-adjoined position. Let us consider the following:

(56) a. was $[_{whP_i} ..wh^0_j...]$ t_i

b. was wh^0_j-$[_{whP_i} ...t_j ...]$ t_i

c. wh^0_j-was t_j'-$[_{whP_i} ...t_j ...]$ t_i

Partial movement or QR-part takes place in (a), the wh-word adjoins to the wh-phrase in (b) and the wh-word replaces the scope-marker. Suppose that a wh-phrase is a simple existential quantifier rather than a complex quantifier with two components. This means not only (b,c) but also (a) can be considered as a step of the wh-word. The necessity that the landing of the step (a) be Spec-CP follows from the compensation principle, since otherwise the step (b,c) would not be uniform with respect to their external effects. The problem is how to compensate for the external effect of the step (c) by the scope discharge of the step (a), since the compensator must comes later but the step takes place at the beginning. If we adopt Chomsky's(1992) copy-and-deletion theory of movement, then the actual scope-discharge is possible only after the deletion process which follows all the copy processes. We may now consider the deletion as a step, which immediately follows the step (c), produces the discharge of scope-role, and hence can compensate for step (c).

3.3.2. Focus Antipassives in Mayan Languages

In this subsection, I analyze focus antipassive constructions in Mayan, and show that the necessary connection between a certain voice morphology and A-bar-movement in these constructions is derived from just Case theoretical requirements. The key idea of my analysis is that a certain type of position may have different checking relations with local

heads across syntactic levels, and the step which has that position as its landing site changes its external effect accordingly. One important consequence of this analysis is that a non-uniform chain at S-structure becomes a uniform chain at LF, and it obeys the compensation principle.

3.3.2.1. An Overview

Basically, Mayan languages are verb initial (either VOS or VSO) and have an ergative agreement system (i.e. the objects (patients) of transitives and the subjects of intransitives agree with ABS(OLUTIVE) morphology whereas the subjects (agents) of transitives agree with ERG(ATIVE) morphology. As is often found in ergative languages, most Mayan languages have antipassive constructions where a special morphology attaches to a transitive verb and "demotes" (or inherently Case-marks) its patient with the result that its agent agrees with ABS. A peculiarity of Mayan languages is that many of them also have focus antipassive constructions which are morphologically and syntactically similar to, but not identical with, antipassives. To avoid confusion, we will call the latter absolutive antipassives, following Mayanists. Comparison of absolutive and focus antipassives is given below:

		AAP	FAP
(1)	a. disappearance of ergative agreement	obl.	obl.
	b. extraction of the agent ("former ergative")	opt.	obl.
	c. demotion of the patient	obl.	obl./opt./imp
	d. absolutive agreement with the agent	obl	obl./cond./imp
	e. absolutive agreement with the patient	imp	obl./cond./ imp

(abbreviations: opt(ional), obl(igatory), imp(ossible), cond(itioned)))

The differences between absolutive and focus antipassives are summarized in the following two points:

(2) a. Absolutive antipassives are completely intransitive, whereas focus antipassives may retain properties of transitives to some extent (e.g. in Jacaltec, the patient is not demoted and agrees with ABS; in Quiche, the patient is optionally demoted, and if demoted, the agent agrees with ABS, and if not, either the patient or the agent agrees with ABS depending on their ϕ-features (see below)).

b. Absolutive antipassive morphology "feeds" the extraction of the agent (i.e. it saves the violation of the ban against extraction of an ergative argument which holds in many Mayan languages), whereas focus antipassive morphology "forces" the extraction of the agent.

We will give a Case-theoretical explanation of the correlation of these two peculiarities of focus antipassives. To adapt Chomsky's(1991, 1992) Case theory where structural Cases are licensed by special functional categories (AGRs for nominative Case and AGRo for accusative Case) under agreement to the ergative systems in Mayan languages, we assume, following Bittner (1992) and Murasugi(1992), that absolutive and ergative Cases are licensed in the higher and the lower AGRs, respectively. To avoid any confusion, we call the former functional category ABS instead of AGRs and the latter ERG instead of AGRo:

3.3.2.2. Problems

Now suppose that focus antipassive morphology, like absolutive antipassive morphology suppresses the Case assignability of ERG. But the former, unlike the latter,

may fail to demote (or assign inherent Case to) the patient. In that case, ABS, the only structural Case assigner, must license both the patient and the agent, an apparently impossible situation. This suggests that A-bar movement of the agent NP at S-structure is the only way for ABS to assign absolutive Case to the agent NP as well as to the patient NP. (The problem of ambiguous agreement in Quiche is to be discussed here)

3.3.2.3. A Typological perspective

To provide an exact mechanism, let us take a close look at the distribution of focus antipassives in Mayan languages. Among the nineteen Mayan languages surveyed in Dayley(1981), those which have focus antipassive are given in (3a) and those which do not in (3b):

(3) a. [+focus antipassive]
Yucatec, Tzotzil, Chuj, Jacaltec, Mam, Aguacatec, Ixil, Quiche, Cakchikel, Tzutujil, Pocomam, Pocomchi, Kekchi
b. [-focus antipassive]
Huastec Lacandon, Chorti, Chol, Tzeltal, Tojolabal

Surprisingly, this grouping of Mayan languages almost coincides with another grouping of them in terms of where the Absolutive morphology appears with respect to the verb and other inflectional morphology, which is illustrated in (4):

(4) a.Type 1: T-ABS ERG-V[16]

[16]We use the following abbreviations: T(ense), ABS(olutive), ERG(ative), V(erb).

Huastec, Tzotzil, Chuj, Jacaltec, Mam, Aguacatec, Pocomchi, Pocoman, Kekchi, Quiche, Cakchikel, Tzutujil

b, Type 2: T ERG-V -ABS

Yucatec, Lacandon, Chorti, Chol, Ixil, Tonjobal, Tzeltal

Combining (3) and (4) makes the coincidence easier to perceive:

(5) a. [+focus antipassive]

Type I: Tzotzil, Chuj, Jacaltec, Mam, Aguacatec, Quiche, Cakchikel, Tzutujil, Pocomam, Pocomchi, Kekchi

Type 2: Yucatec, Ixil

b. [-focus antipassive]

Type 1: Huastec

Type 2: Lacandon, Chorti, Chol, Tzeltal, Tojolabal

Thus, T-ABS-ERG-V (Type 1) languages typically have focus antipassive but T-ERG-ABS-V (Type 2) languages do not. We will return to the exceptions later in this subsection.

To understand what the difference of the relative ordering of ABS means, we may take a look at K'ekchi, which is basically Type 1 (T-ABS-(ERG-)V), but also has (ERG-)V-ABS ordering in so-called "tenseless" constructions (cf. Berinstein1985):

(6) Kekchi (from Berinstein(1985))

a. tensed transitive: T-ABS-ERG-V

X - at - ka - ch' aj

T-ABS2-ERG1p-wash 'We washed you.' (B's (6a))

b. tensed intransitive: T-ABS-V

X - at -yajer

T-ABS2-sick 'You got sick' (B's (6b))

c. tenseless transitive: ERG-V-(ASP)-ABS

K - il - om - at

ERG1p-see-PERF-B2 'We have seen you.' (B's (7a))

d. tenseless intransitive: V-(ASP)-ABS

Yak -ak - in

sick-ASP-ABS1 'I will be sick.' (B's (8c))

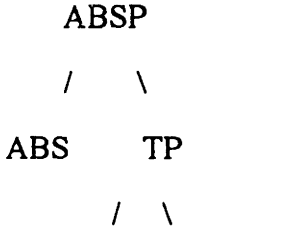
We may account for the ordering in tensed / tenseless constructions by assuming the following:

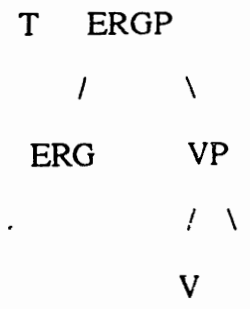
(7) a. T (overt tense) and V are [-aff].

b. Null tense, Asp, ABS, and ERG are [+aff]. (ABS is a suffix and ERG is a prefix)

c.only [+aff] attracts X0-movement.

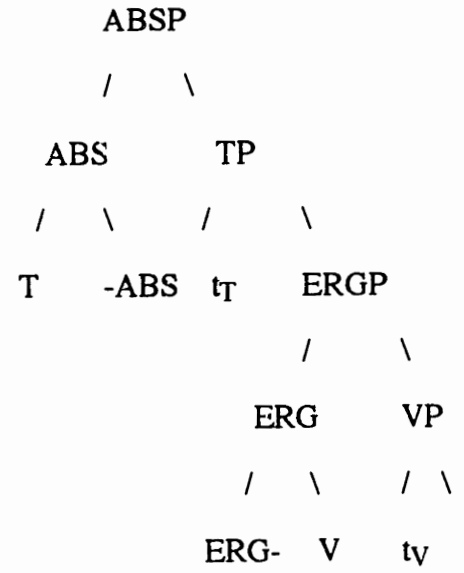
d. The D-structure of a clause is (Spec positions are ignored):



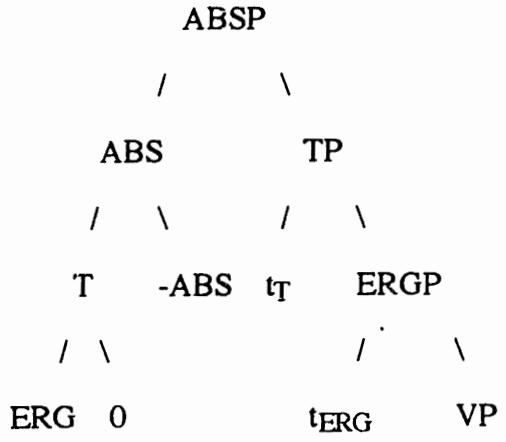


The derivation of tensed and tenseless constructions are illustrated in (8a,b), respectively:

(8) a.



b.

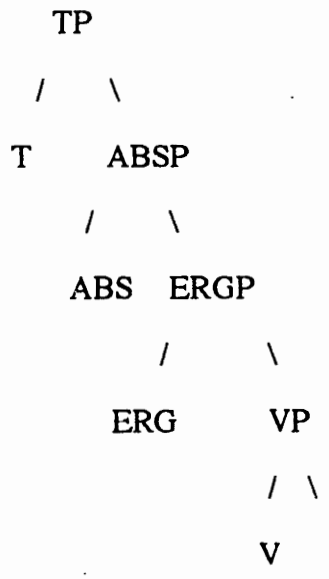


/ \ / \

ERG- V t_V

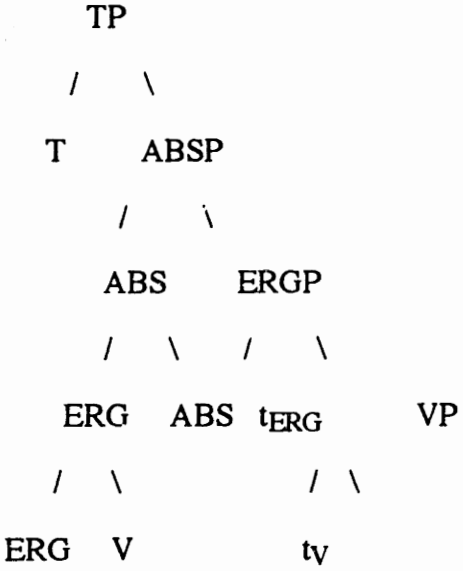
Now, let us return to Type 2 languages, where ABS follows V even if T is overt. We may account for this ordering by assuming (9) rather than (7d) is the D-structure for Type 2 languages:

(9)



From this, the following S-structure for Type 2 languages naturally derives:

(10)



Therefore, in this view, the crucial parametric difference between Type 1 and Type 2 languages is that ABS adjoins to T at S-structure.in Type 1 languages, whereas T and ABS are separated at S-structure as well as at D-structure in Type 2 languages.

3.3.2.4. Double-Checking

Now, suppose that T is counter-checked by an operator (i.e. [+wh] or [+focus]) in Mayan languages in general. The Spec-ABSP position in Type 1 languages, then, becomes a "mixed" position, in the sense that the NP occupying this position may be checked by ABS w.r.t.the absolutive Case feature, and may counter-check T w.r.t. the operator feature.

