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## Scrambling as Case-Driven Obligatory Movement

Young-Suk Lee  
*University of Pennsylvania*

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## Scrambling as Case-Driven Obligatory Movement

### Abstract

In this thesis I explore the nature and properties of scrambling in Korean. Contrary to the widely accepted view that scrambling is truly optional, I propose that scrambling is a consequence of case-driven obligatory movement, a proposal consistent with the "last resort" condition on movement in [Chomsky 1991] and [Chomsky 1992]. I assume that scrambling is adjunction and defend this view in Ch. 5.

In Ch. 2 and Ch. 3 based on binding facts and scope reconstruction, I claim that scrambling is best analyzed as A-movement. Scrambling either creates a binding relation which does not obtain in the base order, or destroys a binding relation which obtains in the base order. A scrambled element undergoes optional reconstruction for scope interpretation. All these properties are consistent with those of standard A-movement.

In Ch. 4, I propose that scrambling is a consequence of case-driven movement. On the basis of case and word order possibilities in event nominal clauses, I first establish that in Korean nominative case is licensed by INFL, and accusative case by a complex category formed by the head raising of VERB-to-INFL. Under the VP-internal Subject Hypothesis, all the arguments have to move out of VP to be assigned case. As long as the case licensing conditions are met, arguments may be arranged in any order, and therefore, scrambling is a consequence of case driven movement.

The combination of the assumption that scrambling is adjunction with the proposal that scrambling is A-movement leads to the conclusion that adjoined positions are A-positions, contrary to the view in [Chomsky 1986] that adjoined positions are A'-positions. In Ch. 5, I defend the conclusion that adjoined positions are A-positions in Korean, on the basis of facts involving case assignment to adverbials, binding by a nominative adjunct NP in multiple nominative constructions, and absence of island effects in scrambling out of a scrambled clause.

In Ch. 6, I examine island effects and discourse constraints on scrambling. I argue that islandhood of various clause types is determined by the selectional properties of the clause, as argued by [Cinque 1990] for wh-movement. I also argue that the relevant discourse notion characterizing the scrambling of an element is "presuppositionality" as defined in [Diesing 1990], rather than specificity as various authors including [Moltmann 1990], [Mahajan 1990] and [Enc 1991] advocate.

### Comments

University of Pennsylvania Institute for Research in Cognitive Science Technical Report No. IRCS-93-06

# The Institute For Research In Cognitive Science

**Scrambling as Case-Driven  
Obligatory Movemen  
(Ph.D. Dissertation)**

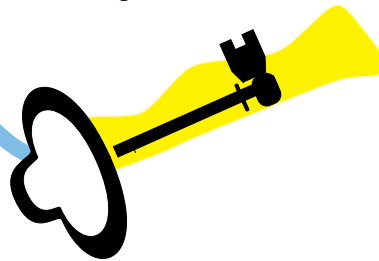
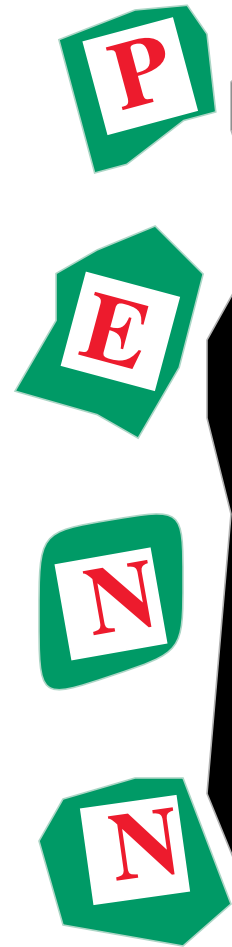
by

**Young-Suk Lee**

**University of Pennsylvania  
Philadelphia, PA 19104-6228**

**April 1993**

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**IRCS Report 93-06**

SCRAMBLING AS CASE-DRIVEN OBLIGATORY MOVEMENT

Young-Suk Lee

A DISSERTATION  
in  
Linguistics

Presented to the Faculties of the University of Pennsylvania in Partial Fulfillment of the  
Requirements for the Degree of Doctor of Philosophy

1993

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Anthony S. Kroch, Supervisor of Dissertation

---

Sabine Iatridou, Committee Member

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James Yoon, Committee Member

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Donald Ringe, Graduate Group Chairperson

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Young-Suk Lee

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I have waited so long to have this opportunity to express my gratitude to the people who have helped me come this far. I am very grateful to my committee members. My advisor, Anthony Kroch, has shaped my view of linguistics, and every page of this thesis reflects his influence. His emphasis on independent thinking and high academic standards has always driven me to push my limits. It was an immeasurable blessing to have Sabine Iatridou on my committee. Even though Sabine came to Penn at the latter stages of my thesis research, having her around was critical in strengthening my ability as a researcher. My desire to emulate her as a teacher and a linguist prompted me to serve as a volunteer TA for her introductory semantics class. Besides being an intellectual mentor, she was always willing to share her experience with me as a friend, and has been a great source of emotional support. James Yoon read every single page of this thesis, despite the fact that I asked him to serve on my committee at a very late stage. His challenging comments got me to think about problems which I would have never addressed by myself. Had he spent the time on his research which he spent in reading my thesis and typing all the comments which he sent to me via e-mail, he could have written at least two substantial research papers of his own,

My teachers at Penn have contributed greatly to my intellectual development: Naoki Fukui's thesis and his seminar on GB syntax convinced me that Government and Binding Theory is a suitable theoretical framework even for languages like Korean. Aravind Joshi's seminar on Tree Adjoining Grammar and Mark Steedman's seminar on Combinatory Categorical Grammar taught me that there are many ways to approach formal syntax, in addition to enabling me to gain insights into the formalisms. Ellen Prince's courses on pragmatics emphasized the close interaction between syntax and discourse, and prevented me from drawing hasty syntactic generalizations. Various sociolinguistics classes which I took with Gillian Sankoff made me be aware of the immense variation among speakers. Besides, the field work course "Speech Community", which I took in my first semester at Penn, was such a welcome change. I got to talk to people and learn about the Philadelphia community, instead of spending hours and hours in tracking down a huge list of linguistics articles. Even though I never had a chance to take his course, Bill Labov has been a role model for me. My experience with him as a TA for Introduction to Linguistics was enough to motivate me to aspire to be a good linguist who is full of energy and enthusiasm.

Shortly after I came to Penn, I wanted to work on scrambling for my thesis. People talked about scrambling a lot as a distinguishing characteristic of Korean and Japanese, as opposed to English. But I didn't see much work on it aside from Mamoru Saito's thesis on Japanese. I felt frustrated every time I heard the word scrambling, and wanted to learn about it. Conversations with Jee-In Kim, who was working on scrambling within Combinatory Categorical Grammar in 1989, inspired me to look at the phenomenon from a

theoretical perspective. The term paper which I wrote with Michael Niv on how to handle scrambling in Combinatory Categorical Grammar was the starting point of my research. Whenever I got stuck in my research, there were always people who were willing to help me out: the scrambling reading group which Beatrice Santorini organized guided me to raise the relevant issues and gave me lots of reading material. The process of working with Beatrice Santorini made writing my proposal much easier. The insightful paper which Shigeru Miyagawa wrote and gave me a copy of after my presentation at ESCOL '90 has been an invaluable resource for my thesis. In retrospect, my thesis work is an attempt to improve on his work. I am so indebted to him that I cannot thank him enough.

I have also benefited from discussions with other people in the process of writing my thesis. Chapter 2 of this thesis draws heavily from my joint work with Owen Rambow and Robert Frank. Discussions which I had with Owen Rambow on how to handle scrambling in Tree Adjoining Grammar helped me clarify a number of assumptions which have rarely been made explicit on the issue. Detailed comments on my thesis proposal by Gert Webelhuth and Dong-Whee Yang, repeated e-mail correspondence with Anoop Mahajan, conversations with Mamoru Saito, Peter Sells's comments on my paper on case possibilities in event nominal clauses, Caroline Heycock's challenging questions and comments in the scrambling seminar, and conversations with Michael Hegarty at the latter stages of my research have all made essential contributions to this thesis. The Tilburg Workshop on scrambling organized by Henk van Riemsdijk and Nobert Corver took place when I was about to write my thesis proposal, and enabled me to look at the issue from a broader perspective. I also cannot forget Ümit Turan and Beryl Hoffman whose research on scrambling in Turkish has always made me feel that my next step in research should be a thorough comparative study of scrambling between Korean and Turkish. Michael Niv, Dan Hardt and B. Srinivas graciously allowed me to share their office space, which was absolutely crucial in expediting the process of writing this thesis. Alexis Dimitriadis proofread this thesis until the last minute of my stay at Penn.

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# Abstract

## Scrambling as Case-driven Obligatory Movement

Author: Young-Suk Lee

Supervisor: Anthony S. Kroch

In this thesis I explore the nature and properties of scrambling in Korean. Contrary to the widely accepted view that scrambling is truly optional, I propose that scrambling is a consequence of case-driven obligatory movement, a proposal consistent with the “last resort” condition on movement in [Chomsky 1991] and [Chomsky 1992]. I assume that scrambling is adjunction and defend this view in Ch. 5.

In Ch. 2 and Ch. 3, based on binding facts and scope reconstruction, I claim that scrambling is best analyzed as A-movement. Scrambling either creates a binding relation which does not obtain in the base order, or destroys a binding relation which obtains in the base order. A scrambled element undergoes optional reconstruction for scope interpretation. All these properties are consistent with those of standard A-movement.

In Ch. 4, I propose that scrambling is a consequence of case-driven movement. On the basis of case and word order possibilities in event nominal clauses, I first establish that in Korean nominative case is licensed by INFL, and accusative case by a complex category formed by the head raising of VERB-to-INFL. Under the VP-internal Subject Hypothesis, all the arguments have to move out of VP to be assigned case. As long as the case licensing conditions are met, arguments may be arranged in any order, and therefore, scrambling is a consequence of case-driven movement.

The combination of the assumption that scrambling is adjunction with the proposal that scrambling is A-movement leads to the conclusion that adjoined positions are A-positions, contrary to the view in [Chomsky 1986] that adjoined positions are A'-positions. In Ch. 5, I defend the conclusion that adjoined positions are A-positions in Korean, on the basis of facts involving case assignment to adverbials, binding by a nominative adjunct NP in multiple nominative constructions, and absence of island effects in scrambling out of a scrambled clause.

In Ch. 6, I examine island effects and discourse constraints on scrambling. I argue that islandhood of various clause types is determined by the selectional properties of the clause, as argued by [Cinque 1990] for wh-movement. I also argue that the relevant discourse notion characterizing the scramblability of an element is “presuppositionality” as defined in [Diesing 1990], rather than “specificity” as various authors including [Moltmann 1990], [Mahajan 1990], and [Enç 1991] advocate.

# List of Abbreviations

The following abbreviations are used in the glosses:

ACC: accusative case	ASP: aspect morpheme
CE: causative ending	COMP: complementizer
COP: copula	DAT: dative case
DEC: declarative marker	DIR: directional
GEN: genitive case	INST: instrumental
LOC: locative	MOD: modifying suffix
NMZ: nominalizer	NOM: nominative case
PASS: passive morpheme	PERF: perfect aspect
PRES: present tense	PROG: progressive aspect
PST: past tense	QM: question marker
REL: relativizer	PL: plural marker
TOP: topic marker	UQ: universal quantifier
VSTEM: verb stem	

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# Chapter 1

## Introduction

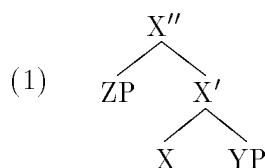
Assuming that scrambling is adjunction (cf. [Saito 1985], [Webelhuth 1989]), I explore the nature and properties of scrambling in Korean in terms of A- and A'-movement. I propose that scrambling is a consequence of case-driven movement on a par with standard A-movement, contrary to the widely accepted view that scrambling is truly optional. This proposal is consistent with A-movement properties of scrambling with respect to binding, but contradicts the view in [Chomsky 1986] that adjunction is A'-movement. To reconcile these contradicting views I hypothesize that IP-adjoined positions can be A-positions in Korean on the basis of case and binding facts (*adjoined argument hypothesis*). Throughout this thesis, I will assume, as a theoretical framework, the principles and parameters approach to syntax and will presuppose that the reader is familiar with the basics of this theory.

In this chapter I introduce some theoretical concepts and assumptions which are minimally necessary for an understanding of the discussion in the following chapters. In section 1.1, I discuss the theoretical concepts, the X-bar schema and the A/A'-distinction. In section 1.2, I summarize the characteristics of scrambling which I take as basic. They include multiple scrambling, unbounded dependency, and scrambling of clausal arguments. In section 1.3, I discuss some assumptions about scrambling which I will not justify in other chapters of this thesis, i.e. scrambling as movement, scrambling as adjunction, leftward vs. rightward scrambling and topicalization. Finally, I outline the contents of each chapter of this thesis in section 1.4.