Given this conception of mixed position, we may explain the necessary connection of A-bar-movement with focus antipassive constructions which do not involve "demotion" of the patient (or inherent Case marking of the patient). Let us assume that the focus antipassive morphology attached to a transitive verb suppresses the Case assigning property of ERG without assigning inherent Case to the objects. This means that both the agent and the patient must be checked by ABS. This situation seems to be generally impossible, since a head with a checking feature seems to be able to attract at most one XP. Type 1 languages, however, may solve the problem by using the ABSP-Spec as a mixed position: T with a strong operator feature attracts and checks the agent at S-structure, whereas ABS with a Case feature attracts and checks the patient, and "accidentally" checks the agent at LF. The double checking function of ABS in focus antipassive constructions is attested by the following strange behavior of the absolutive agreement in focus antipassives in Quiche, a Type 1 Mayan language, discussed in Davis and Sam-Colop(1991):

(11) a. ABS agrees with the higher core argument (i.e. agent or patient) in the feature hierarchy.

b. 1st/2nd > 3rd pl > 3rd sg

This is illustrated below:

(12) a. In x-in-il-o-w le achi
I ASP-1A-see-THV-FAP the man
`I saw the man.'

b. Le achi x-in-il-o-w in
the man ASP-1A-see-THV-FAP me
`The man saw me.'

(Davies and Sam-Colop(1990: 523))

Thus the agent and the patient control the first-person absolutive agreement in (a) and (b), respectively. A natural explanation of (11) in our framework , which is based on Davis et. al.'s analysis in spirit, is that ABS abstractly agrees with both the agent and the patient as a consequence of double checking, but only the higher feature bundle is morphologically spelled-out.

Double checking, however, is not a necessary characteristic of the focus antipassives. There are focus antipassives with"demotion" of the patient in Type 1 Mayan languages. Quiche's focus antipassive with demotion of the patient to dative clearly shows that double checking by ABS is not involved, since in these constructions, ABS

obligatorily agrees with the agent irrespective of the feature hierarchy. But, extraction of the agent is still required. Adopting Murasugi's(1992) idea that ERG (Tr in her terminology) in ergative languages is [+strong] and licenses the agent to be ergative-marked at S-structure, and ABS (Tense in her system) is [-strong] and licenses the patient only at LF, we may assume that focus antipassive morphology suppresses the Case-checking property of ERG without changing the feature [+strong]. This means that some NP must fill the ERG-spec position, but it cannot stay there, since ERG itself cannot license the NP to be Case-marked there. Therefore, it must move to some Case position, but ABS is [-strong] and it fails to attract the NP at S-structure. Again, a mixed position solves the problem: at S-structure, T attracts the agent via Spec-ERGP and checks its operator feature, whereas at LF, ABS checks the agent w.r.t. its phi-features.

Now, let us return to the exceptions to our typological generalization that (i) Type 1 languages have focus antipassives, and (ii) Type 2 languages do not. We have one exception to (i) and two to (ii), illustrated in (13):

(13) Exceptions to the typological generalization according to Dayley's (1981) survey:

a. Haustec: Type 1 & [-focus antipassive]

b. Yucatec and Ixil: Type 2 & [+focus antipassive]

(13a) is not a problem, since all we have claimed is that if Type 1 languages possess a focus antipassive morphology, they may solve the problem it raises using double-checking. So, this claim vacuously holds with a Type 1 language such as Haustec which lacks the morphology. (13b) is a real problem, since Type 2 languages which lack a mixed position may not solve the problem raised by the focus antipassive morphology. If we look at the alleged focus antipassives in Type 2 languages more carefully, however, we find a crucial difference between them and those in Type 1. In Mayan languages in general, the transitive

/ intransitive distinction is sometimes made by so-called (in)transitive mode markers. In Type 1 languages, focus antipassives pattern with lexical intransitives, passives, and absolutive antipassives in that they take a intransitive mode marker. Interestingly, even focus antipassives without demotion of the patient in Type 1 languages such as Quiche and Jacaltec take an intransitive mode marker. In our framework, an intransitive mode marker may be taken to indicate that there is only one structural Case licenser (i.e. ABS). In Yucatec and Ixil, however, the "focus antipassives" pattern with transitives and not with intransitives including absolutive antipassives in that they do not take a intransitive mode marker, but a transitive one, even though they do not show ergative agreement morphology, unlike pure transitives. This is illustrated below:

(14) Yucatec focus antipassives (from Dayley's (1981) (151))

a. max puch-en

who hit-A1 'who hit me?'

b. max puch -e-Ø

who hit-M-A3 'who hit him?'

c. max il-ech

who see-A2 'who saw you?'

According to Dayley(1981), in Yucatec focus antipassives, the verb has no tense, aspect, or mode marking except the phrase final suffix *-e* (cf. (b)), which is usually used on transitive verbs when no other mode suffix occurs (e.g., in subjunctive).

As for Ixil focus antipassives, Ayres(1983) gives three pieces of evidence to show that they retain some properties of transitive constructions: (i) with the aspect marker kat , intransitive verbs require the employment of a phrase-final suffix -i, while monosyllabic

transitive verb roots require a suffix -a, and no phrase-final suffix is used with transitive verbs which are not monosyllabic or which bear a derivational suffix, as illustrated bellow:

(15) a. intransitive verbs: -i

kat opoon-i-Ø (Ch) ((26))

ASP arrive-M-3A

'He/she/it/they arrived'

b. monosyllabic transitive verb roots: -a

kat a- q'os-a (Ch&Ne) ((27))

ASP 2sE-hit-M-3sA

'You hit him/her/it/them'

c. polysyllabic or derived transitive verbs: no suffix

kat w- echb'u-Ø (Ch&Ne) ((28))

ASP 1sE eat-3A-M

'I ate it'

Absolutive antipassives pattern with intransitives, as illustrated in (a), whereas focus antipassives pattern with transitives as illustrated (b):

(16) a. kat q'os-on-i-Ø (Ch&Ne) ((29))

ASP hit-AAP-M-3A

'He/she/it/they hit'

b. in kat q'os-on-Ø (Ch&Ne) ((30))

I ASP hit-FAP-3A

'I hit it/her/him/them'

(ii) Similarly, with the aspect marker toq, all intransitive verbs, but no transitive verbs, require a suffix -oq:

(17) a. intransitives: -oq

toq ja7 -oq axh (Ch) ((31))

ASP go up-M 2sA

'You are going up'

b. transitives: no suffix

toq in q'os axh (Ch) ((32))

ASP 1sE hit 2sB

'I am going to hit you'

Again absolutive antipassives pattern with intransitives, while focus antipassives pattern with transitives:

(18) a. toq q'os on-oq axh (Ch) ((33))

ASP hit AAP-M-2sA

'You are going to hit'

b. in toq q'os-on axh (Ch) ((34))

I ASP hit-FAP 2sA

'*I* am going to hit you'

(iii) Finally, in certain syntactic contexts, and with the aspect marker -nik, only intransitive verbs require the use of ergative agreement morphologies rather than absolutive agreement morphologies:

(19) a. nik a- ja7 -e7 (Ch) ((35))
ASP 2sE go up
'You are going up'

b. nik in-/un q'os axh (Ch/Ne) ((36))
ASP 1sE hit 2sA
'I am/was hitting you'

As is expected, the agent of absolutive antipassives controls ergative agreement, as illustrated in (a), while the agent of ergative antipassives controls absolutive agreement:

(20) a. nik a- q'os-on s wi7 (Ch/Ne) ((37))
ASP 2sE hit -AAP on me
'You are/were hitting me'

b. in nik q'os-on axh (Ch/Ne) ((38))
I ASP hit-FAP 2sA
'*I* am/was hitting you'

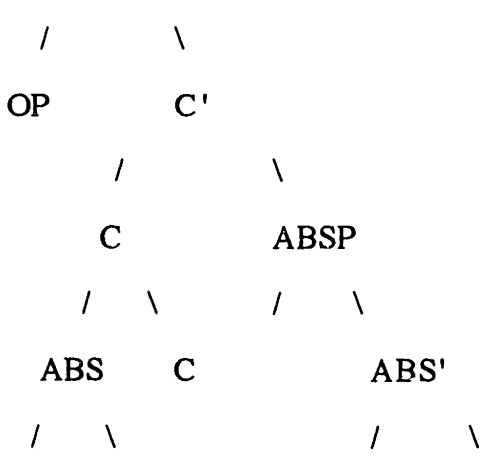
If we keep assuming that an intransitive mode marker is correlated with the lack of ergative Case, then we should conclude that "focus antipassives" in Yucatec and Ixil must retain [+Case] ERG and only morphological realization of abstract ergative agreement is

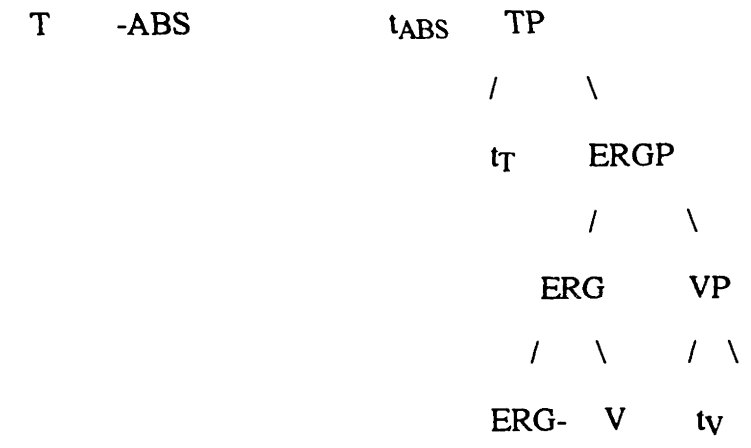
blocked. Put it simply, they are "fake" focus antipassives whose morphology induces only minor change with ERG: something like [+Case, -spellout, +strong]. This is understandable, since [-Case, +strong] ERG necessarily leads to ungrammaticality in these languages, which lack a "mixed" position. These "fake" focus antipassive morphologies still requires extraction of the agent, although there is no Case reason.

APPENDIX

In this chapter, I assume, following Aissen(1992), that Spec-IP (or more precisely, Spec-ABSP) is the landing site of focus-movement in Type 1 Mayan languages, where the operator counter-checks T with respect to an operator feature. This, however, contradicts with the analysis of wh-movement as QR in chapter 3, where it is argued that the motivation of wh-movement is to have clausal scope. Therefore, to be consistent, let us suppose that the landing site of wh-movement and focus-movement is Spec-CP in Mayan languages too. To pursue this, we must assume that vacuous I to C takes place at S-structure when an operator moves to Spec-CP, in a way parallel to subject-aux inversion in English. Thus, the S-structure of operator constructions in type 1 Mayan languages is:

(1)





Thus, OP (= the agent) in Spec-CP counter-checks T at S-structure and is checked by ABS at LF in focus antipassive constructions in Type 1 Mayan languages. Furthermore, in a subset of Type 1 Mayan languages such as Quiche, where the patient NP may not be demoted, the patient NP moves to Spec-ABSP at LF. Here, the double-checking function of ABS is localized: the agreement between Spec-CP and ABS, and the agreement between Spec-ABS and t_{ABS}. Both types of checking are observed in other languages. In subject-aux inversion constructions, which I assume, following(Chomsky(1986), to be derived by I to C, the subject is checked by the trace of I (or more precisely, AGRs):

(2) Where did you t_{AGRs} leave?

The first type of agreement relation is assumed in Rizzi and Roberts'(1989) analysis of complex inversion in French such as (1):

(3) Quel livre Jean a-t-il lu?
Which book John has he read

The points of Rizzi and Roberts are summarized below:

(4) a. The wh-phrase moves to CP-spec.

b. V-I moves to C.

c. The expletive pronoun, which is base-generated in IP-spec, is incorporated to V-I in C, since I to C movement makes the assignment of Nominative Case to IP-spec impossible.

d. The thematic subject, which is base-generated in VP-spec, moves to a pre IP-spec position (either C'-adjoined position as a A-bar position, or a second IP-spec made available after I to C).to which I in C assigns Nominative Case under agreement.

The S-structure of (2) is, thus, (2'):

(2') $[_{CP}$ Quel livre $[_{\alpha}$ Jean$_i$ $[_{C'}$ a-t-il$_j$ $[_{IP}$ t'$_j$ $[_{VP}$ t$_i$ lu]]]]]

The agreement relation between Jean and AGRs in the C-I complex corresponds to the agreement between Spec-CP and ABS in Type 1 Mayan languages. What is special in Quich-type Mayan languages is that both the English-type agreement and the French-type agreement are possible. A difference between French and Type 1 Mayans is that in French, there are two positions in agreement with an element of C-I complex, whereas in Type 1 Mayans, Spec-CP does both functions. This is derived from our theory: in French, both AGRs and [+wh] T are assumed to be strong, and therefore they must be checked at S-structure. This cannot be done using just a single position, since this implies domain-overlapping. In Mayans, where we assume, following Murasugi(1992), ABS is weak, Spec-CP can be in the minimal domain of T at S-structure, and it enters the minimal domain

of ABS at LF. Therefore, the whole chain is interpreted as uniform and obeys the compensation principle at LF.

CHAPTER FOUR

ARGUMENTS FOR [+WH] COUNTER-CHECKING

4.1. Introduction

In § 3.5.1., we adopted Cheng's(1992) hypothesis that wh-movement is not driven by [+wh] checking. In this chapter, I will give two supports for it. In § 4.2., I will argue that the difference between wh-movement and NP-movement with respect to the extractability in multiple specifier constructions is reducible to the difference of their licensers: NP is licensed (or checked) by AGRo, while wh-phrase is licensed by (or discharges) some IP as its scope. In § 4.3., I will support the claim that C [+wh] is licensed (or counter-checked) by arguing that some strange facts about strong crossover reconstruction are explained by the assumption that wh-absorption takes place obligatorily at LF, and that the assumption itself follows from the assumption that C [+wh] is counter-checking by wh-phrase and the unique licenser requirement (cf. § 2.8.).

4.2. Multiple Specifier Constructions

Though Spec-Head relation is generally assumed to be bijective, constructions exceptional to this assumption are found in a parallel way both in A and A-bar specifier systems: multiple object shift and multiple wh-movement. This parallelism, however, breaks down when we compare their behaviors with respect to Relativized Minimality. This asymmetry is also derivable from the asymmetry in their checking structure: checking vs counter-checking. In § 4.2.1.,we review Comorovski's(1986) claim that nonexistence of wh-island effects in Romanian is reducible to its peculiarity of Comp system: Comp (or Spec-C, in our terminology) is multiplicable and can be used either as final or intermediate landing sites. In § 4.2.2., as preparation for the following subsection, I give an object shift analysis of nominative object constructions in Japanese, following

Mahajan's(1989,90) analysis of object agreement in Hindi. In § 4.2.3., I claim that Spec-AGRo in these constructions is multiplicable as final landing sites but never as intermediate. In § 4.2.4., we explain this asymmetry between multiple wh-movement versus NP-movement by assuming that Relativized Minimality applies from the perspective of the (counter-) checkee's.

4.2.1. Multiple A-bar Specifiers and Extraction

Comorovski(1986) relates two facts about Romanian: (i) it allows multiple WH-movement as illustrated in (1), (ii) it allows rather freely extract violation of wh-island condition, as illustrated (2,3):

(1) Cine$_i$ cui$_j$ ce$_k$ ziceai că t_i i$_j$-a promis t_k t_j?
who$_i$ to-whom$_j$ what$_k$ you-were saying that t_i to-him$_j$ has promised t_k t_j
'Who did you say promised what to whom?' (Comorovski(1986: (1)))

(2) cu care profesor$_i$ nu ştii cine$_j$ t_j a promis că va discuta t_i?
'With which professor$_i$ don't you know who$_j$ t_j has promised that he will discuss t_j?' (Comorovski(1986:(4c)))

(3) Pentru care clauză$_i$ vrei să afli cine$_j$ t_j nu a decis încă ce$_k$ va vota t_k t_i?
'For which paragraph$_i$ do you want to learn who$_j$ t_j has not decided yet what$_k$ he will vote t_k t_i?' (Comorovski(1986:(5c)))

Comorovski claims that Romanian allows multiple slots in C and these slots can be used either as final or intermediate landing sites.(Her arguments to be cited below)

4.2.2. Nominative Objects in Japanese: An Object Shift Analysis

4.2.2.1. Basic Facts

As Kuno(1973) observes, the stativity of a verb determines the Case of its object in Japanese. If the verb is [-stative], as in (4a), its object is assigned accusative Case, whereas, if the verb is [+stative], as in (4b), its object is assigned nominative Case:

(4) a. John-ga hon-o yon-da (koto)
-NOM book-ACC read-PAST (fact)
'(the fact that) John read a book'

b. John-ga/-ni nihongo-ga wakar-u (koto)[1]
-NOM/-DAT Japanese-NOM understand-PRES (fact)
'(the fact that) John understands Japanese'

The object of complex predicates created by the concatenation of certain types of stative affixes (verbal or adjectival) with nonstative verbal bases may be assigned either accusative or nominative Case:

(5) a. Potential verbal affix: *-(rar)e* 'can'
John-ga nihongo-o/-ga hanas-e-ru (koto)
-NOM Japanese-ACC/-NOM speak-POT-PRES (fact)
'(the fact that) John can speak Japanese'

[1] I will not touch issues concerning dative subjects such as in (1b) in this paper. See Kuno(1973), Takezawa(1987), Ueda(1991), among others.

b. Desiderative adjectival affix: *-ta* 'want'

Boku-ga hon-o/-ga yomi-ta-i (koto)

I-NOM book-ACC/-NOM read-want-PRES (fact)

'(the fact that) I want to read a book'

c. Affixes forming 'tough'-predicates: *-yasu* 'easy', *-niku* 'difficult'

Kono teeburu-ga kabin-o/-ga oki-niku-i (koto)

this table-NOM vase-ACC/-NOM put-difficult-PRES (fact)

'(the fact that) this table is difficult to put a vase on'

The case arrays in (4,5) are schematized in (6):

(6) a. SUB-NOM OBJ-ACC V[-stative]

b. SUB-NOM OBJ-NOM V[+stative]

c. SUB-NOM OBJ-ACC/-NOM V[-stative] - V/A[+stative]

The ACC-NOM alternation in (6c) can be accounted for in terms of "reanalysis", following Kageyama(1982) and Sugioka(1984)[2]:

(7) Reanalysis

[2]We may express this "reanalysis" effects in terms of head movement and Government Transparency Corollary in Baker's(1988) framework.

Thus, the object is assigned nominative Case, if "reanalysis" applies to the complex verb/ adjective in (6c), and it is assigned accusative Case, otherwise.

The structural change induced by (4) is detected by the following binding facts:

(8) a. John$_i$-ga Mary-ni Kare$_{i/j}$-o sonkei-sase-rare-ru (koto)
-NOM -DAT he-ACC respect-CAUS-POT-PRES (fact)
'(the fact that) John$_i$ can make Mary respect him$_i$'

b. John$_i$-ga Mary-ni kare*$_{i/j}$-ga sonkei-sase-rare-ru (koto)
-NOM -DAT he-NOM respect-CAUS-POT-PRES (fact)
(cf. Miyagawa(1984))

The difference in grammaticality between (8a, b) is reducible to the difference in the governing category of the pronoun: the governing category for the accusative-marked pronoun in (8a) is the embedded clause, so it can be bound by the matrix subject. The governing category for the nominative-marked pronoun in (7b), on the other hand, is the matrix clause, since "reanalysis" applies to the sequence *sonkei-sase-rare* to license nominative Case for the object, and this process amounts to monoclausalization.

A similar effect is obtained in the scope interpretation of the accusative/nominative object quantifier and the stative affix, as illustrated in (9)[3]:

(9) a. John-ga migime-dake-o tsumur-e-ru.
-NOM right-eye-only-ACC close-POT-PRES
'John can close only his right eye.'
(i) can > only (John can wink his right eye.)
(ii) ?*only > can (It is only his right eye that he can close.)

b. John-ga migime-dake-ga tsumur-e-ru.
-NOM right-eye-only-NOM close-POT-PRES
'John can close only his right eye.'
(i) *can > only
(ii) only > can

The accusative-marked quantifier *migime-dake-o* must be within the scope of the potential affix *e*, as shown in (9a), whereas the nominative-marked quantifier *migime-dake-ga* must have scope over *e*. This contrast is also accounted for in terms of "reanalysis" as monoclausalization, since the quantifier must have a clausal scope, but the embedded clause is not available because of the monoclausalization, so it must have as its scope domain the matrix clause, within which the scope of *e* is contained.

4.2.2.2. The Relevance of Stativity

[3] I thank Masaki Sano for informing me this sort of scope interaction. See Sano(1985) for discussion of general scopal properties of *dake*.

We may ask, now, what assigns (or licenses) nominative Case to objects in stative constructions. Two answers have been proposed in the literature, which are summarized (or restated) in (10):

(10) a. Stative predicates assign nominative Case under government.
(cf. Kuno(1973), Kageyama(1982), Sugioka(1984))

b. INFL[+tense] assigns nominative Case to objects under government, when lowered to stative predicates. (cf. Takezawa(1987))

(10a), an updated restatement of Kuno's(1973) rule-based formulation, straightforwardly accounts for why and when nominative Case is assigned in simple and complex stative predicate constructions we have seen so far, but leaves open the question of why objects of stative predicates and subjects in general share nominative Case. (10b), which is proposed by Takezawa(1987), on the other hand, accounts for the second question straightforwardly, given that INFL [+tense] assigns nominative Case to subjects. It also explains the first question neatly, given the following assumptions: (i)[+stative] predicates may not assign Case. (ii) INFL lowering is possible only when Case is otherwise unavailable to the object NP. Namely, from (i) and (ii), it follows that only the objects of transitive stative predicates (either simple or reanalyzed complex) can get nominative Case from the lowered INFL[+tense]. Conceptually, therefore, (10c) seems superior to (10a).

There are, however, two empirical arguments for (10a). Let us first consider the following:

(11) a. Kono ginkoo-ga okane-o/-ga kari-yasu-i.
this bank-NOM money-ACC/-NOM borrow-easy-PRES
'This bank is easy to loan money from.'

b. John-ga okane-o/*-ga kari-yasu-i.
John-NOM money-ACC/-NOM borrow-easy-PRES
'(lit) John is easy to loan money.'
'John borrows money easily.'

(12) a. John-ga hon-o/-ga ka-e-ru.
John-NOM book-ACC/-NOM buy-POT-PRES
'John can buy a book.'

b. John-ga hon-o/*-ga kai-u-ru.
John-NOM book-ACC/-NOM buy-possible-PRES
'It is possible that John will buy a book.'

The stative affixes in (11a) and (12a) license nominative objects while those in (11b) and (12b) do not, although the affixes are morphologically closely related in each pair. The minimal difference between them seems to be that the former stative affixes (or the maximal projections headed by them) assign some external theta-role to the subject, whereas the latter stative affixes do not. Thus, we may reduce the impossibility of nominative objects in (11b) and (12b) to Burzio's generalization, which permits a verb to assign Case only if the verb assigns external theta-role. This explanation, of course, depends on the assumption that the stative affixes do assign nominative Case.

Second, if INFL[+tense] assigns nominative Case both to subjects and objects in stative predicate constructions, as Takezawa(1987) argues, then we predict that neither nominative subjects nor nominative objects may appear in [-tense] clauses. This prediction, however, does not seem to be borne out. To see this, let us first consider (10):

(13) a. John-ga [Mary-o/?*-ga kawaiku] omot-ta.
-NOM -ACC/-NOM pretty think-PAST
'(lit) John thinks Mary pretty.' (cf. Takezawa(1987))

b.. John-ga [heya-o/*-ga kireini] si-ta.
-NOM -ACC/-NOM clean do-PAST
'John made the room clean.'

We may attribute the impossibility of nominative subjects in the embedded clauses in (13a, b) to the non-existence of INFL[+tense], following Takezawa[4].. Let us consider (5b) again, repeated here as (14):

(14) Kono teeburu-ga kabin-o/-ga oki-niku-i (koto)
this table-NOM vase-ACC/-NOM put-difficult-PRES (fact)
'(the fact that) this table is difficult to put a vase on'

In (14), the object of the complex predicate can be either accusative or nominative because of the affixation of the stative affix ***niku*** 'difficult'. If we embed the non-finite version of (14) in an ECM construction such as (13b), we get (15):

(15) a. John-ga [kono teeburu-o kabin-o oki-nikuku] si-ta
-NOM this table -ACC vase-ACC put-difficult do-PAST
'John made this table difficult to put a vase on.'