### 1.1 Theoretical Concepts

#### 1.1.1 The X-bar schema and phrase structure

I adopt the X-bar schema in [Chomsky 1986] and [Chomsky 1992, 9].

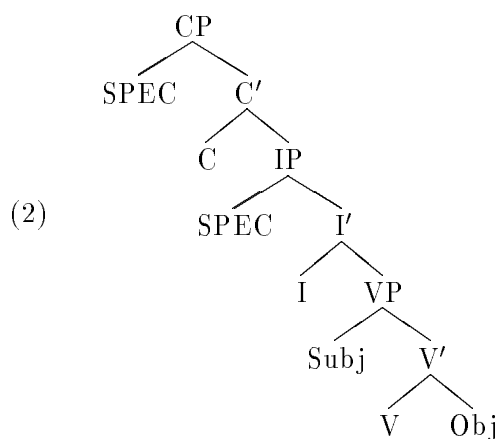




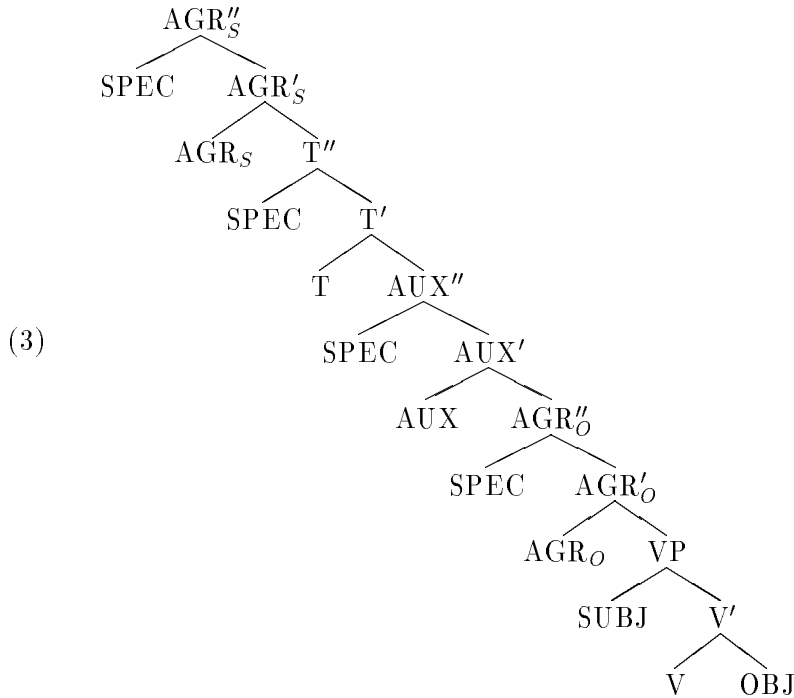
An X-bar structure is composed of projections of heads selected from the lexicon. Basic relations are typically “local.” In structures of the form (1), there are two local relations: the SPEC-head relation of ZP to X, and the head-complement relation of X to YP (order irrelevant). The head-complement is the core local relation.

Along with the X-bar schema in (1), I assume the VP-internal subject hypothesis, which is originally due to [Fillmore 1968] and [McCawley 1970], and later was adopted by a number of syntacticians [Fukui 1986], [Fukui and Speas 1986], [Koopman and Sportiche 1991], among others. According to the VP-internal Subject Hypothesis, subjects originate and are assigned a  $\theta$ -role in a position dominated by a maximal projection of the verb. Several different variants of this hypothesis have been proposed, with some authors arguing that subjects originate in the specifier position of VP and others, that they occupy a position adjoined to  $V^{max}$ , cf. [Koopman and Sportiche 1991]. Here I assume that subjects occupy [SPEC,VP], to be consistent with the generalized X-bar schema.

Under the generalized X-bar schema and the VP-internal subject hypothesis, the D-structure representation of a clause I assume is given in (2), *pace* directionality:



Regarding the functional projection IP in (2), a number of authors, including [Pollock 1989], [Chomsky 1991] and [Mahajan 1990], have argued for the existence of a multitude of functional heads such as TENSE, AGR<sub>S</sub>, AGR<sub>O</sub>, as in (3).



Given the lack of an agreement system (under the assumption that the nature of agreements is pronominal), and hence the lack of the motivation for various SPEC-head relations, I do not adopt such an elaborate phrase structure for Korean.<sup>1</sup>

### 1.1.2 The A/A'-distinction

The A/A'-distinction has a number of consequences in various modules of the grammar, and plays a central role in this thesis. In [Chomsky 1981, 47], an A-position is defined as in (4); any position which is not an A-position is an A'-position. At the time when (4) was proposed, [SPEC IP] was considered an A-position, since it is the position where a subject is generated and assigned a  $\theta$ -role.

- (4) An A-position is one in which an argument such as a name or a variable may appear in D-structure; it is a potential  $\theta$ -position.

Under the VP-internal Subject Hypothesis, however, [SPEC IP] is not an A-position according to the definition given in (4); a subject is generated and  $\theta$ -marked in [SPEC VP], even though it may move to [SPEC IP] position to be assigned case, as argued in [Koopman and Sportiche 1991].<sup>2</sup> Nevertheless, [SPEC IP] has all the properties associated

<sup>1</sup>Most recently [Yoon and Yoon 1990] argue for the multitude of functional heads in Korean on the basis of coordination facts. On the other hand, [Sells 1991] argues against the existence of functional projections in the syntax of Korean and Japanese.

<sup>2</sup>While [Koopman and Sportiche 1991] argue that a subject always has to move to [SPEC IP] to be assigned nominative case, [Iatridou 1990] claims that a subject can be assigned case either in [SPEC VP] or [SPEC IP]. According to Iatridou, agreement is a feature on the verb, and therefore the subject and the verb

with an A-position, i.e. nominative case assignment, participation in binding, and being the landing site of A-movement.

[Chomsky 1992] introduces three position types which replace the traditional A/A'-distinction: narrowly L-related positions, broadly L-related position and non-L-related positions. The following is from [Chomsky 1992, 40] (emphases mine).

...The functional elements Tense and AGR therefore incorporate features of the verb. Let us call these features V – features: the function of the V-features of an inflectional element I is to check the morphological properties of the verb selected from the lexicon. More generally, let us call such features of a lexical item L L – features. Keeping to the X-bar-theoretic notions, we say that a position is L – related if it is in a local relation to an L-feature, i.e., in the internal domain or checking domain of a head with an L-feature. The checking domain can, furthermore, be subdivided into two-categories: nonadjoined (SPEC) and adjoined. Let us call these positions narrowly and broadly L-related, respectively. A structural position that is narrowly related has the basic properties of A-positions; one that is not L-related has the basic properties of A'-positions, in particular, the specifier of C, not L-related if C does not contain a V-feature. *The status of broadly L-related (adjoined) positions has been debated, particularly in the theory of scrambling. For our limited purposes, we may leave the matter open.*

In this thesis I adopt Chomsky's three-way distinction of position types, i.e. narrowly L-related, non-L-related and broadly L-related positions, while continuing to call them, A-, A', and adjoined positions, respectively.

- A-positions = narrowly L-related positions
- A'-positions = non-L-related positions
- Adjoined positions = broadly L-related positions

One of the main goals of this thesis is to explore the status of adjoined (broadly L-related) positions by examining the properties of scrambling, which I assume to be adjunction.

### 1.1.3 A-properties

Properties of an A-position, which I use as diagnostics for identifying the status of adjoined positions, include structural case assignment and participation in binding.

First, structural case is assigned to an A-position. Structural case (typically nominative and accusative case) assignment is defined in terms of either government by a case-assigner (cf. [Chomsky 1981]) or SPEC-head agreement (cf. [Chomsky 1992]). Whatever mechanism of case assignment we adopt, structural case is assigned to an A-position, and this is reflected in the definition of an A-chain stated in (5).

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are in a spec-head relationship at D-structure. Nominative case is assigned to the subject in [SPEC VP] by the agreement feature on the verb when the verb is governed by [+finite] Tense. When the projection of an auxiliary verb blocks government of the verb by Tense, however, a subject has to move to [SPEC IP] to be assigned case.

- (5) A maximal A-chain  $(\alpha_1, \dots, \alpha_n)$  has exactly one Case-marked position (namely,  $\alpha_1$ ) and exactly one  $\theta$ -marked position (namely,  $\alpha_n$ ), [Chomsky 1986, 63].

An A-chain consists of either a single member if there is no movement, or more than one element if there is movement to an A-position. The condition that the first member of an A-chain (in particular, when the chain involves movement) is the Case-marked position instantiates the idea that Case is assigned to an A-position.

Second, the binding theory which is characterized by the three sub-theories stated in (6) refers to a relation between two elements in A-positions, cf. [Chomsky 1985].

- (6) (A) An anaphor is bound in a local domain.  
(B) A pronominal is free in a local domain.  
(C) An r-expression is free (in the domain of the head of its chain).

## 1.2 Definition and characteristics of scrambling

I use the term *scrambling* both in its descriptive and technical senses: Descriptively, I define scrambling to be the possibility that arguments of verbs may be arranged in any order, i.e. free word order. Technically, scrambling refers to an operation which *either* derives non base word orders, *or* all the possible word orders including the base word order, depending on the particular analysis one adopts. In most parts of this thesis, except for in Ch. 4 where I propose my analysis of scrambling, I use the technical term scrambling to refer to an operation deriving non-base word orders. Throughout the thesis, I will not specify whether I use the term in its descriptive or its technical sense, unless a clarification is required.

I assume that scrambling has the following characteristics which need to be accommodated by any analysis.

- More than one argument which belongs to the same argument structure can be scrambled, i.e. multiple scrambling.
- There is no limit to the number of clauses which a scrambled element can cross, i.e. unbounded dependency.
- Not only phrasal but also clausal arguments can undergo scrambling.

Some remarks are due on the unboundedness of scrambling. It has been controversial whether long distance scrambling (scrambling across clause boundaries) is the same syntactic phenomenon as local scrambling (scrambling within a single clause) in various languages. On the basis of diagnostics such as anaphor binding and weak crossover, [Mahajan 1990] and [Saito 1992] argue that local and long distance scrambling are different phenomena in Hindi and Japanese, respectively. On the other hand, on the basis of the same kind of diagnostics, [Hoffman and Turan 1991] and [Frank et al. 1992] argue that local and long distance scrambling are the same phenomenon in Turkish, Korean<sup>3</sup> and German.<sup>4</sup> Even

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<sup>3</sup>See [Lee 1990] and Ch. 2 of this thesis for a detailed discussion.

<sup>4</sup>German does not allow long distance scrambling out of a tensed clause, and all the long distance scrambling for German involve scrambling out of infinitival clauses. [Webelhuth 1989] and [Webelhuth 1992] argue for the view that local and long-distance scrambling are the same phenomenon in general.

though there are such parametric variations in long-distance scrambling, I will assume that at least in German, Korean and Turkish, local and long distance scrambling are the same phenomenon.<sup>5</sup>

### 1.2.1 Multiple scrambling

The three arguments of the ditransitive verb *senmwulhata* ‘present’ may be arranged in any of the six logically possible orders, assuming that the position of the verb is fixed (sentence final position in this case). This is illustrated in (7).

- (7) a. Sunhee-ka Youlee-eykey [chayk han kwen]-ul senmwulhayssta  
 Sunhee-NOM Youlee-DAT [book one CL]-ACC gave-a-present  
 ‘Sunhee gave a book to Youlee as a present.’
- b. Sunhee-NOM [chayk han kwen]-ACC Youlee-DAT senmwulhayssta
- c. Youlee-DAT Sunhee-NOM [chayk han kwen]-ACC senmwulhayssta
- d. Youlee-DAT [chayk han kwen]-ACC Sunhee-NOM senmwulhayssta
- e. [chayk han kwen]-ACC Sunhee-NOM Youlee-DAT senmwulhayssta
- f. [chayk han kwen]-ACC Youlee-DAT Sunhee-NOM senmwulhayssta

Assuming that the base order for a ditransitive verb sentence is ‘subject-IO-DO-verb,’ (7)d and (7)f are instances of multiple scrambling.

Multiple long distance scrambling is also possible, as in (8)c.