---

[4]Takezawa(1987) gives only *think*-type ECM constructions such as (13a). I will, however, use *make*-type ECM constructions below, since the grammatical contrast in the second type seems to me to be clearer than that in the first type.

b. *John-ga [kono teeburu-ga kabin-o oki-nikuku] si-ta
-NOM this table -NOM vase-ACC put-difficult do-PAST

c. ?John-ga [kono teeburu-o kabin-ga oki-nikuku] si-ta
-NOM this table -ACC vase-NOM put-difficult do-PAST

b. *John-ga [kono teeburu-ga kabin-ga oki-nikuku] si-ta
-NOM this table -NOM vase-NOM put-difficult do-PAST

In (15a), both the subject and the object of the embedded clause are assigned accusative Case by *oki* 'put' and *si* 'do', respectively. This case array is independent of the existence of INFL[+tense], so it is no problem. (15b, d) are ruled out, irrespective of the Case of the object, since there is not INFL[+tense] which assigns nominative Case to the subject of the embedded clause. The (near) grammaticality of (15c), however, is a problem to Takezawa's analysis, since the object is assigned nominative Case. (16a-d) are schematized in (13a-d):

(16) a. NP-NOM [NP-ACC [NP-ACC V]-difficult] make

b. *NP-NOM [NP-NOM [NP-ACC V]-difficult] make

c. ?NP-NOM [NP-ACC [NP-NOM V]-difficult] make

d. *NP-NOM [NP-NOM [NP-NOM V]-difficult] make

This subject/ object asymmetry of nominative Case assignment in non-finite clauses ((16b) vs. (16c)) seems to show that nominative objects are not licensed by INFL[+tense].This subject/ object asymmetry of nominative Case assignment in non-finite clauses ((16b) vs. (16c)) seems to show that nominative objects are not licensed by INFL[+tense].

4.2.2.3. The Relevance of Government

In the two approaches we just examined, the relevant structural relation for nominative Case assignment to objects is assumed to be that of a head and its complement, that is, government. The interactions of nominative Case assignment and "possessor ascension", however, seem to indicate that the relevant structural relation is not government. To see this, let us first consider (17) and (18):

(17) a. Zoo-no hana-ga naga-i.
elephant-GEN nose-NOM long-PRES
'An elephant's nose is long.'

b. Zoo-ga hana-ga naga-i.
elephant-NOM nose-NOM long-PRES

(18) a. John-ga zoo-no hana-o tatai-ta.
-NOM elephant-GEN nose-ACC hit-PAST
'John hit an elephant's nose.'

b. *John-ga zoo-o hana-o tatai-ta.
-NOM elephant-GEN nose-ACC hit-PAST
'John hit an elephant's nose.'

As Kuno (1973) observes, "possessor ascension" is possible out of subjects(cf. (17a)), but not out of objects (cf. (18b) in Japanese. We assume, following Shibatani(1977), that the impossibility of "possessor" ascension out of objects is reducible to the condition that a verb, whether simple or complex, may not assign more than one accusative Case. This condition also accounts for the possibility of accusative Case assignment to subjects in causative constructions, as illustrated in (19) and (20):

(19) a. John-ga ik-u.
-NOM go-PRES
'John goes.'

b. Mary-ga [John-o/-ni ik]-ase-ta.
-NOM -ACC/-DAT go-CAUS-PAST
'Mary made/let John go.'

(20) a. John-ga hon-o yom-u.
-NOM book-ACC read-PRES
'John reads books.'

b. Mary-ga [John*-o/-ni hon-o yom]-ase-ta.
-NOM -ACC/-DAT book-ACC read-CAUS-PAST
'Mary made/let John go.' (cf. Shibatani(1977))

In (19b), the complex verb consisting of an intransitive verb and the causative suffix may assign accusative Case to the embedded subject. In (20b), on the other hand, the complex verb consisting of a transitive verb and the causative suffix may not, by virtue of the alleged d condition.

In complex stative predicate constructions, however, "possessor ascension" takes place in an interesting way:

(21) a. Boku-ga sono hon-no syohyoo-o/-ga yomi-ta-i.
I-NOM that book-GEN review-ACC/-NOM read-WANT-PRES
'I want to read that book's review.'

b. Boku-ga sono hon-ga syohyoo-o/-ga yomi-ta-i.
I-NOM that book-NOM review-ACC/-NOM read-WANT-PRES

c. *Boku-ga sono hon-o syohyoo-o/-ga yomi-ta-i.

I-NOM that book-ACC review-ACC/-NOM read-WANT-PRES

(22) a. Boku-ga John-no atama-o/-ga tatak-e-na-i.
I-NOM -GEN head-ACC/-NOM hit-POT-NEG-PRES
'I cannot hit John's head.'

b. Boku-ga John-ga atama-o/-ga tatak-e-na-i.
I-NOM -NOM head-ACC/-NOM hit-POT-NEG-PRES

c. *Boku-ga John-o atama-o/-ga tatak-e-na-i.
I-NOM -ACC head-ACC/-NOM hit-POT-NEG-PRES

The "ascending" possessor can be assigned nominative Case, irrespective of the Case of the source possessee NP, as shown in (21b) and (22b). The "ascending" possessor cannot be assigned accusative Case, as shown in (21c) and (22c). The Case arrays of (21b,c) and (22b,c) are schematized in (23):

(23) a. . . . NP-NOM NP-NOM

b. . . . NP-NOM NP-ACC

c. *. . . NP-ACC NP-ACC

d. *. . . NP-ACC NP-NOM

The nominative NPs in (21b) and (22b) corresponding to the possessor NPs in (21a) and (22a), respectively, do not seem to be "extra" subjects, since they are not licensed without the stative affix, as shown in (24b) and (25b):

(24) a. Boku-ga sono hon-no syohyoo-o yon-da.
I-NOM that book-GEN review-ACC read-PAST
'I read the review of that book.'

b. *Boku-ga sono hon-ga syohyoo-o yon-da.
I-NOM that book-NOM review-ACC read-PAST

(25) a. Boku-ga John-no atama-o tatai-ta.
I-NOM -GEN head-ACC hit-PAST
'I hit John's head.'

b. *Boku-ga John-ga atama-o tatai-ta.
I-NOM -NOM head-ACC hit-PAST

Furthermore, the "ascending" possessor may not be the antecedent of the reflexive *zibun*, which has subject -orientation:

(26)Boku-ga Mary$_i$-ga [kanojo$_i$/*zibun$_i$-no oya-no mae-de] me-o matomo-ni
I-NOM -NOM she/*self-GEN parents-GEN front-LOC eyes-ACC directly
mi-rare-na-i.
see-POT-NEG-PRES
'I cannot stare at Mary$_i$'s eyes in front of her$_i$ /self$_i$'s parents.'

(27) a. John-no hahaoya-ga byooki-da
-GEN mother-NOM sick-is
"John's mother is sick."

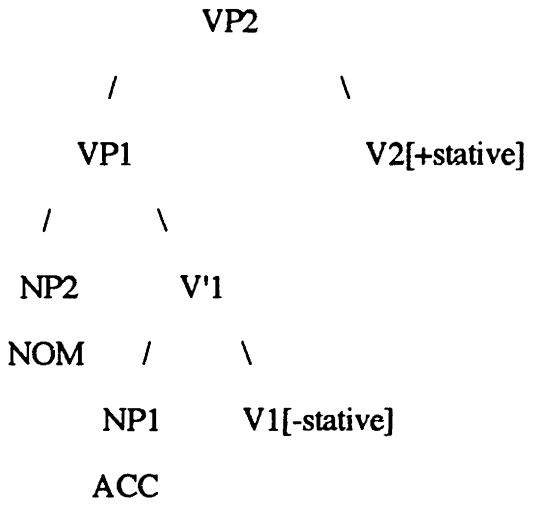
b. John$_i$-ga *e* $_i$/?zibun$_i$-no/?kare$_i$-no hahaoya-ga byooki-da
-NOM self-GEN he-GEN mother-NOM sick-is

(28) a. Boku-wa John-no hahaoya-ga settoku-deki-nai.
-TOP -GEN mother-NOM persuade-can-not
"I cannot persuade John's mother."

b. Boku-wa John$_i$-ga *e* $_i$/*zibun$_i$-no/?kare-no hahaoya-ga settoku-deki-nai.
-TOP -NOM self-GEN he-GEN mother-NOM persuade-can-not

We must, therefore, assume that (21b) and (22b) involve "possessor ascension" out of objects and that the "ascending possessor" is assigned nominative Case. What is interesting here is the Case array (23b), where the higher NP is assigned nominative Case and the lower NP is assigned accusative Case. This seems to show that nominative Case assignment to objects must be independent of "reanalysis", which absorbs accusative Case. Thus, if we adopt Yoon's(1990) theta-theoretically motivated phrase structure for "possessor ascension" constructions[5], we will have the following schematic representation of (23b):

(29)



(29), however, turns out to be problematic as the representation of (23b) , if we consider the following:

(30) John-ga migime-dake-ga mabuta-o tsumur-e-ru.
-NOM right-eye-only-NOM lid-ACC close-POT-PRES
'John can close only his right eyelid.'
(i) *can > only

---

[5]Yoon(1990) claims that the possessed NP, being a predicate semantically, does not discharge the internal theta-role of the verb, but modifies it by theta-identification in Higginbotham's(1985) sense, and that the V' consisting of the verb and the possessed NP assigns the qualified theta-role to the possessor NP.

(ii) only > can

If (30), which also has the Case array (23b), has the structure (29), then we predict that the "ascending" quantifier (NP2) may be interpreted as being inside the scope of the potential verb (V2), since "reanalysis" may not take place here in order to assign accusative Case to NP1, and, therefore, the embedded scope must be available to the quantifier by assumption (cf. (9)).

(31) John-ga migime-dake mabuta-o tsumur-e-ru (koto).
-NOM right-eye-only lid-ACC close-POT-PRES
'John can close only his right eyelid.'
(i) can > only
(ii) only > can

(32) a. John-ga [[sono-hon-dake(-o) chyuumonsita] gakusei]-o sagasiteiru.
-NOM that-book-only(-ACC) ordered student-ACC is looking for
"John is looking for a student who ordered only that book."

b. Sono-hon-dake (?*-o) John-ga chyoomonsita] gakusei]-o sagasiteiru.
that-book-only (-ACC) -NOM ordered student-ACC is looking for
Cf. Saito(1985) for base generated vs. derived topics

If (29) is theta-theoretically motivated, as we assume, and "reanalysis" does not take place in (29), the quantifier must be forced to move out of VP1 for some reason. The reason is most likely to be a Case-reason. If this is true, then the hypothesis that the stative predicates are nominative Case assigners and the government requirement on nominative Case assignment are in contradiction, since V2 may assign nominative Case to NP2 "exceptionally" if VP1, a non-immediate projection of V1, does not constitute a minimality barrier (cf Chomsky(1986)), and, hence, there is no reason for the quantifier to move. We

saw in Section 2 that there are good reasons to assume the former hypothesis. Therefore, we must conclude that the relevant structural relation is not government

4.2.2.4. Nominative Case Assignment as Agreement

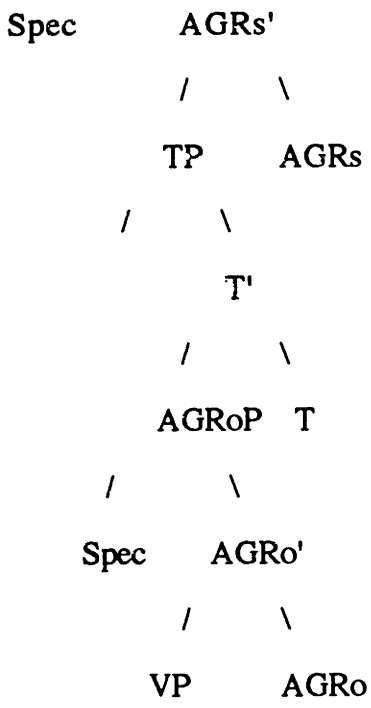
We may now consider that the relevant structural relation is Spec-Head agreement, in stead of government. This, however, contradicts with VP/AP internal subject hypothesis[6]: the stative predicates which assigns nominative Case have external theta-roles, as we saw in Section 2 (cf.(11), (12)), so the VP/AP Spec position, to which external theta-role is assigned, may not be the nominative-marked position, to which the object of the stative predicates moves. We again face incompatibility between the hypothesis that stative predicates are nominative Case assigners and the relevant structural relation, Spec-Head agreement , this time.

The incompatibility, however, readily disappears, if we adopt some version of the Case-theory introduced by Chomsky(1989) and developed by Mahajan(1989,1990), among others. The leading idea of the new Case theory is that any structural Case assignment relationship between a Case assigner H and a Case assignee XP must be licensed by some AGR, a special functional category ,which inherits the Case feature from H and is in Spec-Head agreement relationship with the XP at some level of syntactic representation. Let us assume the following IP-internal phrase structure given in Chomsky(1989) with some minor modifications:

(33) AGR_S

/ \

[6]See Ueda(1991) for some evidence for VP/AP internal subject hypothesis from stative predicate constructions in Japanese.

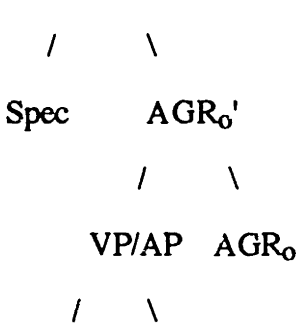


The licensing condition for nominative Case assignment to object in Japanese can be formulated as follows:

(34) [+stative] AGR_o licenses nominative Case in its Spec.at S-structure

The inheritance of [+stative] from a stative predicate to AGR is established by Head-movement and percolation, as illustrated in (35):

(35) a.



VP V/A[+stative]

verb raising

b. AGR_oP

/ \

Spec AGR_o'

/ \

VP/AP AGR_o [+stative]

/ \ / \

VP t_i V_i/A_i AGR_o

[+stative]

NOM

This mechanism explains the problem raised by (30), repeated here as (36):

(36) John-ga migime-dake-ga mabuta-o tsumur-e-ru.

-NOM right-eye-only-NOM lid-ACC close-POT-PRES

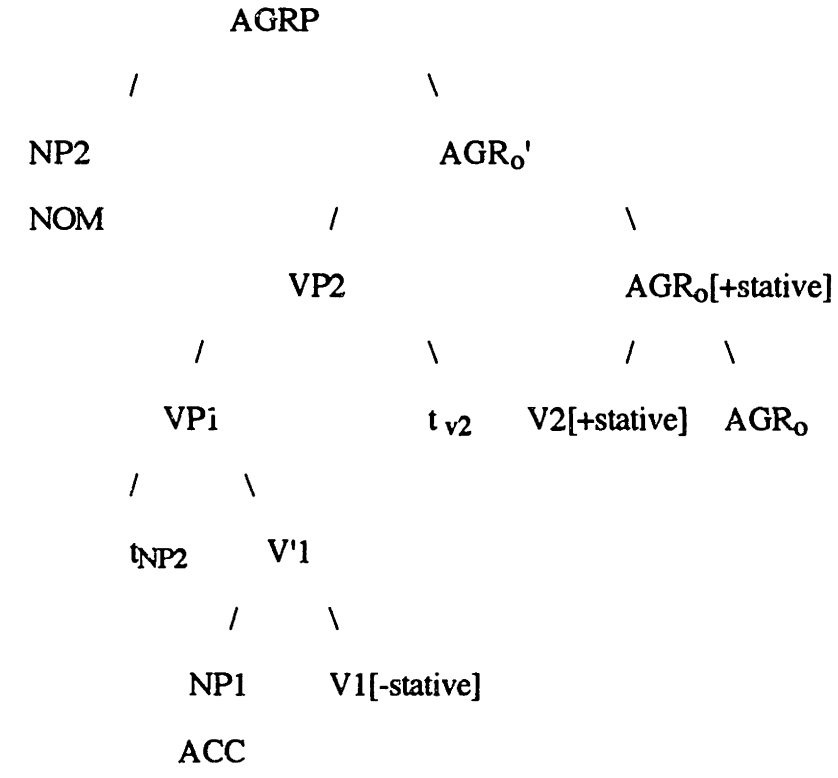
'John can close only his right eyelid.'

(i) *can > only

(ii) only > can

The relevant part of the S-structure of (36) is illustrated in (37):

(37)



In (37), the quantifier NP2 is already outside the embedded clause to be licensed to get nominative Case, so it will acquire only matrix scope at LF, a desirable result.

Furthermore, this mechanism solves the conceptual problem we faced in Section 4.2.2.2, that is, there was no account for why stative predicates assigns the same Case as INFL[+tense] assigns. If we assume that the licensing of the Case assigned by Tense is established by AGR$_s$ also at S-structure, but the Case assigned by [-stative] verbs is to be licensed at LF, we can generalized the nominative Case assignment/ licensing in Japanese in the following way:

(38) K is nominative iff K is licensed by AGR at S-structure.

4.2.2.5. Conclusion

We have seen that the problems raised by nominative Case assignment to objects in Japanese stative constructions is solved neatly by the new Case theory with implementation of the "classical" hypothesis that [+stative] predicates assign nominative Case. This result is particularly interesting, in that the insight of the theory that Case assignment is a subcase of agreement gets support from such a language as Japanese, which is morphologically a fully case-marking language lacking any visible agreement.

4.2.3. Multiple A-Specifiers and Extraction

4.2.3.1. Relativized Minimality Effects on Objects Shift

In § 4.4.1., we argued that the hypothesis that nominative objects are licensed by stative predicates is supported by (11) and (12), repeated below as (39) and (40), respectively

(39) a. Kono ginkoo-ga okane-o/-ga kari-yasu-i.
this bank-NOM money-ACC/-NOM borrow-easy-PRES
'This bank is easy to loan money from.'

b. John-ga okane-o/*-ga kari-yasu-i.
John-NOM money-ACC/-NOM borrow-easy-PRES
'(lit) John is easy to loan money.'
'John borrows money easily.'

(40) a. John-ga hon-o/-ga ka-e-ru.
John-NOM book-ACC/-NOM buy-POT-PRES
'John can buy a book.'

b. John-ga hon-o/*-ga kai-u-ru.
John-NOM book-ACC/-NOM buy-possible-PRES

'It is possible that John will buy a book.'

Our account was that the complex stative predicates in (39b) and (40b) do not assign external theta-role and, hence, fails to assign nominative Case due to Burzio's generalization. Burzio's generalization, however, does not seem to be an axiom of the universal grammar[7]. To try to derive it from something more fundamental, let us consider the structure of the nominative object versions of (40a,b) schematized in (41a,b), respectively:

(41) a. $[_{AGR_sP}$ Subj$_i$ $[_{AGR_oP}$ Obj$_j$ $[_{VP}$ $[_{CP/IP}$ PRO$_i$ t$_j$ V$_1$] V$_2$] AGR$_o$] AGR$_s$]

b.*$[_{AGR_sP}$ Subj$_i$ $[_{AGR_oP}$ Obj$_j$ $[_{VP}$ $[_{IP}$ t$_i$ t$_j$ V$_1$] V$_2$] AGR$_o$] AGR$_s$]

In both cases, the object NP moves to the spec of AGR_oP. In (42a), the moved object receives nominative Case successfully. On the other hand, in (42b), where the subject NP also moves the spec of AGR_sP, the object NP fails to receive nominative Case. Therefore, the movement of the subject seems to be crucial to derive this type of Burzio's generalization. I think what is at work here is some version of Relativized Minimality, which is originally proposed by Rizzi's(1990). The intuition is that the object NP in the spec of AGR_oP blocks the movement the subject NP to the spec of AGR_sP, since these two spec positions are of the same type[8]. This approach is supported by the following facts:

---

[7] Similar attempts have been made recently by Chomsky(1991, class lectures at MIT) and Marantz(to appear) to derive Burzio's generalization.

[8]Note that Rizzi's(1991) original formalization predicts that PRO in the spec IP position would also block the movement of the object contrary to fact.

nom ind obj & passive

(42) a. Boku-ga sooyuu onna-ni John-o shookaisi-ta-i.

-?ga

I -nom such woman-DAT -ACC introduce-want-PRES

-NOM

'I want to introduce John to such a woman'

b. Boku-ga sooyuu onna-ni t shookais-are-ta-i.

-*ga

I -nom such woman-DAT introduce-PASS-want-PRES

-NOM

'I want to be introduced to such a woman'

(42a) shows that the desiderative adjective *-tai* (at least marginally) licenses nominative Case to the indirect object of the verb it attaches to when the verb is active (42b), however, shows that when the verb is passivized, *-tai* fails to license to do so. The schematic structures of the nominative indirect object versions of (42a,b) are (43a,b), respectively

(43) a. $[_{AGRsP}$ Subj$_i$ $[_{AGRoP}$ Ind-Obj$_j$ $[_{VP}$ $[_{CP/IP}$ PRO$_i$ t$_j$ Obj V] A] AGR$_o$] AGR$_s$]

b.*$[_{AGRsP}$ Subj$_i$ $[_{AGRoP}$ Ind-Obj$_j$ $[_{VP}$ $[_{CP/IP}$ PRO$_i$ t$_j$ t$_i$ V-Pass]A] AGR$_o$] AGR$_s$]

The crucial point is that PRO seems to block the movement of the indirect object only when the PRO is a derived subject as in (43b). Note that in both (43a,b), *-tai* assign external theta-role to the matrix subject. Thus, we cannot explain the contrast between them in terms of Burzio's generalization. The same point can be made by the following contrast:

(44) a. Boku-ga Mary-ni sooyuu hon-o yom-ase-ta-i

-ga

-NOM -DAT such book-ACC read-CAUS-want-PRES

-NOM

'I want to make Mary read such a book.'

b. Boku-ga sooyuu hon-o yom-ase-rare-ta-i

-?*ga

I-NOM that book-ACC read-CAUS-PASS-want-PRESS

-NOM

'I want to be made to read such book.'

(44a,b) are schematized in (45a,b), respectively.

(45) a.[$_{AGRsP}$ Subj$_i$ [$_{AGRoP}$ Obj$_j$ [$_{VP}$ [$_{CP}$ PRO$_i$ [$_{VP}$ [$_{IP}$ Subj t$_j$ V]Caus] A] AGR$_o$]AGR$_s$]

b.*[$_{AGRsP}$ Subj$_i$ [$_{AGRoP}$ Obj$_j$ [$_{VP}$ [$_{CP}$ PRO$_i$ [$_{VP}$ [$_{IP}$ t$_i$ t$_j$ V]Caus-Pass] A] AGR$_o$]AGR$_s$]

The movement of the object to the spec of AGR$_o$P is blocked only by the PRO which is moved to the subject position, as in (45b). An interesting point here is that unlike (41b) and (43b), (45b) is ruled out without violating Path Containment Condition proposed by Pesetsky(1982). Namely the path created by the movement of the object properly contains the path created by the movement of PRO, since PRO asymmetrically c-commands the object at D-structure and the object asymmetrically c-commands PRO at S-structure. Thus, our assumption that (41b), (43b), and (45b) are ruled out by some version of Relativized

Minimality seems to be on the right track. Let us tentatively make the following informal characterization of the relevant Relativized Minimality Effects:

(46) Relativized Minimality Effects (RME): A-movement is blocked by an intervening NP in A-specifier position only if the NP is also A-moved.