- (8) a. na-nun [Sunhee-ka Youlee-eykey [chayk han kwen]-ul senmwulhayssta-ko  
 I-TOP Sunhee-NOM Youlee-DAT [book one CL]-ACC gave-a-present-COMP  
 sayngkakhanta  
 think  
 ‘I think Sunhee gave a book to Youlee as a present.’
- b. Youlee;-eykey na-nun [Sunhee-ka t<sub>i</sub> [chayk han kwen]-ul senmwulhayssta-ko]  
 sayngkakhanta
- c. Youlee;-eykey [chayk han kwen];-ul na-nun [Sunhee-ka t<sub>i</sub> t<sub>j</sub> senmwulhayssta-ko]  
 sayngkakhanta

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<sup>5</sup>Considering that Japanese and Korean are similar to each other in so many respects, it is not clear what causes such a difference in the nature of long distance scrambling between the two languages. It could well be the case that the difference is due to the difficulty in getting the grammaticality judgments for sentences involving long distance scrambling and binding and/or weak crossover. Contrary to [Saito 1992], [Yoshimura 1990] argues that local and long distance scrambling are the same in Japanese with respect to weak crossover. Concerning the difference between Korean and Hindi, the difference might be related to the fact that in Hindi, which is an SOV language, a finite clause is obligatorily extraposed resulting in SVO order (cf. [Mahajan 1989]), while Korean is a rather rigid SOV language with no such constraint.

### 1.2.2 Unbounded dependency

Scrambling is possible not only within the same clause but also across clause (tensed and untensed) boundaries.<sup>6</sup>

#### Scrambling across a clause boundary

Arguments can be scrambled across a clause boundary, as shown in (9)b.

- (9) a. na-nun [Sunhee-ka Youlee-eykey [chayk han kwen]-ul senmwulhayssta-ko  
 I-TOP Sunhee-NOM Youlee-DAT [book one CL]-ACC gave-a-present-COMP  
 sayngkakhanta  
 think  
 ‘I think that Sunhee gave a book to Youlee as a present.’
- b. Youlee<sub>i</sub>-eykey na-nun [Sunhee-ka t<sub>i</sub> [chayk han kwen]-ul senmwulhayssta-ko]  
 sayngkakhanta

#### Scrambling across more than one clause boundary

Although it is clear that scrambling across one clause boundary is possible, it is not crystal clear whether scrambling across multiple clause boundaries is grammatical. Most people find that scrambling across more than one clausal boundary is hard to understand, as illustrated in (10)b:

- (10) a. [<sub>S1</sub> na-nun [<sub>S2</sub> nwu-ka [<sub>S3</sub> sensayngnim-kkeyse Minho-lul  
 I-TOP who-NOM teacher-NOM Minho-ACC  
 pyenayhasinta-ko] malhayss-nunci] kwungkumhata]  
 like excessively-COMP said-whether wonder  
 ‘I wonder who said that the teacher likes Minho excessively.’
- b. \*?Minho<sub>i</sub>-lul [<sub>S1</sub> na-nun [<sub>S2</sub> nwu-ka [<sub>S3</sub> sensayngnim-kkeyse t<sub>i</sub>  
 pyenayhasinta-ko] malhayss-nunci] kwungkumhata]

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<sup>6</sup>The generalization on the unboundedness of scrambling must be taken with care. Processing of a scrambled sentence becomes proportionately harder as the number of arguments increases. Here I ascribe this to a performance factor analogous to the processing difficulty of center embedded sentences in English. However, there is a clear difference between generating a center embedded sentence and a scrambled sentence from a formal point of view. In the case of center embedding, once we accept CFG as a grammar formalism for natural language, there is no elegant way of ruling out center embedded structure in general. In the case of scrambling, however, the Tree Adjoining Grammar (TAG) formalism, the formal power of which is mildly context-sensitive (between context free and context sensitive, but closer to context free grammar), makes a clear prediction about acceptable and unacceptable scrambling: [Becker et al. 1991] shows that the language  $L = \{ \sigma(NP_1^1, NP_1^2, NP_2^1, NP_2^2)V_2V_1 \mid \sigma \text{ a permutation} \}$  cannot be generated by a TAG that contains only elementary trees obeying the co-occurrence restraints. They also show that under the condition that the verbs of the embedded clauses subcategorize for two NPs, one of which is an empty subject (PRO), and the other an S,  $L = \{ \sigma(NP_1, \dots, NP_k)V_k \dots V_1 \mid k \in \mathbb{N} \text{ and } \sigma \text{ a permutation} \}$ ,  $w = NP_3NP_1NP_5NP_2NP_4V_5V_4V_3V_2V_1$  cannot be generated by a TAG which obeys co-occurrence constraints. Given these findings, it may be the case that some long distance scrambled sentences are impossible even on competence grounds. In this thesis, I simply ignore all these considerations and assume that scrambling is unbounded.

(10)a, which is in the base order, consists of three clauses. Scrambling of the most deeply embedded object to sentence initial position, as shown in (10)b, is judged to be unacceptable by most speakers. Nevertheless, the restriction on long-distance scrambling indicated by examples like (10)b seems only apparent. Consider (11):

- (11) [caki-neycip]<sub>i</sub>-ey [S<sub>1</sub> na-nun [S<sub>2</sub> Minho-ka [S<sub>3</sub> t<sub>i</sub> totwuk-i  
 self-GEN house-LOC I-TOP Minho-NOM thief-NOM  
 tulessta-nunkes-ul] a-nunci] kwungkumhata]  
 broke in-COMP-ACC know-whether wonder  
 ‘I wonder whether Minho knows that his house has been broken into.’

In (11), the long-distance scrambled phrase *caki-ney cip-ey* has crossed two clause boundaries, S2 and S3. Nevertheless, the sentence is almost perfect, or at least, sounds much better than (10)b. The contrast between (10)b and (11) indicates that scrambling is unbounded in principle, and that the unacceptability of (10)b is due to reasons other than syntax. The grammaticality of (12)b through (12)d below further supports the claim that scrambling is unbounded. In the examples, bold face characters indicate coreference.

- (12) a. [S<sub>1</sub> sensayngnim-kkeyse [S<sub>2</sub> **nay**-ka [S<sub>3</sub> **PRO** naycwu-kkaci [i project]-lul  
 [S<sub>1</sub> teacher-NOM [S<sub>2</sub> I-NOM [S<sub>3</sub> **PRO** next week-by this project-ACC  
 machiki-lo] yaksokhan-kes-ul] kiekha-ko kyesinta]  
 finish-TEN promise-COMP-ACC is remembering  
 ‘The professor remembers the fact that I promised to finish this project  
 by next week.’
- b. naycwu-kkaci<sub>i</sub> [S<sub>1</sub> sensayngnim-kkeyse [S<sub>2</sub> **nay**-ka [S<sub>3</sub> **PRO** t<sub>i</sub> [i project]-lul  
 machiki-lo] yaksokhan-kes-ul] kiekha-ko kyesinta]
- c. [i project]<sub>i</sub>-lul [S<sub>1</sub> sensayngnim-kkeyse [S<sub>2</sub> **nay**-ka [S<sub>3</sub> **PRO** naycwu-kkaci t<sub>i</sub>  
 machiki-lo] yaksokhan-kes-ul] kiekha-ko kyesinta]
- d. [i project]<sub>j</sub>-lul naycwu-kkaci<sub>i</sub> [S<sub>1</sub> sensayngnim-kkeyse [S<sub>2</sub> **nay**-ka [S<sub>3</sub> **PRO** t<sub>i</sub> t<sub>j</sub>  
 machiki-lo] yaksokhan-kes-ul] kiekha-ko kyesinta]

(12)a is the base order sentence with two embedded clauses, S2 and S3. The subject of S3 is a *PRO* controlled by the subject of S2.<sup>7</sup> (12)b through (12)d are scrambled counterparts. In (12)b and (12)c, the quasi-argument<sup>8</sup> *naycwu-kkaci* and the object argument *i project-lul*, belonging to S3, have scrambled across S3 and S2, respectively. (12)d shows that multiple scrambling of both the quasi-argument and the object argument across the two clause boundaries is possible.

<sup>7</sup>Verb *yaksokha-ta* ‘to promise’ is a so-called ‘control’ verb, and it seems more plausible to treat the subject of clause S3 as ‘PRO’ rather than ‘pro.’ Which category I choose between *pro* and *PRO*, however, does not affect the point here.

<sup>8</sup>By quasi-argument, I refer to an element the subcategorization status of which is not clear, such as *to Boston* as in *I am going to Boston soon*.

### 1.2.3 Scrambling of clausal elements

Not only phrasal but also clausal elements can be scrambled, as illustrated in (13)b and (14)b.

- (13) a. Minho-ka [S Younghee-ney cip-ey totwuk-i tulessta-ko]  
 Minho-NOM Younghee-GEN house-LOC thief-NOM broke in-COMP  
 malhayssta  
 said  
 ‘Minho said that Younghee’s house had been broken into.’
- b. [S Younghee-ney cip-ey totwuk-i tulessta-ko]; Minho-ka t<sub>i</sub> malhayssta
- (14) a. [S<sub>1</sub> Younghee-nun [S<sub>2</sub> Minho-ka [S<sub>3</sub> caki-ney cip-ey totwuk-i  
 Younghee-TOP Minho-NOM self-GEN house-LOC thief-NOM  
 tulessta-nunkes-ul] anu-nyako] mwulessta]  
 broke in-COMP-ACC know-QM asked  
 ‘Younghee asked whether Minho knew that his house had been broken into.’
- b. [S<sub>3</sub> caki-ney cip-ey totwuk-i tulessta-nunkes-ul]; [S<sub>1</sub> Younghee-nun  
 [S<sub>2</sub> Minho-ka t<sub>i</sub> anu-nyako] mwulessta]

In (13)b, the clausal argument is locally scrambled. In (14)b, the most deeply embedded clause S<sub>3</sub> is long-distance scrambled across S<sub>2</sub> and S<sub>1</sub>.

## 1.3 Assumptions

I summarize some theoretical assumptions I make, which have been controversial in the debates on scrambling in Korean. They include scrambling as movement, scrambling as adjunction, the lack of rightward scrambling, and relations between scrambling and topicalization.

### 1.3.1 Scrambling as movement

I assume that scrambling is movement, as opposed to base-generation.<sup>9</sup> I briefly review [Hale 1982]’s proposal, which is a representative of base-generation analyses of scrambling, discuss some problems in applying his analysis to the scrambling languages at issue, and discuss facts which run counter to a base-generation analysis.

Given the assumption that scrambling is a syntactic phenomenon (as opposed to a PF phenomenon), it has been controversial whether it is movement or base-generated. The most influential proposal in this debate is the configurationality parameter by [Hale 1982]. Before Hale’s proposal, linguists had associated the superficial characteristics listed in (15) with the term *non-configurational*.

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<sup>9</sup>This assumption will be further justified in Ch. 3, in relation to long distance scrambling of wh-phrases and negative polarity items.



- (15)
- “free” word order
  - use of discontinuous expressions
  - free or frequent “pronoun drop”
  - lack of NP movement transformation
  - lack of pleonastic NP’s (e.g. *it*, *there*, *il*, etc.)
  - use of a rich case system
  - complex verb words or verb-cum-AUX systems

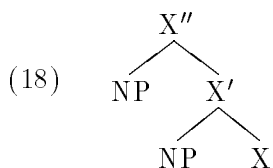
Hale’s main concern is to derive the characteristics listed in (15) (one of which is free word order) from an interaction between flat structure and such grammatical principles as government, abstract case-assignment, and  $\theta$ -role assignment. He assumes that there are only two core linguistic types to be defined along the hierarchical dimension of X-bar theory, namely, two-bar languages and one-bar languages. Two-bar languages utilize the endocentric PS rule schemata (16) and (17) (ellipses represent the positions of specifiers and complements).

$$(16) \quad X'' \longrightarrow \dots X' \dots$$

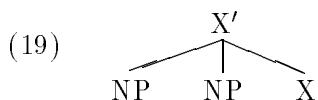
$$(17) \quad X' \longrightarrow \dots X \dots$$

One-bar languages utilize only the PS-schema (17). Two-bar languages are termed *configurational*, and one-bar languages, *non-configurational*.

Hale defines government as a relation which holds between the head of a category and its immediate sisters. In a configuration like (18), there are two distinct domains in which government operates:



The leftmost NP is governed by X', while the rightmost is governed by X. An important property of configurational structures represented by (18) is that in such a structure government can function to distinguish among the arguments of the lexical head (X). By contrast, in non-configurational language, whose phrase structures are “flat”, as depicted in (19), government as defined above cannot serve to partition a structure into distinct sub-phrasal domains of government, and hence it cannot serve to distinguish among the arguments of X:



A direct consequence of the configurationality parameter outlined above to free word order (i.e. scrambling) is that we do not have to appeal to a scrambling rule as found in [Ross 1967], or movement to account for free word order. If we take the NP that is hierarchically closer to the head to be the object of a clause, then the NP which is sister to X must be the object and the one which is sister to X' must be the subject in (18), not vice versa. On the other hand, in a tree structure like (19), it is impossible to fix the order of the subject and the object in this way. In (19), neither of the two NPs is hierarchically closer to the verb than the other. Hence it follows that either of the two NP's can be the object, and therefore an object may be base-generated sentence initially or medially. Thus under Hale's proposal, all the possible word orders of a clause in scrambling languages are base-generated.