4.2.3.2. Multiple Specifiers of AGRP

When we discussed the interactions between "possessor ascension" and nominative Case assignment to objects in § 4.2.2.3., we observed that both the possessor NP and the possessed NP can be assigned nominative Case simultaneously. Let us take the double nominative version of (21b), repeated here as (47):

(47) Boku-ga sono hon-ga syohyoo-ga yomi-ta-i.
I-NOM that book-NOM review-NOM read-WANT-PRES
'I want to to read that book's review'

(47) now raises the following questions: How is (46) (RME) satisfied in (47)? A plausible hypothesis is that the possessed nominative argument does not count as intervening between the possessor nominative argument and its trace. One way to derive this is to assume that after the whole NP moves to the spec of AGR_oP, "possessor ascension" as A-movement moves the possessor NP to the spec of different AGR_oP. In this derivation, the spec of the first AGR_oP does not count as intervening, since the spec does not c-commands the trace of the possessor but dominates it. There are, however, two problems to this approach. First, as we will see in the appendix, there is some evidence against movement

analysis of "possessor ascension". Second, There are cases where multiple nominative objects are licensed but they are not in possession relation, as illustrated in (48):

(48) a. Boku-ga Mary-ni sooyuu hon-o yom-ase-ta-i
-NOM -DAT such book-ACC read-CAUS-want-PRES
'I want to make Mary read such a book.'

b. Boku-ga Mary-ni sooyuu hon-ga yom-ase-ta-i
-NOM -DAT such book-NOM read-CAUS-want-PRES

c.?Boku-ga Mary-ga sooyuu hon-o yom-ase-ta-i
-NOM -NOM such book-NOM read-CAUS-want-PRES

d.?Boku-ga Mary-ga sooyuu hon-ga yom-ase-ta-i
-NOM -NOM such book-NOM read-CAUS-want-PRES

The subject and object of the complement clause of the causative verb of (48a) can be assigned nominative Case disjunctively , as shown in (48b,c), or conjunctively, as shown in (48d). (48d), thus, shows that the two nominative arguments licensed by *-tai* do not have to be in a possession relation.

Another way to explain the nonapplication of RME to (47) and (48d) is to assume that these nominative arguments occupy different spec positions of the same AGR_oP and that there is no intervention relation between any pair of the spec positions of the same projection. The second assumption can be formalized as in (49):

(49) If α c-commands β, then γ intervenes between α and β iff

(i) α c-commands γ,

(ii) γ c-commands β, and

(iii) if σ governs γ then σ does not govern α[9].

(49iii) allows NP_1 over NP if they are in specifier positions of the same category. The first assumption, of course, violates the standard view that functional categories can project at most one specifier position (cf. Fukui(1986), Fukui & Speas(1986)), which seems to work well in English and, especially, in Hindi, where at most single NP can be in agreement relation with the verb in both subject and object agreement constructions (cf. Mahajan(1989,1990)). We may not adopt Fukui's(1986) proposal that multiple specs in Japanese are specs of a lexical category rather than a functional category, and lexical categories may project specifiers iteratively but only as daughters of single bar projection. The reason is that, except the multiplicity problem, Japanese nominative object licensing seems to be essentially identical to Hindi object agreement. We may rather relate the difference between Hindi and Japanese in this respect to a more straightforward difference between them, namely, structural Case assignment relation is realized as agreement morphology in Hindi and as case morphology in Japanese. Assuming that each spec-head relation realizes as a single morphology, the difference of morphological realization of double specifiers in Hindi and Japanese can be schematized as in (50a,b):

(50 a. Japanese: NP1-case NP2-case H

b. Hindi: *NP1 NP2 H-agr1-agr2

We may rule out (50b) by the following condition:

[9]If we adopt Rizzi's(1990) conception of Relativized Minimality as a condition on government in general, (11iii) leads to circularity. We may rather define (11iii) in terms of spec-head relation which is definable in terms of X-bar theory.

(51) Nothing can be the target of morphological realization of abstract agreement more than once.

In (50a), the morphological realizations of AGR(NP1,H) and AGR(NP2,H) are distributed to the NP1 and NP2, respectively. In (50b), on the other hand, their morphological realizations are accumulated in H, violating (51). (51) predicts that in opposite situations, namely when one NP is in abstract agreement relation with more that one head, only Hindi allows multiple morphological realizations of them. This seems to be born out, as schematized in (52):

(52) a. Japanese: *NP_i-case1-case2 [t_i H1] H2

b. Hindi: NP_i [t_i H1-agr] H2-agr

Mahajan(1989) discusses several cases of (52b), where H1 agrees with NP without assigning Case to it. In Japanese, there seems to be no case where more than one nominative/accusative case are attached to one NP, as in (52a). One crucial difference between (50b) and (52a) is that (52a) becomes grammatical if NP_i is assigned only case2, whereas (50b) is ungrammatical even if either agr1 or agr2 is dropped. To explain this, we may assume (53):

(53) Agreement for Case must be morphologically realized.

Thus, in (52a), case1 can be dropped , since AGR(NP_i,H1) is not Case assignment relation, in (50b), on the other hand, neither agr1 nor agr2 is dropped, since both AGR(NP1,H) and AGR(NP2,H) are Case assignment relations.

Assuming that our discussion of the difference between Hindi and Japanese is on the right track, we may conclude that a functional category may project more than one specifier in Japanese.

4.2.3.3. Multiple Specifiers of AGRP and Relativized Minimality

The conclusion in the previous section that a functional category may project more than one specifier position, however, raises a question concerning RME discussed in Section 4.2.3.1. Let us consider the following:

(54) NP_i AGR_1 NP_j AGR_2 t_i t_j

Suppose that NP_i and NP_j are assigned Case by AGR_1 and AGR_2, respectively. RME blocks the movement of NP over NP, as we have already seen (cf.(41), (45), (43)). Given the assumption that more than one spec position is possible in Japanese, we may have the following alternative derivation:

(55) NP_i AGR_1 t'_i NP_j AGR_2 t_i t_j

In (55), NP_i passes through a specifier position of AGR_1. This derivation does not seem to violate RME, since NP_j blocks neither the link (t'_i,t_i) nor the link (NP_i,t_i). The latter link, however, seems to violate the Last Resort Condition (LRC), which prevent any link in NP-movement from a Case-marked position, as we discussed in Chapter 2. Then what about a derivation where NP moves just to a spec of AGR?:

(56) AGR_1 NP_i NP_j AGR_2 t_i t_j

(56) does not violate either RME or LRC. (47) and (48d) are grammatical instances of this type of derivation:

(47) Boku-ga sono hon-ga syohyoo-ga yomi-ta-i.
I-NOM that book-NOM review-NOM read-WANT-PRES
'I want to to read that book's review'

(48d) ?Boku-ga Mary-ga sooyuu hon-ga yom-ase-ta-i
-NOM -NOM such book-NOM read-CAUS-want-PRES
'I want to make Mary to read such a book.'

(39b) and (40b), which we excluded by RME, however, do not seem to.even allow this type of derivation:

(39b) *John-ga okane-ga kari-yasu-i.
John-NOM money-NOM borrow-easy-PRES
'(lit) John is easy to loan money.'
'John borrows money easily.'

(40b) *John-ga hon-ga kai-u-ru.
John-NOM book-NOM buy-possible-PRES
'It is possible that John will buy a book.'

The schematic S-structure of (39b) and (40b) we assumed was (41b):

(41b) *$[_{AGRsP}$ Subj$_i$ $[_{AGRoP}$ Obj$_j$ $[_{VP}[_{IP}$ t_i t_j $V_1]$ $V_2]$ $AGR_o]$ $AGR_s]$

The alternative S-structure of them given by the derivation (56) would be (57):

(57) *[$_{AGR_SP}$ [$_{AGR_OP}$ Subj$_i$ Obj$_j$ [$_{VP}$ [$_{IP}$ t_i t_j V_1] V_2] AGR_O] AGR_S]

What rules out (57) seems to be the Extended Projection Principle, which requires the subject position of IP (AGR_SP) to be filled.

Therefore, the ungrammaticality of (39b) and (40b), which we accounted for in terms of Burzio's generalization, is now explained by the conspiracy of RME, LRC, and EPP.

4.2.4. Interpretive Asymmetry and the Relativized Minimality (to be added)

4.3. Strong Crossover Reconstruction

In this section, we discuss problems with strong crossover reconstruction, and show that its peculiar property as compared with Principle C reconstruction is naturally accounted for on the assumption that C is counter-checked by a wh-expression in its Spec.

4.3.1. Higginbotham(1983): An Asymmetry between Strong Crossover versus Principle C

Chomsky(1981) claims that strong crossover effects as in (1a) are reducible to Principle C Effects as in (1b):.

(58) a.*Who$_1$ did he$_1$ see t_1?

b.*He$_1$ saw John$_1$.

Thus, Principle C, as stated in (2), applies to the variable t_1 and the name $John_1$, both of which are assumed to belong to the same class (R-expression):

(59) R-expressions must be A-free.

Higginbotham(1983), however, claims that strong crossover is not reducible to Principle C, observing that names and variables behave differently in "reconstruction" contexts:

(60) a. [Which biography of [which artist]$_1$] do you think he$_1$ wants to read t?

b. [Which biography of Picasso$_1$] do you think he$_1$ wants to read t?

(Higginbotham(1983))

According to Higginbotham, (60b) is better than (60a). This contrast itself might be explained by claiming that (60a,b) behave in the same way with respect to Principle C reconstruction but (60a) additionally violates the weak crossover condition. In this account, the contrast is alleged to be reducible to the following one:

(61) a. ??[Which biography of [which artist]$_1$] do you think his$_1$ wife wants to read t?

b. [Which biography of Picasso$_1$] do you think his$_1$ wife wants to read t?

Saito's(1989) following observation, however, excludes this account and supports Higginbotham's claim:

(62) a. Which book that criticized John$_1$ is he$_1$ pissed off at t?

b.*Which book that criticized who$_1$ is he$_1$ pissed off at t ?

(Saito(1989))

As discussed by many (cf. van Riemsdijk and Williams(1981), Freiden(??), Lebeaux(1988)), names embedded in relative clauses may fail to exhibit Principle C reconstruction effects, as illustrated in (62a). Strong crossover reconstruction effects, however, show up even in these contexts, as illustrated in (62b). Thus, the contrast in (62a,b) is sharper than that in (61a,b) and does not seem to be reducible to weak crossover:

(63) ??Which book that criticized who$_1$ is his$_1$ wife pissed off at t ?

Higginbotham gives an account for strong crossover in terms of his linking theory, where he adopts, instead of symmetrical coreference relations, asymmetrical linking relations, represented by arrows. Thus, the LF of (64) is represented as follows:

(64) [which artist] [which biography of t'] do you think he wants to read t]

To rule out (64), Higginbotham in effect stipulates a principle (65) which already incorporates reconstruction:

(65) If a formal variable *v* is an antecedent of a pronoun P, then P does not c-command (*v* or) any formal variable dependent on *v*.

The dependence relation used in (65) is defined as the transitive closure of the containment relation::

(66) X is dependent on Y if (i) Y is contained in an antecedent of X or (ii) for some Z, X is dependent on Z, and Z is dependent on Y. (H's (34))

The antecedence relation used in (66) is, then, defined as the transitive closure of the linking relation:

(67) Y is an antecedent of X if X is linked to Y or, for some Z, X is linked to Z and Y is an antecedent. (H's (32))

(64) is, thus, ruled out by (65), since the pronoun *he* , which takes the formal variable *t'* as its antecedent, c-commands the formal variable t which is linked to the phrase containing *t'*, hence, depends on *t'*.

Principle C effects, on the other hand, are (partially) accounted for by the following condition:

(68) If X c-commands Y, then Y is not an antecedent of X (H's (25)).

(68), unlike (65), does not incorporate reconstruction effects, and whatever accounts for (weak) reconstruction effects of (68) in (62b), repeated as (69) with linking structure, we may expect the difference between Principle C and strong crossover, since (65) does not apply to (69):

(69) [Which biography of Picasso] do you think he wants to read t

4.3.2. A Problem to Higginbotham's Theory

Let us consider the following example:

(70) Who knows [which book that criticized who$_1$] he$_1$ is pissed off at t ?

a.*

b.??

In the reading of (70a), where *who$_1$* takes the embedded scope, *who$_1$* may not be the antecedent on *he$_1$*, as is expected. However, in the reading of (70b), where it takes the matrix scope, the antecedence relation becomes (marginally) acceptable[10]. Their linking structures are (71) and (72), respectively:

(71) *who [t knows [[who][which book that criticized t] he is pissed off at t]]

(72) ??who who [t knows [[which book that criticized t] he is pissed off at t]]

The problem with the condition (65) is that it rules out (72) equally, since it does not take care of the scope of the antecedent of a formal variable which is expected to show strong crossover effects. Another type of exception is pointed out by Jim Higginbotham (p.c.):

(73) ??[Which book that criticized [each man]$_1$] is he$_1$ pissed off at t ?

[10]The marginality seems to be reducible to weak crossover.

In (73), *each man* may take scope over the matrix clause and can be the antecedent of *he* . Thus, if the wide scope reading is created by QR, we get a representation in violation of (65)[11]:

(74) [each man][which book that criticized t'] is he pissed off at t

These exceptions suggest that the reconstruction effect exhibited in (72) may not be attributed to an inherent property of formal variables, as the condition (65) claims, but rather to a special relation between the contained WH-phrase and the WH-phrase containing it.

4.3.3. A Lebeaux-Type Analysis

Let us now look at Lebeaux's(1988) account for the following argument / adjunct asymmetry:

---

[11]Jim Higginbotham also points out the following contrast:

(i) a. ??[Which book that criticized [which man]$_1$] is he$_1$ pissed off at t ?
b. *[Which book that criticized [who]$_1$] is he$_1$ pissed off at t ?

This contrast seems to be reducible to D-linked versus non-D-linked wh-phrases in the sense of Pesetsky(1987). If we follow Pesetsky in assuming that D-linked wh-phrases do not move at LF, as is motivated by the contrast in (ii), (ib) is not a problem to (8):

(ii) a.*What did who buy?
b. Which book did which man buy? (cf. Pesetsky(1987))

(75) *Whose claim that John$_1$ is nice did he$_1$ believe?

(76) Which story that John$_1$ wrote did he$_1$ like?

Names contained in complement clauses obey Principle C under reconstruction, as illustrated in (75). Names contained relative clauses, on the other hand, does not, or, following Lebeaux's terminology, they show "anti-reconstruction" effects, as illustrated in (76). Lebeaux claims that relative clauses, unlike complement clauses, may be adjoined to the head NPs at S-structure as well as at D-structure, since they are not required by Projection Principle, and that Principle C applies both at D-structure and S-structure. Thus, there is a good derivation for (76): the relative clause is introduced only after the wh head NP moves satisfying Principle C both at D-structure and S-structure. On the other hand, there is no corresponding derivation for (75), since the complement clause must be introduced at D-structure to obey Projection Principle.

A natural way to explain the nonexistence of anti-reconstruction effects in (70a) in Lebeaux's framework is, thus, to suppose that some principle forces the relative clause to be introduced at D-structure when both the contained and the containing wh-phrases take the same clause as their scope. The relevant relation between the two wh-phrases seems to be an "A-over-A" relation as illustrated in (77):

(77) a. Which pictures of who did you buy t ?

b.*Who did you buy which pictures of t ?

Thus, the containing wh-phrase must move but the contained wh-phrase must be in-situ, in order to obey A-over-A condition, the original formulation of which is given below:

(78) A-over-A Condition (Chomsky's(1964))

"... if the phrase X of category A is embedded within a larger phrase ZXW which is also of category A, then no rule applying the category A applies to X (but only to ZXW)."

To update (78) and avoid Ross's(1967) counter-examples, we may consider that the checking features (i.e. [+wh]), rather than the syntactic categories, of X and [ZXW] are relevant to the equivalent class for A-over-A condition. A-over-A condition as stated, however, does not require the smaller phrase to be introduced at D-structure. We may attempt to derive A-over-A effects from some other principle which have the desired property. For that purpose, let us look at superiority effects which are formally similar to A-over-A effects in that one of the two wh-phrases "defeats" the other:

(79) a. Who t bought what?

b.*What did who buy t?

(80) Superiority Condition (Chomsky(1973))

a. No rule can involve X, Y in the structure

... X ... [... Z ... WYV ...] ...

where the rule applies ambiguously to Z and Y and Z is superior to Y.

b. "... the category A is `superior' to the category B in the phrase structure if every major category dominating A dominates B as well but not conversely."

The A-over-A principle and the superiority are parallel in that they may be suppressed by an additional wh-phrase[12]:

(79) a.*What did who buy there?

b. What did who buy where?

(cf. Kayne(1984))

(80) a. *Who did you buy which pictures of t there?

b.??Who did you buy which pictures of t where?

A theory of superiority which we may use to account for strong crossover reconstruction effects is Lasnik & Saito's(1992) :

(81) a. A WH-phrase X in COMP is O-disjoint (operator-disjoint) from a WH-phrase Y if the assignment of the index of X to Y results in the local A'-binding of Y by X. (S-structure)

b. If two WH-phrases X and Y are O-disjoint, then they cannot undergo absorption.

A distinctive feature of (81) is that it is formulated as a structural condition for licensing absorption operation at LF. For convenience, we may interpret (81) derivationally as in (82):

(82) a. A wh-phrase X may absorb a wh-phrase Y if X c-commands Y before X moves to COMP.

---

[12]The marginality of (70b) seems to be derived from "specificity" condition. Cf. Chomsky(1973), Fiengo and Higginbotham(1981). See also Diesing(1992) and Mahajan(1992) for recent accounts for specificity effects.

b. Every wh-phrase in-situ must be absorbed.

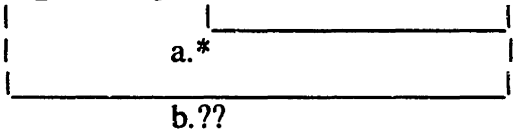
In order to cover A-over-A cases, where the trace of the moved wh-phrase never c-commands the wh-in-situ, we may collapse the distinction of c-command and domination, as is sometimes suggested for "vertical" binding (cf. Williams(1980)):

(83) a. A wh-phrase X may absorb a wh-phrase Y if X c-commands Y or dominates Y before X moves to COMP.

b. Every wh-phrase in-situ must be absorbed.

Given (83), we may explain the contrast in (70a,b), repeated as (84a,b), in Lebeaux's(1988) framework:

(83) Who_2 knows [which book that criticized who_1] he_1 is pissed off at t ?



In (83a), if adjunction of the relative clause takes place after wh-movement of *which book*, who_1 may not be absorbed by it. If, on the other hand, adjunction of the relative clause takes place before wh-movement, he_1 binds who_1 violating Principle C. Thus, we have no good derivation for (83a). In (83b), the relative clause may be adjoined after wh-movement, since who_1 can be absorbed by who_2., which moves after the introduction of the relative clause.

4.3.4. Problems

First, the requirement that wh-phrases in-situ be either c-commanded or dominated by a moved wh-phrase is too strong (cf. Watanabe(1991)).

Second, this approach predicts that cases with "vertical" absorption of a wh-in-situ in a relative clause may not show any anti-reconstruction effects. This prediction, however, is not born out:

(84) Which book that John$_1$ gave to who$_2$ did he$_1$/*$_2$ like ?

In (84), *who$_1$* is "vertically" absorbed by the moved wh-phrase. So, the relative clause should have been introduced before wh-movement, but still *John* can be the antecedent of *he* without violating Principle C. This seems to suggest that the strong crossover effect in (84) is not reducible to the standard reconstruction process, since contradictory requirements on (anti-) reconstruction are not satisfied simultaneously, as illustrated in (85,86):

(85) John wondered which picture of himself Bill took t (Chomsky(1992:55))

(86) a. Which paper that he$_1$ gave to Bresnan$_2$ did every student$_1$ think that she$_2$ would like?

b.*Which paper that he$_1$ gave to Bresnan$_2$ did she$_2$ think that every student$_1$ would like?

(Lebeaux(1991:222))

In (85), the reflexive binding requires the anti-reconstruction of the wh-phrase to obey Principle A, but this makes it impossible to get the idiom interpretation for *take-picture* , which requires reconstruction. In (86a), the reconstruction requirement for the binding of *he* by *everyone* and the anti-reconstruction requirement for the obviation of *Bresnan* from

she are simultaneously satisfied, if the reconstruction site is the intermediate Spec-CP. In (86a), however, these requirements are contradictory and ungrammaticality results. Therefore we should look for another mechanism for non-standard reconstruction effects in A-over-A cases.

4.3.5. Absorption and Functional Wh

So far we have not discussed the mechanism of absorption. Let us consider the original version given in Higginbotham & May(1981: 49):

(87) [WH x N' (x)] [WH y: N' (y)] -> [WH x, WH y: N' (x) & N' (y)]
where the variables are those that show and [WH x: N' (x)], [WH y: N' (y)] are an adjacent pair of singular or plural wh-phrases.

H & M claim that (87) applies optionally, and if it applies, it induces a bijective reading as its distinctive semantic effect when both WHs are singular. A point relevant to our discussion is that H & M claim that (87) does not apply to A-over-A cases like (88):

(88) a. Which picture of which person did you see?
b. [WH! x: x a person] [WH! y: y a picture of x] you saw y

In (88b), the structural condition of (87) is violated, since the second wh-phrase contains a variable (x) other than its own (y). This explains the lack of a bijective reading in (88a). We may, however, wonder why absorption is restricted that way, if we look at H & M's account for Bach-Peters sentences such as (89) in terms of absorption:

(89) Every pilot hit some Mig that chased him.

An output of QR and other interpretive rules to (89) is (90):

(90) [Every x: x a pilot who shot at it] [Some y: y a Mig that chased him] x hit y

Absorption, then, applies to (90) and yields (91):

(91) [Every x, Some y: x a pilot who shot at it & y a Mig that chased him] x hit y

Finally, replacement of pronouns by variables gives:

(92) [Every x, Some y: x a pilot who shot at y & y a Mig that chased x] x hit y

Thus, in this LF derivation, the absorption step ((90) -> (91)) does not violate the structural description in (87) only because replacement of pronouns by variables follows the application of absorption.

A more plausible reason to block application of absorption to (88b) is that the result of absorption would lose a parallelism between the restriction and the scope:

(93) [WH! x, WH! y : x a person & y a picture of x] you saw y

In (93), the restriction is a two-place predicate and the scope is a one-place predicate. This may be as odd as vacuous restrictive quantification such as (94):

(94) a. *which man John came.

b. [WH! x: x a man] John came.

In (94b), the LF of (94a), the restriction is a one-place predicate and the scope is a zero-place predicate, namely, a saturated clause. We may assume that both (93) and (94b) are ruled out by Full Interpretation in Chomsky(1986).

Now let us return to the strong crossover problem with A-over-A structures. Our tentative conclusion in the previous subsection was that a wh-phrase (or its trace) contained in the moved wh-phrase is "reconstructed" in such a non-standard way that other elements contained in the moved wh-phrase need not to be reconstructed (cf.(84)). Curiously, this situation is in contradiction with the situation we described to account for the impossibility of application of absorption to A-over-A structures: the scope of A-over-A structures lacks the variable of contained wh-phrase, which is necessary for absorption to apply. To solve it, one may rather consider, contrary to H & M, that absorption does obligatorily apply to (88b), but the result is not (93) but a representation with a "reconstructed" variable of the contained wh-phrase in the scope so as to keep a parallelism between the restriction and the scope[13]. Thus, the representation must be something like (95):

(95) [WH! x, WH! y : x a person & y a picture of x] you saw y-x

---

[13] I do not have an explanation of why (88) lacks a bijective reading. The distribution of bijective readings, however, seems to be accounted for in terms of more delicate mechanism than H&M's any way. Consider the following:

(i) Which boy$_i$ admires which one of his$_i$ sister? (H&M(1981:49))

Their explanation of the lack of bijection readings in (i) is that the replacement of the pronoun by a variable makes absorption (87) unapplicable. This explanation, however, contradicts with their treatment of Bach-Peters sentences, where they allow pronoun replacement to apply after absorption, as we saw above. A fine grained condition on parallelisms between the restriction and the scope seems to be in order.

But, what is the complex object *y-x* ? A plausible candidate is a functional wh, which is motivated by the so-called functional readings of wh-questions (cf. Engdahl(1980), Chierchia(1991)):

(94) a. who does every man love?

b. his mother

(94b) is a functional answer which would generate a familiar pair-list answer. Thus the representation of (94) is something like (95):

(95) [WH f: f a function from men to persons] [Every x: x a man] x loves f(x)

A functional wh version of (95b) is, then, (96):

(96) [WH! x, WH! f : x a person & f a function from persons to pictures] you saw f(x)

Let us now return to (60), repeated as (97):

(97) Who_2 knows [which book that criticized who_1] he_1 is pissed off at t ?

a.*

b.??