A difficulty in adopting Hale's proposal with regard to scrambling is that the phrase structure represented in (17) and (19) predicts that free word order obtains only clause-internally, cf. [Saito 1985, 28], and that long-distance scrambling is necessarily a phenomenon distinct from local scrambling. However, this is inconsistent with the facts of Korean, German and Turkish, where local and long distance scrambling are the same phenomenon. A way to accommodate both the base-generation of scrambling and a uniform analysis for local and long distance scrambling would be to posit a phrase structure like (20) by which any word order of a sentence, regardless of whether it is simple or complex, is base-generated.

(20)  $S \longrightarrow W^*$

The phrase structure given in (20), however, completely ignores the notion of locality (for  $\theta$ -role assignment) and does not have explanatory power.

In addition to the problem involving the derivation of long distance scrambling, facts concerning incorporation and idiom formation suggest that there is some asymmetry between internal arguments and external arguments which can be easily accommodated by positing hierarchical asymmetry between them in the phrase structure. In idiom formation, we find only idioms consisting of a complement and its subcategorizing transitive verb, as in (21) and (22), or a complement and its subcategorizing unaccusative verb, as in (23) and (24).<sup>10</sup>

- (21) miyekkuk-ul        mekta  
 seaweed soup-ACC eat  
 literal: 'eat soup made of seaweed'  
 idiomatic: 'fail in an exam'

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<sup>10</sup>See [Kim 1990] for the definition of unaccusative verbs in Korean.

- (22) engdengi-lul pwutita  
 hip-ACC put on  
 literal: ‘put one’s hip on the floor’  
 idiomatic: ‘sit down’
- (23) nokcho-ka toyta  
 melted candle-NOM become  
 literal: ‘become a melted candle’  
 idiomatic: ‘be totally exhausted’
- (24) ttong-i thata  
 shit-NOM be burnt  
 literal: ‘shit is burnt’  
 idiomatic: ‘to be extremely anxious’

However, we do not find an idiom consisting of an unergative verb and its external argument. The same pattern holds for incorporation as well, i.e. it is possible to incorporate a complement (of a transitive verb and an unaccusative verb) to its subcategorizing verb, while it is impossible to incorporate the external argument (of a transitive verb and an unergative verb) to the verb, as illustrated by the contrast between (25) which illustrates the incorporation of the complement to the transitive verb *huli-ta* ‘to exude,’ and (26) which illustrates the impossibility of the incorporation of the external argument to the unergative verb *wus-ta* ‘to laugh.’

- (25) Kim-i nwunmwul-huliessta  
 Kim-NOM tear-exuded  
 ‘Kim broke into tears.’
- (26) \* sonyen-wusessta  
 boy-laughed  
 ‘A boy laughed.’

The asymmetry between an internal and an external argument in idiom formation and incorporation can be easily explained if we assume a corresponding hierarchical asymmetry in the phrase structure between an internal and an external argument.<sup>11</sup>

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<sup>11</sup>[Saito 1985] also rejects the flat phrase structure analysis for Japanese, by arguing that Japanese has category VP in the phrase structure, where the subject is VP-external and a complement is VP-internal. Saito assumes it to be universal that a verb assigns a  $\theta$ -role directly to its object, but assigns a  $\theta$ -role to the subject compositionally with its complement. He claims, adopting [Hasegawa 1981], that some of Marantz’s arguments for the external/internal asymmetry are directly reflected in Japanese: (1) There are idioms consisting of a transitive verb and its object, but none consisting of a transitive verb and its subject. (2) The semantic role of the subject often depends on the choice of object, but the semantic role of the object is determined only by the lexical properties of the verb and independently of the choice of a subject. From these facts, Saito concludes that Japanese sentences must have VP at the level of representation where  $\theta$ -role assignment takes place, and that given the Projection Principle stated below, Japanese must have VP at every syntactic level.

Representations at each syntactic level (i.e. LF, and D- and S-structure) are projected from the lexicon, in that they observe the subcategorization properties of lexical items: [Chomsky 1981,

### 1.3.2 Scrambling as Adjunction

I assume that scrambling is uniformly adjunction, as opposed to substitution, along the lines of [Saito 1985] and [Webelhuth 1989], [Webelhuth 1992].

This assumption is based on the following grounds: One of the characteristics of scrambling is multiple scrambling (i.e. scrambling of more than one argument belonging to the same argument structure, cf. section 1.2). Abstracting away from the actual properties of scrambling, if we assume that scrambling is substitution, then there have to be multiple specifier positions available as landing sites of scrambling. As [Heycock and Kroch 1992] argue, if specifier positions may be licensed by predication, by agreement and possibly by case-assignment, and if we further assume that specifier positions available for scrambled arguments are all licensed by the same relation, they have to be licensed by either all agreement or all case-assignment since there is only one predication relation at S-structure. Neither agreement nor case-assignment seems to be a viable option, however. Concerning agreement, aside from the fact that Korean does not have agreement of a pronominal nature, and therefore AgrP is not empirically motivated, there have to be multiple agreement projections which are hierarchically ordered. Since multiply scrambled arguments may occur in any order, this will require the hierarchical order of the agreement projections to be as variable as the order of the arguments. Variable ordering of agreement projections, however, vitiates the purpose of positing multiple functional projections, for which the hierarchical ordering has been crucial in explaining linguistic phenomena in a predictable way. The same argument applies to licensing of specifier positions by case assignment. Namely, if we assume that there are multiple functional projections, and that each projection is associated with only a particular case, they have to be reordered according to the order of arguments to assign relevant case to the arguments. This is undesirable for exactly the same reason as variable ordering of agreement projections.

An alternative proposal would be that scrambling is substitution on some occasions and adjunction on others. This is in fact the line which [Mahajan 1990] takes for Hindi. However, this proposal has problems which I will discuss in detail in Ch. 2, and I reject this option.

### 1.3.3 Leftward scrambling vs. Rightward scrambling

Korean is known as a strict verb-final language along with Japanese. Therefore, scrambling of an element to the right of the verb has not been widely considered. However, as pointed out by [Ahn 1988] and [Choe 1987], rightward scrambling<sup>12</sup> seems to be possible, even though somewhat marginal, as in (27) through (29).

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29].

Note that my argument for distinguishing external and internal arguments in the phrase structure is similar to Saito's argument for positing VP, even though the executions of the idea are different: I distinguish external and internal arguments by simply positing a hierarchical structure VP-internally (in terms of VP-internal subject hypothesis), while Saito distinguishes them by positing a subject position to be VP-external, and an object position, VP-internal.

<sup>12</sup>[Choe 1987] calls rightward scrambling "Korean Inversion."

- (27) ? $t_i$  sakwa-lul hwumchiessta, John $_i$ -i  
 apple-ACC stole John-NOM  
 ‘John stole the apple.’
- (28) ?na-nun  $t_i$  coahay, ne $_i$ -lul  
 I-TOP like you-ACC  
 ‘I like you.’
- (29) Minho-ka  $t_i$  malhayssta, [Younghee-ka caki-lul coahanta-ko] $_i$   
 Minho-NOM  $t_i$  said [Younghee-NOM self-ACC like-COMP]  
 ‘Minho said that Younghee likes him.’

In (27), the subject is scrambled to the right of the verb, in (28), the object, and in (29), the clausal complement. Despite the fact that these instances of rightward scrambling are possible, there are some clear contrasts between rightward and leftward scrambling.

First, leftward scrambling is fine in general, regardless of the type of the sentence involved (e.g. interrogative, declarative), cf. (30) and (31). On the other hand, rightward scrambling across the verb in an interrogative sentence results in an ungrammaticality, as in (32) and (33).

- (30) Minho $_i$ -lul John-i  $t_i$  coaha-ni  
 Minho-ACC John-NOM like-QM  
 ‘Does John like Minho?’
- (31) nwukwu $_i$ -lul John-i  $t_i$  coaha-ni  
 who-ACC John-NOM like-QM  
 ‘Who does Minho like?’

In (30) and (31), the proper name *Minho* and the wh-phrase *nwukwu*, respectively, are scrambled leftward.<sup>13</sup> And the sentences are grammatical.

- (32) ?\* John-i  $t_i$  coaha-ni, Minho-lul  
 John-NOM like-QM Minho-ACC  
 ‘Does John like Minho?’
- (33) \* $t_i$  Younghee-lul coaha-ni, nwu $_i$ -ka  
 Younghee-ACC like-QM who-NOM  
 ‘Who likes Younghee?’

In (32) and (33), the proper name *Minho* and the wh-phrase *nwu(kwu)*, respectively, are scrambled rightward, and are ungrammatical.<sup>14</sup>

Second, rightward scrambling of an embedded argument to the position between the embedded and the matrix verb in a complex sentence is impossible, as in (34), while an embedded argument may be freely scrambled leftward to any position.

<sup>13</sup>There is no obligatory syntactic wh-movement in Korean, and the instances of apparent wh-movement are considered as subcases of scrambling.

<sup>14</sup>A more accurate description of the grammatical status of sentences (32) and (33) would be to say that the scrambled elements do not feel as a part of the sentences from which they originate. Rather, they feel as the initial elements of the subsequent sentences in the discourse. It is interesting to note that even other scrambling languages such as Turkish (Ümit Turan (p.c.)) and Hungarian (cf. [Kiss 1987]), which allow an argument to occur in post-verbal position freely, do not allow post-verbal occurrences of wh-phrases.

- (34) \*na-nun [Minho-ka t<sub>i</sub> coahanta-ko], Younghee<sub>i</sub>-lul sayngkakhanta  
 I-TOP Minho-NOM like-COMP Younghee-ACC think  
 ‘I think that Minho likes Younghee.’

In (34) the object of the embedded clause is scrambled to the position right after the embedded verb, and the sentence is ungrammatical. However, as noted by [Choe 1987], rightward scrambling of an embedded argument to sentence final position (i.e. the position following the matrix verb) is much more acceptable than the type exhibited in (35).<sup>15</sup>

- (35) ??na-nun [Minho-ka t<sub>i</sub> coahanta-ko] sayngkakhanta, Younghee<sub>i</sub>-lul  
 I-TOP Minho-NOM like-COMP think Younghee-ACC  
 ‘I think that Minho likes Younghee.’

Finally, rightward scrambling differs from leftward scrambling with respect to prosody: In rightward scrambling, there is a definite pause between the predicate and the post verbal element, while there is no such pause in leftward scrambling. The pause in rightward scrambling is accompanied by the feeling of an afterthought, which we do not have for leftward scrambling.<sup>16</sup>

On the basis of the differences described above, I tentatively conclude that leftward scrambling differs from rightward scrambling, leaving the explanation of the differences to future research. I will consider only leftward scrambling in this thesis and will continue to use the term scrambling to refer to leftward scrambling.

### 1.3.4 Scrambling, Topicalization and Left-dislocation

Arguments in Korean may be marked with the so-called topic marker *-nun*, as in (36). Scrambling across a topic marked phrase is possible, as in (37).

- (36) Kim-**un** yekwen sincang wuntong-ul cekkuk cihanta  
 Kim-TOP feminism movement-ACC hard support  
 ‘Kim strongly supports the feminism movement.’
- (37) yekwen sincang wuntong<sub>i</sub>-ul Kim-**un** t<sub>i</sub> cekkuk cihanta  
 feminism movement-ACC Kim-TOP hard support  
 ‘Kim strongly supports the feminism movement.’

There are at least two questions related to a topic-marked phrase and scrambling. First, what is the position occupied by a topic-marked phrase? Does it occupy the same kind of positions as other non-topic-marked arguments or does it occupy a special position, e.g. SPEC of T(opic)P(hrase)? Second, is scrambling across a topic-marked phrase the same as scrambling across a case-marked one? In this thesis, I will assume that a topic-marked phrase does not occupy a special position, and that scrambling across a topic-marked phrase is no different from that across a non-topic-marked phrase. I will briefly justify these assumptions. I also briefly discuss the so called left-dislocation which has been assumed

<sup>15</sup>The kind of contrast between (34) and (35) that we observe in Korean also seems to exist in Turkish (Beryl Hoffman in personal communication) which is another verb-final scrambling language.

<sup>16</sup>See [Erk 1983] for the distinction between rightward scrambling and post verbal afterthought in Turkish.

to be a subclass of topicalization, and used to argue for the distinctness of scrambling and topicalization. I argue that topicalization is distinct from left-dislocation, and therefore arguments based on left dislocation to distinguish topicalization from scrambling are not valid.

### Topicalization

*(Nu)n*, which is generally called a topic (or thematic) particle, has two functions: (i) to mark the theme of the sentence, (ii) to mark an element which is contrasted with some other element, either present or understood, in the sentence. It is generally perceived that a topic-marked element in sentence initial position receives the theme reading, cf. (38), and a topic-marked element in sentence medial position the contrastive reading, cf. (39).

- (38) Kim-**un** yekwuen-sincang wuntong-ul cekkuk cichanta  
 Kim-TOP feminism movement-ACC hard support  
 ‘As for Kim, he strongly supports the feminism movement.’

- (39) Kim-i yekwuen-sincang wuntong-**un** cekkuk cichanta  
 Kim-NOM feminism movement-TOP hard support  
 ‘Kim strongly supports the feminism movement, (but not other things).’

Given this superficial dichotomy between the theme and contrastive readings of a topic-marked phrase according to its position in a sentence, people have argued that it is only the sentence-initial topic-marked phrases which are derived by “topicalization,” and that they occupy the highest SPEC position in the phrase structure.

Below, however, I argue that it is only a subset of all sentence-initial topic-marked phrases which receive the theme reading, suggesting that the position occupied by a topic-marked phrase is not a good indicator for there being a topicalization movement, even if we accept the view that only a sentence initial topic-marked phrase with the theme reading has undergone topicalization movement. Furthermore, an element can scramble across a sentence initial topic-marked phrase (with the theme reading), contradicting the view that a topic phrase occupies the highest position in the phrase structure. My discussion below heavily draws from the observations made in [Kuno 1972] for Japanese.

As Kuno observes for Japanese, when the *subject* noun phrase in sentence initial position is followed by *(nu)n*, if it is either generic or anaphoric, both the thematic and the contrastive interpretation result, as illustrated in (40).

- (40) John-**un** Boston-ey kassta  
 John-TOP Boston-LOC went  
 (i) theme: ‘Speaking of John, he went to Boston.’  
 (ii) contrast: ‘As for John, he went to Boston (but not other people).’

When the subject is marked with dative case (i.e. experiencer subject), as in (41), the contrastive reading is much more prominent than the theme reading even when the subject is anaphoric, as in (41).

- (41) Kim-eykey-**nun** cacenke-ka kkok philyohata  
 Kim-DAT-TOP bicycle-NOM really is in need of  
 ‘As for Kim, he is really in need of a bicycle (as opposed to other people).’

When either an indefinite subject or a *nonsubject* noun phrase is followed by *(nu)n*, usually only the contrastive reading results, as in (42) and (43).

- (42) Boston<sub>i</sub>-ey-**nun** John-i t<sub>i</sub> kassta  
 Boston-LOC-TOP John-NOM went  
 contrast: ‘As for Boston, John went there.’
- (43) [manhun salam-tul]-**un** party-ey kassta  
 many people-PL-TOP party-LOC went  
 ‘Many people went to the party, (but not everyone).’

Furthermore, scrambling across a topic-marked phrase with the theme reading overrides the theme reading and leaves the contrastive reading as the salient reading of the topic-marked phrase. This is illustrated by the contrast in the force of theme reading of the topic-marked phrase in (44) and (45).

- (44) yemso-**nun** cong-i-lul coahanta  
 goat-TOP paper-ACC like  
 theme: ‘Speaking of goats, they like papers.’
- (45) cong-i-lul yemso-**nun** t<sub>i</sub> coahanta  
 paper-ACC goat-TOP like  
 ‘Papers, goats like, (but not other animals).’

As illustrated in (40)—(45), at least three factors are involved in determining the reading of a topic-marked phrase, namely, the grammatical function, the information status, and the position of the topic-marked phrase. The readings which a topic-marked phrase receives according to these criteria are summarized in table 1.1.

	anaphoric/generic subject	nonsubject/indefinite subject
sentence initial	contrastive & theme	contrastive
sentence medial	contrastive	contrastive

Table 1.1: Available readings of a topic-marked phrase

Accepting the view that only topic-marked phrases with the theme reading are derived by topicalization movement, the surface position of a topic-marked position is not a good indicator for the topicalization movement. Rather the topicalization at issue is sensitive to the grammatical function and the information status of the topic-marked phrase as well as its surface position. However, this is not what we find in topicalization in other languages. In particular, topicalization in German is blind to the grammatical function and the information status of the topicalized element. Moreover, even if there is a special position occupied by a topic phrase, it cannot be the outermost (highest) position in the phrase structure, otherwise scrambling across a topic phrase should be impossible. Given



this discrepancy between syntactic topicalization in German and the so-called topicalization in Korean which is signalled by the presense of the topic morpheme, it seems undesirable to analyze topic-marked phrases with the theme reading as being derived by a topicalization movement. Instead, the topic morpheme can be attached to any grammatical category and the particular reading we get from a topic-marked phrase is via conspiracy among various factors which are summarized in table 1.1.

### Left-dislocation

Another main argument for distinguishing topicalization from scrambling is that topicalization can license a resumptive pronoun while scrambling cannot, as illustrated by the contrast between (46) (topicalization) and (47) (scrambling), cf. [Saito 1985] for similar discussion in Japanese:<sup>17</sup>

- (46) ? **Jiho-nun** Minhō-ka **ku-lul** coahanta  
 Jiho-TOP Minhō-NOM he-ACC likes  
 ‘As for **Jiho**, Minhō likes **him**.’
- (47) \* **Jiho-lul** Minhō-ka **ku-lul** coahanta  
 Jiho-ACC Minhō-NOM he-ACC likes  
 ‘**Jiho**, Minhō likes **him**.’

I will argue below that topicalization with no resumptive pronoun, as in (41), and topicalization with a resumptive pronoun, as in (46), which is called ‘left-dislocation,’ are distinct phenomena. Therefore, the ability to license resumptive pronouns is not a property distinguishing topicalization from scrambling, even though it is a difference between scrambling and left-dislocation.

### Differences between Topicalization and Left-dislocation

A first difference between topicalization and left-dislocation is that while both definite and generic NPs can be topicalized, only definite NPs can be left-dislocated. Non-specific indefinite NPs can be neither topicalized nor left-dislocated.<sup>18</sup>

- (48) Topicalization of a non-specific indefinite NP  
 \* **nwukwuinka<sub>i</sub>-nun** Minhō-ka t<sub>i</sub> coahayssta  
 someone-TOP Minhō-NOM liked  
 ‘Someone, Minhō liked.’
- (49) Left-dislocation of non-specific indefinite NP  
 \* **nwukwuinka<sub>i</sub>-nun** Minhō-ka **ku/kunye-lul** coahayssta  
 someone-TOP Minhō-NOM he/she-ACC liked  
 ‘**Someone**, Minhō liked **her/him**.’

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<sup>17</sup>As denoted by ‘?’ in (46), the use of a resumptive pronoun is somewhat marginal. Nevertheless, the contrast between (46) and (47) is clear.

<sup>18</sup>However, non-specific indefinites can be scrambled, as will be discussed in Ch. 6.

- (50) Topicalization of a generic NP  
**sakoa<sub>i</sub>-nun** Minho-ka t<sub>i</sub> coahanta  
apple-TOP Minho-NOM likes  
‘Apples, Minho likes.’
- (51) Left-dislocation of a generic NP  
\* **sakoa-nun** Minho-ka **kukes(tul)-ul** coahanta  
apple-TOP Minho-NOM it(PL)-ACC likes  
‘Apples, Minho likes **them**.’
- (52) Topicalization of a definite NP  
**Jiho<sub>i</sub>-nun** Minho-ka t<sub>i</sub> coahayssta  
Jiho-TOP Minho-NOM liked  
‘Jiho, Minho liked.’
- (53) Left-dislocation of a definite NP  
? **Jiho<sub>i</sub>-nun** Minho-ka **ku-lul** coahayssta  
Jiho-TOP Minho-NOM he-ACC liked  
‘**Jiho**, Minho liked **him**.’

Second, no element can be scrambled across a left-dislocated element, while there is no such restriction for topic-marked phrases.

- (54) Scrambling across a topic-marked element  
a. Minho<sub>i</sub>-eykey **Younghee-nun** t<sub>i</sub> pyenci-lul ssessta  
Minho-DAT Younghee-TOP letter-ACC wrote  
‘To Minho, Younghee wrote a letter.’  
b. na<sub>j</sub>-eykey **Minho<sub>i</sub>-nun** Younghee-ka t<sub>j</sub> t<sub>i</sub> sokayhay-cwuessta  
I-DAT Minho-TOP Younghee-NOM introduce-gave  
‘To me, Younghee introduced Minho.’
- (55) Scrambling across a left-dislocated element  
a. ?\* Minho<sub>i</sub>-eykey **Younghee-nun kunye-ka** pyenci-lul ssessta  
Minho-DAT Younghee-TOP she-NOM letter-ACC wrote  
‘To Minho, **Younghee, she** wrote a letter.’  
b. \* na<sub>j</sub>-eykey **Minho<sub>i</sub>-nun** Younghee-ka t<sub>j</sub> **ku-lul** sokayhay-cwuessta  
I-DAT Minho-TOP Younghee-NOM he-ACC introduce-gave  
‘To me, Younghee introduced Minho.’

Third, left-dislocation is strictly a matrix clause phenomenon, while topicalization is possible in both matrix and embedded clauses.

- (56) Topicalization in an embedded clause  
nay-ka [**Minho<sub>i</sub>-nun** Younghee-ka t<sub>i</sub> coahanta-ko] malhayssta  
I-NOM Minho-TOP Younghee-NOM like-COMP said  
‘I said that Minho, Younghee likes.’

- (57) Left-dislocation in an embedded clause  
 \* nay-ka [**Minho<sub>i</sub>-nun** Younghee-ka **ku-lul** coahanta-ko] malhayssta  
 I-NOM Minho-TOP Younghee-NOM he-ACC like-COMP said  
 ‘I said that **Minho**, Younghee likes **him**.’

Fourth, left-dislocation is not sensitive to relative island effects regardless of the grammatical function of the left-dislocated element, while topicalization of an object out of a relative clause results in ungrammaticality.

- (58) Topicalization of a subject out of a relative clause  
**Minho<sub>i</sub>-nun** [<sub>S</sub> [<sub>Rel</sub> t<sub>i</sub> t<sub>j</sub> ipko iss-nun] os<sub>j</sub>]-i telepta  
 Minho-TOP is wearing-REL cloth-NOM is dirty  
 ‘Minho, the cloth that (he) is wearing is dirty.’
- (59) Left-dislocation of a subject out of a relative clause  
**Minho-nun** [<sub>S</sub> [<sub>Rel</sub> **ku-ka** t<sub>j</sub> ipko iss-nun] os<sub>j</sub>]-i telepta  
 Minho-TOP he-NOM is wearing-REL cloth-NOM is dirty  
 ‘**Minho**, the cloth that **he** is wearing is dirty.’
- (60) Topicalization of an object out of a relative clause  
 \* **Minho<sub>j</sub>-nun**, nay-ka [<sub>Rel</sub> t<sub>i</sub> t<sub>j</sub> coaha-nun] yeca<sub>i</sub>-lul anta  
 Minho-TOP I-sc nom like-rel woman-ACC know  
 ‘Minho, I know the woman who likes (him).’
- (61) Left-dislocation of an object out of a relative clause  
**Minho-nun**, nay-ka [<sub>Rel</sub> t<sub>i</sub> **ku-lul** coaha-nun] yeca<sub>i</sub>-lul anta  
 Minho-TOP I-sc nom he-ACC like-rel woman-ACC know  
 ‘**Minho**, I know the woman who likes **him**.’

The differences between topicalization and left-dislocation described above suggest that they are distinct phenomena: The presence of island effects in topicalization and its absence in left-dislocation indicate that the former is movement whereas the latter is base-generation. The fact that left-dislocation is a matrix clause phenomenon while topicalization is not, and the fact that scrambling across a left-dislocated element is impossible or at least quite marginal whereas scrambling across a topic-marked element is fine, indicate that the position occupied by a left-dislocated element is higher than the position occupied by a topic-marked element. Once we accept the view that left-dislocation and topicalization are different, the characteristics of left-dislocation cannot be used to justify the special status of the position occupied by a topic-marked phrase.

In summary, I argued that scrambling across a topic-marked phrase is no different from scrambling across a case-marked phrase. I indirectly justified this view by arguing that a topic-marked phrase does not occupy a special position, and that left-dislocation is distinct from topicalization, and therefore characteristics of left-dislocation cannot be an indication of the special status of the position occupied by a topic-marked phrase.

## 1.4 The Organization of the Thesis

In Ch. 2 and Ch. 3, based on binding facts and scope reconstruction, I claim that scrambling is best analyzed as A-movement. Scrambling either creates a binding relation which does not obtain in the base order, or destroys a binding relation which obtains in the base order. A scrambled element undergoes optional reconstruction for scope interpretation. All these properties are consistent with those of standard A-movement.

In Ch. 4, I propose that scrambling is a consequence of case-driven movement. On the basis of case and word order possibilities in event nominal clauses, I first establish that in Korean nominative case is licensed by INFL, and accusative case by a complex category formed by the head raising of VERB-to-INFL. Under the VP-internal Subject Hypothesis, all the arguments have to move out of VP to be assigned case. As long as the case licensing conditions are met, arguments may be arranged in any order, and therefore, scrambling is a consequence of case-driven movement.