The embedded interrogative part of (97a) is:

(98) [WH x, WH! f: x a person & f a function from persons to books & f(x) criticized x] he is pissed off at f(x)

In (98), the functional wh is necessary in order to have a two-place predicate in the scope. Therefore, *he* cannot be coindexed with *x*. (97b), however, can be absorbed without using functional wh, as illustrated in (99):

(99) [WH x, WH y: x a person & y a person] y knows [WH! z: z a book & z criticized x] he is pissed off at z ?

The matrix scope of (99) (*y knows [WH! z: z a book & z criticized y] he is pissed off at z*) contains both x and y as free variables without using a functional wh. Hence *he* can be coindexed with x without violating strong crossover.

A problem for this approach is that in (95), the x in the object is bound by the x in the subject in the scope without violating strong crossover. We may not recourse to the difference of the binder, as illustrated by (100):

(100) Who did every man say he loved t?

(100) may have the functional reading (101):

(101) [WH f: x a function from men to persons] [Every x: x a man] x said he loved x

In (101), x is bound by the pronoun, but still strong crossover is not violated. Therefore, we must distinguish the bindees in (95)/(100) versus (96). Let us suppose the following functional determination for the "variable" of functional wh: it is [-anaphor, +pronominal][14] when its canonical binder is in A-position, and [-anaphor, -pronominal]

[14]This is also Cherchia's(1991) assumption.

when its canonical binder is in A-bar-position. A canonical binder of the "variable" of a functional wh is meant to be what makes the functional reading necessary.

To summarize, I have argued that the peculiar process for strong crossover reconstruction effects in A-over-A cases is not reconstruction at all, but "construction" of a functional wh structure, which is demanded by the parallelism condition on the restriction and the scope of a binary quantifier, which is the output of obligatory absorption.operation at LF.

4.3.6. Deriving Obligatoriness of Absorption

Why, then, is absorption necessary when more than one wh-phrase have the same interrogative scope except "D-linked" wh-phrases (cf. fn 1.). If we assume that C checks wh-phrase, then the requirement is that C can check at most one wh-phrase. If, on the other hand, we assume that C is counter-checked by wh-phrase, the requirement is that C can be counter-checked by at most one wh-phrase. The question is: which is more plausible? I think the latter is, since it seems to be generally the case that if there is any uniqueness condition on either of the arguments of an asymmetrical relation, X depends on Y, Y tends to be uniquely determined given X, but not vice versa. In reflexive binding, an antecedent may bind more than one reflexive (John talked to himself about himself), but the reflexive may not be bound by split antecedents (*John introduced Mary to each other's parents). There may be unselective binders (if a man owns a donkey, he always beats it), but there hardly seem to be unselective bindee (example?). As we discussed in the previous section, Japanese allows multiple object agreement in Japanese , while Hindi does not. This is because arguments are dependents of the morphological realization relation, whereas AGRs are in Hindi.

Thus, if the checking of [+wh] is also an instance of dependency relation, the argument on which a uniqueness requirement is imposed seems to be what the other depends, namely, a unique wh-phrase counter-checks C under agreement configuration. An interesting support comes from Romani, which allows both partial wh-movement and multiple wh-movement , as illustrated in (a,b), respectively:

(102) a.So$_i$ [IP misline [CP [savo filmi]i [IP o Demìri dikhla t$_i$]]]

WHAT do you think which film Demir saw?t$_j$ t$_i$]]] (McDaniel(1989: 569))

b. Kaj$_i$ kas$_j$ [IPmisline [CP t$_j$ t$_i$ so [IP o Demìri dikhla t$_j$ t$_i$]]]

Where whom do you think that Demir saw? (McDaniel(1989: 600))

Most interestingly, McDaniel observes that two or more wh-phrases with different scopes cannot cooccur, as illustrated in ():

(103) *Soi [IP puchlan e chave [CP kaj$_i$ kas$_j$ [IP ov marja t$_j$ t$_i$]]]

WHAT did you ask the boy where whom he hit? (McDaniel(1989: 601))

This example clearly shows that multiple wh-phrases in the same Spec-CP must be absorbed and becomes a single unit.

References

Aissen, J. L. (1992), "Topic and Focus in Mayan," *Language*, 68. 1: 43 - 80.

Aoun, J., N. Hornstein, and D. Sportiche (19), "Some Aspects of Wide Scope Quantification,"

Ayres, G. (1983), "The Antipassive "Voice" in Ixil," *IJAL*, 49. 1, 20 -45.

Branigan, P.(1992), *Subjects and Complementizers*, Ph.D. Dissertation, MIT.

_____ and C. Collins (1992), Verb Movement and the Quotative Construction in English, ms., MIT.

Berinstein, A.(1984), *Evidence for Multi Attachment in K'ekchi Mayan*, Ph.D. dissertation, UCLA.

Cheng, L. (1992), *On the Typology of Wh-Questions*, Ph.D. dissertation, MIT.

Chomsky, N.(1986a), *Knowledge of language: Its Nature, Origins and Use*, Praeger, New York.

_____.(1986b), *Barriers*, MIT Press, Cambridge.

_____ (1991), "Some Notes on Economy of Derivation and Representation," In R. Frieden (ed), *Principles and Parameters in Comparative Grammar*, MIT Press Cambridge.

_____.(1992), *A Minimalist Program for Linguistic Theory*, MIT Occasional Papers in Linguistics, Distributed by MIT Working Papers in Linguistics.

Collins, C. (1992), A Note on Quantifying into Questions and Relational Readings, ms., MIT.

Comorovski, I.(1986), "Multiple Wh-Movement in Romanian," *Linguistic Inquiry*, 17.1, 171-177.

_____ (1989), *Discourse and the Syntax of Multiple Constituent Questions*, Ph.D. dissertation, Cornel University.

Davies, W.D. and L.E. Sam-Colop (1990), "K'iche' and the Structure of Antipassive," *Language*, 66. 3: 522 - 549.

Dayley, J. P. (1981), "Voice and Ergativity in Mayan Languages," *Jornal of Mayan Linguistics*, 2. 2: 3 - 81.

Déprez, V. M. (1989), *On the Typology of Syntactic Positions and the Nature of Chains: Move α to the specifier of functional projections*, Ph.D. dissertation, MIT.

Frampton, J. (1991), "Relativized Minimalit, A Review," *The Linguistic Review*, 8(1), 1-46

_____(199), The Fine Structure of Wh-Movement and the Proper Formulation of the ECP.

Fukui, N.(1986), *A Theory of Category Projection and Its Applications*, Ph.D. dissertation, MIT

Heim, I., H. Lasnik, and R. May(1991) "Reciprocity and Plurality," *Linguistic Inquiry*, 22, 63-101.

Higgimbotham, J. (1985), "Logical form, Binding, and Nominals," *Linguistic Inquiry*, 14, 395-420.

Harada, S. (1977), "Nihongo ni Henkei wa Hituyoo da," *Gengo* 6.10, 88-95; 6.11, 96-103.

Hoji, H. (1985), *Logical Form Constraints and Configurational Structures in Japanese*, Ph.D. dissertation, University of washington.

_____ , S. Miyagawa, and H. Tada (1989), NP-Movement in Japanese, ms., USC, Ohio State University, MIT.

Kageyama, T.(1982), "Word Formation in Japanese," *Lingua* ,57, 215-258.

Kayne, R. (1975), *French Syntax*, MIT Pres, Cambridge.

_____(1984), *Connectedness and Binary Branching*, Foris, Dordrecht.

_____(1989), Facets of Past Participle Agreement in Romance, In Beninca, P. (ed), *Dialect Variation in the Theory of Grammar*, Foris, Doedrecht.

Kawasaki, N.(1991), "Tense, Agreement and Nominative Case in Japanese," In J. D. Bobaljik & T. Bures (eds.), *MIT Working Papers in Linguistics*, vol. 14, 131-146.

Kitagawa, Y. (1986) *Subjects in Japanese and English*, Ph.D. dissertation, U Mass.

Kroch, A. (1989), "Amount Quantification, Referentiality, and Long Wh-Movement," ms. University of Pennsylvania.

Kuno, S.(1973), *The Structure of the Japanese Language*, MIT Press, Cambridge, Mass.

Lasnik, H, (1992), "Case and Expletives: Notes toward a Parametric Account," *Linguistic Inqiry*, 23. 3: 381-405.

_____ and M. Saito(1992) *Move-α:Conditions on its Application and Output*, MIT Press, Cambridge.

Li, Y.(1990), *Conditions on X^0-movement*, Ph.D. dissertation, MIT.

Mahajan, A. K.(1989), "Agreement and Agreement Phrases," In I. Laka & A. Mahajan (eds.), *MIT Working Papers in Linguistics*, vol. 10, 217-252.

_____ (1990), *The A/A-bar Distinction and Movement Theory*, Ph.D. dissertation, MIT.

May, R. (1977), *The Grammar of Quantification*, Ph.D. dissertation, MIT.

_____(1985), *Logical Form*, MIT Press, Cambrige, Mass.

McDaniel, D. (1986), *Conditions on Wh-Chains*, Ph.D. dissertation, CUNY, New York.

_____ (1989), "Partial and Multiple Wh-Movement," *NLLT* 7, 565-604.

Miyagawa, S. (1989), *Structure and Case Marking in Japanese, (Syntax and Semantics; vol 22)*, Academic Press, San Diego.

_____(1991), Case Realization and Scrambling, ms, Ohio State University.

Murasugi, K. and M. Saito (1992), Quasi-Adjunct as Sentential Arguments, Talk at Harvard University.

Murasugi, K. G. (1992), *Crossing amd Nested Paths: NP Movement in Accusative and Ergative Languages*, Ph.D. dissertation, MIT.

Obenauer, H-G.(1984-85), "On the Identification of Empty Categories," *The Linguistic Review* 4: 153 - 202.

_____(1986), "Déplacer α et A'-Liage Local: Dérivations vs. Representations," In M. Ronat & D. Couquax (eds), *La Grammire Modulaire*, Éditions De Minuit, Paris.

Pesetsky, D. (1988), "Language-Particular Processes and the Earliness Principle," ms., MIT.

Reinhart, T. (1983), *Anaphora and Semantic Intepretation*, University of Chicago Press,

_____(1992), Interpreting Wh-In-Situ, ms.
Chicago.

Reis, M. and I. Rosengren (1992), "What Do WH-Imperatives Tell Us About WH-Movement?," NLLT.

Riemsdijk, H.C. van (1989), "Movement and Regeneration," In Beninca, P. (ed), *Dialect Variation in the Theory of Grammar*, Foris, Doedrecht.

Rizzi, L. (1990a), *Relativized Minimality*, MIT Press, Cambridge.

_____(1990b), "Speculations on Verb Second," in *Grammar in Progress*, edited by J. Mascaró & M. Nespor, Foris Publications, Dordrecht.

_____(199), Residual Verb Second and Wh-Crierion

_____(199), The Definition od A Positions and Improper Movement, Talk presented at MIT Linguistics Colloquium.

_____ and I. Roberts, (1989), "Complex Inversion in French," *Probus*, 1.1, pp1-30.

Rudin, C. (1988), "On Multiple Questions and Multiple Wh Fronting," *NLLT* 6: 445 - 501.

Saito, M. (1985) *Some Asymmetries in Japanese and their Theoretical Implications*, Ph.D. dissertation, MIT.

_____(1986) "LF Effects of Scrambling," Workshop on Comparative Grammar, Princeton University.

_____(1992) "Long Distance Scrambling in Japanese," *Journal of East Asian Linguistics* 1, 69-118.

Shlonsky, U. (1991) "Quantifiers as functional heads: A study of Quantifier Float in Hebrew," *Lingua*, 84: 159 -180.

Tada, H.(1990), "Scrambling(s)," Workshop on Japanese Syntax, Ohio State University.

Takano, Y. (1992), ProperBinding: A Minimalist Approach, ms., UC Irvine.

Thornton, R. (199), Ph.D. Dissertation, University of Connecticut.

Watanabe, A. (1991), Notes on the Role of AGRo, ms., MIT.

Webelhuth, G.(1989), *Syntactic Saturation Phenomena and the Modern Germanic Languages*, Ph.D. dissertation, University of Massachusetts.

Yoshimura, N. (1989) "Parasitic Pronouns," Southern California Conference on Japanese/Korean Linguistic, UCLA.