The combination of the assumption that scrambling is adjunction with the proposal that scrambling is A-movement leads to the conclusion that adjoined positions are A-positions, contrary to the view in [Chomsky 1986] that adjoined positions are A'-positions. In Ch. 5, I defend the conclusion that adjoined positions are A-positions in Korean, on the basis of facts involving case assignment to adverbials, binding by a nominative adjunct NP in multiple nominative constructions, and absence of island effects in scrambling out of a scrambled clause.

In Ch. 6, I examine island effects and discourse constraints on scrambling. I argue that islandhood of various clause types is determined by the selectional properties of the clause, as argued by [Cinque 1990] for *wh*-movement. I also argue that the relevant discourse notion characterizing the scramblability of an element is “presuppositionality” as defined in [Diesing 1990], rather than “specificity” as various authors including [Moltmann 1990], [Mahajan 1990], and [Enç 1991] advocate.

## Chapter 2

# Scrambling and Binding

In this chapter I consider the interaction between scrambling and binding. I focus on two types of binding relation: binding of a pronoun by a quantifier (which I call “pronoun binding”) and binding of an r-expression by a pronoun (subcase of the principle C).<sup>1</sup>

In section 2.1 I summarize diagnostics for A/A'-movement. In section 2.2, I examine the interaction between binding and scrambling in Korean, concentrating on the distribution of reconstruction effects: Reconstruction is obligatory if the binder is a subject. Otherwise, reconstruction is impossible. I argue that the limited distribution of reconstruction effects is due to the special status of the subject in binding. Explaining reconstruction effects this way correctly captures the identical behavior of local and long distance scrambling. In section 2.3, I review some previous analyses of scrambling and claim that none of these can accommodate the data discussed in 2.2.

### 2.1 Diagnostics for A/A'-movement

#### 2.1.1 A-movement: passive, raising

Most diagnostics for A-movement rely on binding facts. When elements undergo A-movement, binding relations are entirely determined on the basis of the surface structure, as illustrated in (62) to (65): A-movement either creates a binding relation which does not obtain in the base order, or destroys the binding relation which obtains in the base order.<sup>2</sup> In all the examples in this chapter, the coreference relation is indicated by bold face, and antecedent-trace relation by coindexation.

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<sup>1</sup>This chapter heavily draws upon my joint work with Beatrice Santorini [Lee and Santorini 1991], and Robert Frank and Owen Rambow [Frank et al. 1992].

<sup>2</sup>A-movement licenses reconstruction with regard to scope interpretations, though. This is illustrated by the scope ambiguity of *someone* in (a), i.e., *someone* can take a scope over either the embedded predicate or the matrix predicate:

- a. Someone<sub>i</sub> is likely [**t<sub>i</sub>** to win the election].

I consider scope reconstruction to be distinct from reconstruction with regard to binding in that the former is a characteristic of A-movement while the latter is a characteristic of A'-movement. I justify this view in Ch. 3.

- (62) a. \*It seems to **his** mother that **every boy** is intelligent. (weak crossover)  
 b. **Every boy**<sub>i</sub> seems to **his** mother t<sub>i</sub> to be intelligent. (no weak crossover)
- (63) a. It seems to **every boy** that **his** mother is intelligent.  
 b. \***[His mother]**<sub>i</sub> seems to **every boy** t<sub>i</sub> to be intelligent.
- (64) a. \*It seems to **him** that **John's** mother is intelligent.  
 b. **[John's mother]**<sub>i</sub> seems to **him** [t<sub>i</sub> to be intelligent]. (no strong crossover)
- (65) a. \*It seems to **himself** that **John** is charming.  
 b. **John**<sub>i</sub> seems to **himself** [t<sub>i</sub> to be charming].

Note that the contrast in acceptability between (62)a and (62)b has often been referred to to show the absence of weak crossover effect, and the contrast between (64)a and (64)b, the absence of strong crossover effect in A-movement. No matter how we call them, however, they fall under the more general description that binding relations are entirely determined on the basis of S-structure after A-movement.

### 2.1.2 A'-movement: wh-movement, topicalization

Elements which undergo A'-movement do not affect binding relations. That is, an element which moves to an A'-position reconstructs to its base position.<sup>3</sup>

- (66) a. **Every girl** loves **her** parents.  
 b. **[Her parents]**<sub>i</sub>, **every girl** loves t<sub>i</sub>.
- (67) a. \***Her** mother loves **every girl**. (weak crossover)  
 b. \***Who**<sub>i</sub> does **her** mother love t<sub>i</sub>? (weak crossover)
- (68) a. \***He** likes **John's** mother.  
 b. \***[Whose mother]**<sub>i</sub> does **he** like t<sub>i</sub>? (strong crossover)

---

<sup>3</sup>I use the word 'reconstruction' as a cover term for any analysis in which the pre-movement position of a moved element plays the relevant role. As [Heycock 1992] points out, there have been three main types of approach to reconstruction for binding: (a) a literal reconstruction — lowering of a moved phrase, or some part of a moved phrase, at LF, e.g. [Riemsdijk and Williams 1986], (b) a resort to the traces left by movement to account for reconstruction effects on the basis of the S-structure configuration, e.g. [Barss 1987], (c) a proposal that the Binding Conditions apply at some level or levels before wh-movement, e.g. [Riemsdijk and Williams 1981]. There are potential problems in treating reconstruction effects as a diagnostic for A'-movement. Not only A'-movement but also some instances of A-movement exhibit reconstruction effects, as shown in (a) and (b) below:

- a. [Pictures of **himself**]<sub>i</sub> seem to **John** [t<sub>i</sub> to be ugly].  
 b. [Pictures of **himself**]<sub>i</sub> bother t<sub>i</sub> **John**.

(a) is an instance of raising (A-movement), and yet the raised phrase containing the reflexive *himself* seems to reconstruct to be bound by the antecedent *John*. (b) is a psych verb construction. If we assume that a psych verb sentence in English always involves A-movement, following [Belletti and Rizzi 1988], it is an instance of A-movement which licenses reconstruction. For the time being, I ignore examples like (a) and (b), and continue to assume that reconstruction for binding is a diagnostic for A'-movement for the present discussion.

- (69) a. **John** hates **himself**.  
 b. **Himself<sub>i</sub>**, **John** hates **t<sub>i</sub>**.

An A'-moved element licenses a parasitic gap, as in (70)a, while an A-moved element does not, as in (70)b.

- (70) a. *Which article<sub>i</sub>* did you file **t<sub>i</sub>** without reading *pg<sub>i</sub>*?  
 b. \**Which article<sub>i</sub>* was filed **t<sub>i</sub>** without PRO reading *pg<sub>i</sub>*?

## 2.2 Scrambling and Binding

I examine the behavior of scrambling with regard to two types of binding; binding of a pronoun by a quantifier (pronoun binding), and binding of an r-expression by a pronoun (i.e. subcase of Principle C).<sup>4</sup> The data suggest that scrambling can be best analyzed as A-movement.

In applying the above diagnostics to studies of scrambling, people have concluded that scrambling can be interpreted as an instance of A'-movement by looking at only a few examples which exhibit reconstruction effects. However, it might be the case that there are more factors involved in reconstruction effects other than its being A'-movement. To avoid the problem of misgeneralizing the data, I consider the entire paradigm of binding possibilities in double object constructions, namely, binding by each of three sentence elements, i.e. subject, direct object (DO), and indirect object (IO), of each of the remaining two elements, for a total of six cases. In the cases where binding is possible in the base order, the bound element is scrambled past the binder so that scrambling potentially disrupts the binding relationship. When the binding does not obtain in the base order, the potential binder is scrambled past the potential bindee so that the former c-commands the latter and therefore binding could be possible. For a ditransitive verb sentence, I assume that the base order is Subject-IO-DO.

Even though reconstruction in general refers to the case where the binding relation which obtains in the base order is retained after movement, reconstruction can be subdivided into two categories; namely, optional and obligatory reconstruction. Authors such as [Saito 1992] and [Webelhuth 1992] argue that reconstruction associated with scrambling is optional. To see whether reconstruction we observe in scrambling is indeed optional or obligatory, I interpret the reconstruction data in the following way. Let's take pronoun binding. There are four logically possible combinations of grammaticality of a sentence before and after movement, under the intended coreference, as in (71) to (74).

- (71) a. \*It seems to **his** mother that **every boy** is intelligent.  
 b. **Every boy<sub>i</sub>** seems to **his** mother **t<sub>i</sub>** to be intelligent.

---

<sup>4</sup>The most extensively examined facts in studies of scrambling are those involving anaphor binding. However, I do not discuss anaphor binding data here since it has been widely observed that the distribution of the so-called reflexive pronoun *caki* 'self' and the reciprocal pronoun *selo* 'each other' is not subject to the currently accepted binding theory, [Hong 1987] and [Lee 1988]. Furthermore, if the theory of anaphor binding advanced by Reinhart and Reuland is on the right track, all the data which have been discussed as evidence for reconstruction for the purpose of anaphor binding become irrelevant. For studies on scrambling and anaphor binding in Korean, assuming the eligibility of the standard binding theory for Korean, I refer the reader to [Lee 1990] and [Cho 1992b] in which the authors argue that anaphor binding patterns exactly like pronoun binding as discussed in this chapter.

- (72) a. It seems to **every** boy that **his** mother is intelligent.  
 b. \***[His mother]<sub>i</sub>** seems to **every** boy  $t_i$  to be intelligent.
- (73) a. **Every** girl loves **her** parents.  
 b. **[Her parents]<sub>i</sub>**, **every** girl loves  $t_i$ .
- (74) a. \***Her** mother loves **every** girl.  
 b. \***Who<sub>i</sub>** does **her** mother love  $t_i$ ?

In (71), the sentence is ungrammatical in the base order, but becomes acceptable after movement; in (72), the sentence is grammatical in the base order, but becomes ungrammatical after movement; in (73), the sentence is grammatical both in the base order and after movement; in (74), the sentence is ungrammatical in the base order, and remains ungrammatical after movement.

In addition, there are three possible interpretations we can give about a particular instance of reconstruction; reconstruction (a) always takes place, (b) optionally takes place, and (c) never takes place. The possible interpretation(s) we can give for each combination in (71) to (74) is given in Table 2.1.

<i>Ex.</i>	<i>Data</i>		<i>Interpretation</i> ( $\checkmark$ = <i>possible</i> )		
	Base Order	After mov't	<b>A</b> (lways)	<b>O</b> (ptional)	<b>N</b> (ever)
(71)	*	OK		$\checkmark$	$\checkmark$
(72)	OK	*			$\checkmark$
(73)	OK	OK	$\checkmark$	$\checkmark$	
(74)	*	*	$\checkmark$		

Table 2.1: The interpretation of reconstruction effects

- If a sentence is ungrammatical in the base order, but becomes grammatical after movement, as in (71), we can conclude that there is no reconstruction. However, we cannot decide whether reconstruction never takes place or optionally takes place.
- If a sentence is grammatical in the base order, but becomes ungrammatical after movement, as in (72), we can conclude that there is no reconstruction. Furthermore, we can draw the stronger conclusion that reconstruction never takes place. Otherwise, the sentence could have been remedied by movement.
- If a sentence is grammatical in the base order, and still grammatical after movement, as in (73), we can conclude that there is reconstruction. However, we cannot decide whether reconstruction always takes place or optionally takes place.
- If a sentence is ungrammatical in the base order, and continues to be ungrammatical after movement, as in (74), we can conclude that there is reconstruction. Furthermore, we can draw the stronger conclusion that reconstruction always takes place.

Although the interpretation of reconstruction in Table 2.1 is based on pronoun binding data, the table happens to equally applicable to Principle C data. In the following two subsections, I examine the reconstruction effects of scrambling. In all the examples, (a)



sentences are in the base order, and (b) and (c) examples are in scrambled order. Finally a note on the judgments is in order: Judgments on binding relations, especially in a scrambled sentence, are subject to fairly wide individual variations. The judgments I give for each example is meant to be indicative of the contrast between the scrambled and unscrambled versions of the sentences. In the interpretation of reconstruction, **A** means reconstruction takes place always, **O**, optionally, and **N**, never.

### 2.2.1 Local scrambling and Pronoun Binding

For pronoun binding, a quantified expression is the binder and a possessive pronoun is the bindee.<sup>5</sup> If binding does **not** hold, the pronoun is unable to be interpreted as a bound variable, and hence the coindexed reading is ungrammatical.

#### Binding by IO quantifier: Reconstruction Impossible

##### 1. Binding by IO quantifier: N

(75) Bindee in the DO  $\rightarrow$  N

- a. Kim pancang-i                    **nwukwu-eykey-na** [**pro** iwus]-ul                    sokayhayssta.  
 Kim district chair-NOM everyone-DAT-UQ    pro-GEN neighbor-ACC introduced  
 ‘The district chair Kim introduced **everyone** to **his** neighbor.’
- b. \*Kim pancang-i [**pro** iwus]<sub>i</sub>-ul **nwukwu-eykey-na** t<sub>i</sub> sokayhayssta.  
 c. \***[pro** iwus]<sub>j</sub>-ul Kim pancang-i **nwukwu-eykey-na** t<sub>i</sub> sokayhayssta.

(76) Bindee in the Subject  $\rightarrow$  N  $\vee$  O

- a. \***[pro** apeci]-ka    **nwukwu-eykey-na** yongton-ul cwunta  
 pro-GEN father-NOM everyone-DAT-UQ    money-ACC gives  
 ‘**His** father gives **everyone** money.’
- b. **nwukwu<sub>i</sub>-eykey-na** [**pro** apeci]-ka t<sub>i</sub> yongton-ul cwunta

##### 2. Binding by DO quantifier: N $\vee$ O

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<sup>5</sup>There are at least three items which can be identified as a bound pronoun in Korean: *caki* ‘self’, the overt pronoun *ku/kukes* ‘he/it’, and the empty pronoun *pro*. For [+human] entities, *caki* is highly preferred with a subject antecedent, and *ku* with a dative antecedent. For [-human] entities, *kukes* is used regardless of the grammatical function of the antecedent. The empty pronoun *pro* can occur in any environment in which overt pronouns can occur. Throughout this thesis, I use these three lexical items interchangeably to facilitate the naturalness of the examples. I also limit the range of the antecedents of a bound pronoun to singular universal quantifiers which end with the suffix *-na*, as in *nwukwu-na* ‘everyone,’ *enu haksayngi-na* ‘every student.’ This is to abstract away from some discourse effects which are accompanied by plural universal quantified expressions such as *motwn haksayng* ‘all students.’ These plural quantifiers are often discourse linked. According to some of my informants, the contrast in binding possibilities between a base word order sentence and its scrambled counterpart becomes weaker if we replace the singular quantifiers with plural quantifiers.

(77) Bindee in the IO  $\rightarrow$  N  $\vee$  O

- a. \*Kim pancang-i [pro iwus]-eykey nwukwuna-lul sokayhayssta.  
 Kim district chair-NOM pro-GEN neighbor-DAT everyone-ACC introduced  
 ‘The district chair Kim introduced **everyone** to **his** neighbor.’
- b. Kim pancang-i nwukwuna<sub>i</sub>-lul [pro iwus]-eykey t<sub>i</sub> sokayhayssta.  
 c. nwukwuna<sub>i</sub>-lul Kim pancang-i [pro iwus]-eykey t<sub>i</sub> sokayhayssta.

(78) Bindee in the Subject  $\rightarrow$  N  $\vee$  O

- a. \*[pro chinkwu]-ka nwukwu-lul paypanhayss-ni  
 pro-GEN friend-NOM who-ACC betrayed-Q  
 ‘**Who** did **his** friend betray?’
- b. nwukwu<sub>i</sub>-lul [pro chinkwu]-ka t<sub>i</sub> paypanhayss-ni

### 3. Binding by Subject quantifier: A $\vee$ O

(79) Bindee in the IO  $\rightarrow$  A  $\vee$  O

- a. nwukwuna-ka [caki chinkwu]-eykey komin-ul thelenohnunta  
 everyone-NOM self’s friend-DAT problem-ACC tell  
 ‘**Everyone** tells **his/her** friend problems.’
- b. [caki chinkwu]<sub>i</sub>-eykey nwukwuna-ka t<sub>i</sub> komin-ul thelenohnunta

(80) Bindee in the DO  $\rightarrow$  A  $\vee$  O

- a. nwukwuna-ka [caki uymwu]-lul chwungsilhi ihaynghayssta.  
 everyone-NOM self’s duty-ACC faithfully carried-out  
 ‘**Everyone** carried out **his/her** duty faithfully.’
- b. [caki uymwu]<sub>i</sub>-lul nwukwuna-ka t<sub>i</sub> chwungsilhi ihaynghayssta.

Subj binder IO/DO bindee	IO/DO binder IO/DO bindee	IO/DO binder Subj bindee
<b>A <math>\vee</math> O</b> (79), (80)	<b>N</b> (75), (77)	<b>N <math>\vee</math> O</b> (76), (78)

Table 2.2: Interpretation of pronoun binding with regard to reconstruction

#### 2.2.2 Local scrambling and Principle C

For Principle C, the (potential) binder is a pronoun, and the (potential) bindee, a coindexed r-expression. If the pronoun c-commands the r-expression, and there are no reconstruction effects, then a Principle C violation results.

##### 1. Binding by IO: N

(81) Bindee in the DO  $\rightarrow$  N  $\vee$  O

- a. \*Younghee-ka **ku**-eykey [Minswu-uy sacin]-ul poyecwuessta  
Younghee-NOM him-DAT Minswu-GEN picture-ACC showed  
'Younghee showed **him** Minswu's picture'  
b. Younghee-ka [Minswu-uy sacin]<sub>i</sub>-ul **ku**-eykey t<sub>i</sub> poyecwuessta  
c. [Minswu-uy sacin]<sub>i</sub>-ul Younghee-ka **ku**-eykey t<sub>i</sub> poyecwuessta

(82) Bindee in the Subject  $\rightarrow$  N

- a. [Minswu-uy tongsayng]-i **ku**-eykey sacin-ul poyecwuessta  
Minswu-GEN brother-NOM him-DAT picture-ACC showed  
'Minswu's brother showed **him** a picture.'  
b. \***ku**<sub>i</sub>-eykey Minswu-uy tongsayng-i t<sub>i</sub> sacin-ul poyecwuessta

## 2. Binding by DO: N

(83) Bindee in the IO  $\rightarrow$  N

- a. nay-ka [Minswu-uy pwumo]-eykey **ku**-lul tolyeponayssta  
I-NOM Minswu-GEN parent-DAT he-ACC returned  
'I returned **him** to Minswu's parents.'  
b. \*nay-ka **ku**<sub>i</sub>-lul [Minswu-uy pwumo]-eykey t<sub>i</sub> tolyeponayssta  
c. \***ku**<sub>i</sub>-lul nay-ka [Minswu-uy pwumo]-eykey t<sub>i</sub> tolyeponayssta

(84) Bindee in the Subject  $\rightarrow$  N

- a. Minswu-uy pwumonim-i **ku**-lul pangmwunhayssta  
Minswu-GEN parents-NOM he-ACC visited  
'Minswu's parents visited **him**.'  
b. \***ku**<sub>i</sub>-lul [Minswu-uy pwumonim]-i t<sub>i</sub> pangmwunhayssta

## 3. Binding by Subject: A

(85) Bindee in the IO  $\rightarrow$  A

- a. \***ku**-ka [Minswu-uy apeci]-eykey nay sacin-ul poyecwuessta  
he-NOM Minswu-GEN father-DAT my picture-ACC showed  
'**He** showed Minswu's father my picture.'  
b. \*[Minswu-uy apeci]<sub>i</sub>-eykey **ku**-ka t<sub>i</sub> nay sacin-ul poyecwuessta

(86) Bindee in the DO  $\rightarrow$  A

- a. \***ku**-ka [Minswu-uy emma]-lul coahanta  
he-NOM Minswu-GEN mother-ACC like  
'**He** likes Minswu's mother.'  
b. \*[Minswu-uy emma]<sub>i</sub>-lul **ku**-ka t<sub>i</sub> coahanta

Subj binder IO/DO bindee	IO/DO binder IO/DO bindee	IO/DO binder Subj bindee
<b>A</b> (85), (86)	<b>N</b> (81), (83)	<b>N</b> (82), (84)

Table 2.3: Interpretation of Principle C w.r.t. reconstruction

	Subj binder IO/DO bindee	IO/DO binder IO/DO bindee	IO/DO binder Subj bindee
Principle C	<b>A</b>	<b>N</b>	<b>N</b>
Pronoun binding	<b>A</b> $\vee$ <b>O</b>	<b>N</b>	<b>N</b> $\vee$ <b>O</b>
Conclusion	<b>A</b>	<b>N</b>	<b>N</b>

Table 2.4: Interpretation of reconstruction w.r.t. binding

### 2.2.3 Summary

Table 2.4 is derived by combining table 2.3 and table 2.2.

The conclusion at the bottom row of the table is drawn by taking the stronger conclusion of the principle C and the pronoun binding data: The weaker conclusions are compatible with the stronger ones, but not vice versa. The table shows that what determines the occurrence of reconstruction effects is neither the landing site of scrambling, e.g. before or after subject (the first and the third columns represent the instances of scrambling across a subject, yet the first column says that reconstruction always takes place and the third, never), nor the nature of the scrambled element, e.g. wh-phrase or r-expression. The single factor determining the occurrence of reconstruction effects is the grammatical function of the binder: Namely, reconstruction is obligatory when the binder is a subject. Otherwise, reconstruction is impossible.

Concerning this rather peculiar distribution of reconstruction effects, the question is what the reconstruction effects are due to. Following the standard diagnostic that movement to an A'-position licenses reconstruction, is it the case that scrambling moves an element to an A'-position if the binder is a subject, and to an A-position, otherwise? It seems unlikely that the property of an element's being bound by another element of a certain type can impose restrictions on the types of movement, especially considering the general convention in the theory that movement is restricted on the basis of the domain to which movement takes place, or the inherent properties of the moved element. With this line of reasoning, I assume that scrambling is A-movement, and ascribe the limited distribution of reconstruction effects to a special property of the subject in binding, not to scrambling being A'-movement.<sup>6</sup>

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<sup>6</sup>A possible analysis for the absence of WCO effects with regard to scrambling (i.e. creation of pronoun binding) is to assume that the trace left behind by scrambling is a null epithet, along the lines of [Lasnik and Stowell 1991]. This line was taken by [Cho 1991]. However, I reject this position for the following two reasons:

- Although it accounts for why scrambling does not induce WCO, it does not explain why scrambling ever destroys binding relation, given that a null epithet must be A' bound and therefore can undergo reconstruction.
- Scrambling does not create SCO either, while a null epithet is subject to SCO.

## 2.2.4 Special status of subjects

In [Frank et al. 1992], we state the special status of subjects as subject binding generalization (87).

- (87) **Subject Binding Generalization:** If X in subject position binds Y at D-structure, then X binds Y at all levels of representation.

Note that subject in the generalization refers to only D-structure subject, and therefore does not include derived subjects such as S-structure subject in passives, and unaccusative constructions. For the present discussion, D-structure subject may be understood as the external argument in the argument structure.

[Frank et al. 1992] also defines binding in terms of co-indexation and  $\beta$ -marking stated in (88),<sup>7</sup> instead of the standard binding condition, which employs the notion of c-command and co-indexation,

- (88) X **binds** Y at LF iff X and Y are co-indexed and Y is  $\beta$ -marked by X.

In (88), I assume that LF is the level at which binding applies (or equivalently,  $\beta$ -marking is checked).<sup>8</sup> The conditions for  $\beta$ -marking are stated in (89).

- (89) X  $\beta$ -marks Y at level  $L$  iff
- i. X is a subject at D-structure, or
  - ii. X c-commands Y. In this case, if X and Y have conflicting  $\beta$ -marking relations at different levels, the  $\beta$ -marking relation established at a later level supercedes the previous one(s).

(89)i<sup>9</sup> instantiates the subject binding generalization in (87), and implies that a  $\beta$ -marking relation established between a subject and another argument at D-structure is indelible through all levels of representation. Otherwise,  $\beta$ -marking is determined by c-command relation, which may change at different levels, cf. (89)ii: The  $\beta$ -marking relation which is established at a later level overrides the one established in the previous levels.

I apply this mechanism to some of the examples in the previous section. First, consider example (86) from the data concerning principle C, repeated here as (90). At D-structure, the subject pronoun *ku* c-commands the co-indexed R-expression *Minswu* and therefore the former  $\beta$ -marks the latter according to (89)i. The  $\beta$ -marking in this case is indelible at

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<sup>7</sup>A notion analogous to  $\beta$ -marking can be found in  $\gamma$ -marking, proposed by [Lasnik and Saito 1984] for the formulation of ECP. [Yoshimura 1990] in fact formulates a pronoun binding condition in terms of  $\gamma$ -marking.

<sup>8</sup>In [Frank et al. 1992], we assumed that the level at which binding is checked is the NP-structure proposed by [Riemsdijk and Williams 1981]. However, the binding relations which obtain in sentences such as in (i) below cannot be accommodated by such a proposal:

- i. [Which picture of **himself**]<sub>i</sub> does **John** think [**Bill** likes  $t_i$ ]?

In (i) the reflexive pronoun contained in the moved wh-phrase may be bound either by the matrix subject *John* or by the embedded subject *Bill*. However, an NP-structure analysis wrongly predicts that the reflexive can be bound only by the embedded subject.

<sup>9</sup>By specifying that the X is a D-structure subject, I am excluding cases involving passives.

later levels of the grammar since it is done by the subject, and hence scrambling of the NP *Minswu-uy emma*, (90)b, cannot change the  $\beta$ -marking relation. The sentence is ruled out by the Condition C.

- (90) a. \***ku**-ka [Minswu-uy emma]-lul coahanta  
           he-NOM Minswu-GEN mother-ACC like  
           ‘**He** likes **Minswu**’s mother.’
- b. \*[Minswu-uy emma]<sub>i</sub>-lul **ku**-ka t<sub>i</sub>coahanta

Consider another example (75)b involving pronoun binding, repeated here as (91) below. In (91) the pronoun *pro* is  $\beta$ -marked at D-structure by the non-subject quantifier *nwukwu-eykey-na* according to (89)ii. After scrambling of the quantifier at S-structure, however, the quantifier does not c-command (i.e.  $\beta$ -mark) the pronoun. Since the  $\beta$ -marking established at S-structure overrides the one established at D-structure, the quantifier does not bind the pronoun, and the sentence is ruled out under the intended reading.

- (91) \* Kim pancang-i [pro iwus]<sub>i</sub>-ul **nwukwu-eykey-na** t<sub>i</sub> sokayhayssta  
       Kim district chair-NOM pro neighbor-ACC everyone-DAT-UQ introduced  
       ‘District chair Kim introduced **everyone** to **his** neighbor.’

Thus far I have incorporated the special behavior of a subject regarding reconstruction into the binding condition, adopting [Frank et al. 1992]. The new binding condition states that a binding relation established at D-structure with a subject binder is retained at all levels of representation regardless of the surface configuration.

In the rest of this section, I briefly remark on the notion of subject and discuss some data which indicate that nominative case-marked NPs are not necessarily subjects, contrary to what I argued in [Heycock and Lee 1989]. Instead, an argument which carries the external  $\theta$ -role occupies the subject position at D-structure, cf. [Williams 1980], [Grimshaw 1990].

## Subjects

On the basis of the facts presented in section 2.2.2 and 2.2.1, it appears that when an oblique NP is bound by a nominative NP, the oblique NP obligatorily reconstructs, and therefore a nominative NP is the subject no matter how nominative case may be assigned. However, nominative arguments of certain predicates (most likely those which carry *theme* and *experiencer*  $\theta$ -roles to discharge) do not trigger reconstruction even when they are the binder. Consider (92).

- (92) \***pro/caki**-uy emma-eykey **nwukwu-na-ka** choiko-ta.  
       pro/self-GEN mother-DAT everyone-UQ-NOM the best-DEC  
       Intended meaning: ‘**Everyone** is the greatest to **his** mother.’

In (92) the nominative quantifier *nwukwu-na-ka* ‘everyone-NOM’ is the potential binder of the pronoun contained in the dative argument. If we assume that the nominative NP in a sentence is always the subject, and that (92) is a result of scrambling — the dative argument has scrambled across the nominative argument — its ungrammaticality is unexpected since

reconstruction is obligatory in the case of binding by subjects. Instead, if we assume that the order in (92) directly reflects its syntactic argument structure, and that the dative argument (experiencer) is the D-structure subject, the ungrammaticality of (92) is easily explained: The pronoun *pro* is not  $\beta$ -marked (at any levels of representation), and therefore is not bound by the quantifier *nwukwu-na*.<sup>10</sup> Binding possibilities in (93) and (94) further indicate that the argument which carries the external  $\theta$ -role in a sentence is the D-structure subject of the sentence.

- (93) **nwukwu-na**<sub>i</sub>-ka [**pro/caki**-uy emma]-eykey t<sub>i</sub> choiko-ta.  
 everyone-UQ-NOM pro/self-GEN mother-DAT the best-DEC  
 ‘**Everyone** is the greatest to **his** mother.’
- (94) a. **nwukwu-eykey-na** [**pro/caki**-uy casik]-i choiko-ta  
 everyone-DAT-UQ pro/self-GEN child-NOM the best-DEC  
 ‘**His** child is the best to **everyone**.’
- b. [**pro/caki**-uy casik]<sub>i</sub>-i **nwukwu-eykey-na** t<sub>i</sub>choiko-ta  
 pro/self-GEN child-NOM everyone-DAT-UQ the best-DEC

The grammaticality of (93) and (94) can be explained in the following way: The dative arguments (experiencer) are the external arguments and the D-structure subjects of each sentence. In (93), scrambling of the nominative argument which is a quantifier created the pronoun binding at S-structure. In (94)a, the dative quantifier which the D-structure subject  $\beta$ -marks the pronoun contained in the nominative argument at D-structure. This  $\beta$ -marking is retained after scrambling of the nominative argument across the dative quantifier, causing the reconstruction effects, as in (94)b.

## 2.2.5 Long distance scrambling and binding

My treatment of binding in terms of  $\beta$ -marking does not distinguish cases of local scrambling from those of long distance scrambling as long as the binding domain is not limited to a single clause. Therefore, it predicts a uniform behavior of local and long distance scrambling in Korean in which the binding domain is the whole root clause.<sup>11</sup> To recapitulate the

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<sup>10</sup>However, constructions similar to (92) in German indicate that the surface case of an argument is a better indicator of the subjecthood of the argument than the  $\theta$ -role which the argument carries in that language. Consider (i) below, which is discussed in [Lee and Santorini 1991].

- i. daß **seiner** Mutter **jeder** gefällt  
 that his-gen mother-dat everyone-nom pleases  
 ‘... that everyone’s mother likes him’

If the experiencer argument *seiner Mutter* which is marked dative, not the theme argument *jeder* which is marked nominative, is the subject and therefore occupies the structurally highest position at D-structure, its grammaticality is unexpected, since under this assumption the pronoun is not c-commanded by the quantifier anywhere in the course of derivation. On the other hand, if the theme argument *jeder* is the D-structure subject, and therefore  $\beta$ -marks the pronoun *seiner* contained in the experiencer argument, its grammaticality is easily accommodated. At the moment, I have no clear idea about what the right explanation for the data. For a detailed discussion of the German data, see [Lee and Santorini 1991].

<sup>11</sup>For a detailed discussion of anaphor binding in Korean within the GB framework, the reader is referred to [Yang 1988].

descriptive generalization on local scrambling, reconstruction is obligatory when the binder is a subject; otherwise, there is no reconstruction. This generalization is extended to long distance scrambling. In the interpretation of reconstruction, **A** means reconstruction takes place always, **O**, optionally, and **N**, never.

The relevant data to be considered are the ones where the (potential) binding relation obtains between one of the matrix arguments and one of the embedded arguments. The cases in which the (potential) binding relation holds between two arguments belonging to the same embedded clause and then one of the two scrambles out of the clause is not relevant, since they can always be reduced to local scrambling. There is always a possible derivation in which the scrambled element undergoes local scrambling first, and then long distance scrambling, which is schematically represented in (95).

(95) [S scrambled-NP<sub>i</sub>...[S t<sub>i</sub>' ...pro t<sub>i</sub> ...]]

### Long distance scrambling and Principle C

#### 1. Binding by the matrix subject of the bindee in the embedded object: A

(96) a. \* **ku-ka** [Younghee-ka **Minswu-uy** pwumonim-ul manna poassta-ko]  
 he-NOM Younghee-NOM Minswu-GEN parents-ACC met-COMP  
 sayngkakhanta  
 think  
 ‘**He** thinks that Younghee met **Minswu**’s parents.’

b. \* [**Minswu-uy** pwumonim]<sub>i</sub>-ul **ku-ka** [Younghee-ka t<sub>i</sub> manna poassta-ko]  
 sayngkakhanta

#### 2. Binding by the matrix IO of the bindee in the embedded object: O ∨ N

(97) a. \* na-nun **ku-eykey** [nay-ka **Minswu-uy** pwumonim-ul cal tolpokeyssta-ko]  
 I-TOP he-DAT I-NOM Minswu-GEN parents-ACC well take care of-COMP  
 yaksokhayssta  
 promised  
 ‘I promised **him** that I would take good care of **Minswu**’s parents.’

b. na-nun [**Minswu-uy** pwumo]<sub>i</sub>-lul **ku-eykey** pwumo-eykey [nay-ka t<sub>i</sub>cal  
 tolpokeyssta-ko] yaksokhayssta

#### 3. Binding by the embedded object of the bindee in the matrix object: N

(98) a. na-nun **Minswu-uy** pwumo-eykey [nay-ka **ku-lul** cal tolpokeyssta-ko]  
 I-TOP Minswu-GEN parent-DAT I-NOM he-ACC well take care of-COMP  
 yaksokhayssta  
 promised  
 ‘I promised **Minswu**’s parents that I would take good care of **him**.’

b. \* na-nun **ku**<sub>i</sub>-lul **Minswu-uy** pwumo-eykey [nay-ka t<sub>i</sub>cal tolpokeyssta-ko]  
 yaksokhayssta



## Long distance scrambling and Pronoun Binding

### 1. Binding by the matrix subject of the bindee in the embedded object: A ∨ O

- (99) a. **nwukwu**-ka [nay-ka **caki**-uy emma-lul hyungpoassta-ko] sayngkakha-ni  
 who-NOM I-NOM self-GEN mom-ACC spoke ill of-COMP think-QM  
 ‘**Who** thinks that I spoke ill of **his** mother?’  
 b. [**caki**-uy emma]<sub>i</sub>-lul **nwukwu**-ka [nay-ka t<sub>i</sub> hyungpoassta-ko] sayngkakha-ni

### 2. Binding by the matrix IO of the bindee in the embedded object: N

- (100) a. ?na-nun **enu haksayng-eykey-na** [nay-ka **ku**-uy pwumo-lul  
 I-TOP every student-DAT-UQ he-GEN parent-ACC  
 manna-pokeyssta-ko] yaksokhayssta  
 meet and see-COMP promised  
 ‘I promised **every student** to meet **his** parents.’  
 b. \*na-nun [**ku**-uy pwumo]<sub>i</sub>-lul **enu haksayng-eykey-na** [nay-ka t<sub>i</sub>  
 manna pokeyssta-ko] yaksokhayssta

### 3. Binding by the embedded object of the bindee in the matrix object: O ∨ N

- (101) a. \* na-nun **ku**-uy pwumo-eykey [nay-ka **enu haksayngina** cal tolpokeyssta-ko]  
 I-TOP he-GEN parent-DAT I-NOM every student well take care of-COMP  
 yaksokhayssta  
 promised  
 ‘I promised **his** parents that I would take care of **every student**.’  
 b. na-nun **enu haksayngina**<sub>i</sub> **ku**-uy pwumo-eykey [nay-ka t<sub>i</sub> cal tolpokeyssta-ko]  
 yaksokhayssta

As illustrated by the examples above, the data on long distance scrambling confirms the proposal that reconstruction effects in scrambling are not due to its being A'-movement under the limited circumstances, but due to the special status of subject in binding. Attributing the reconstruction effects to the special status of subject easily explains some data involving long distance scrambling out of a controlled clause, which cannot be easily explained by any purely configurational account of binding and/or scrambling.

First consider (102) and (103).

- (102) a. na-nun **enu haksayng-eykey-na** [**PRO caki**-uy immwu-lul cwungsilhhala-ko]  
 I-TOP every student-DAT-UQ self-GEN duty-ACC faithfully do-COMP  
 seltukhayssta  
 persuaded  
 ‘I persuaded every student to do his duty faithfully.’  
 b. ?na-nun [**caki**-uy immwu]<sub>j</sub>-lul **enu haksayng-eykey-na** [**PRO** t<sub>j</sub>  
 cwungsilhi hatolok] seltukhayssta

In (102)a, the subject of the embedded clause is PRO which is controlled by the dative argument of the matrix clause. Binding of the pronoun *caki* in the embedded clause by the matrix dative argument *nwukwu-eykey-na* is grammatical. The binding relation survives after scrambling of the embedded object across the matrix dative argument, as in (102)b, i.e. reconstruction.

Now consider (103)a and (103)b.

(103) a. na-nun **enu haksayng-eykey-na** [PRO ku-uy pwumo-lul  
 I-TOP every student-DAT-UQ he-GEN parent-ACC  
 manna pokeyssta-ko] yaksokhayssta  
 come and visit-COMP promised  
 ‘I promised every student to meet his parents.’

b. \*na-nun [ku-uy pwumo-lul]; **enu haksayng-eykey-na** [PRO t<sub>j</sub>  
 manna pokeyssta-ko] yaksokhayssta

In (103)a, the subject of the embedded clause is PRO which is controlled by the matrix subject. Pronoun *ku* contained in the embedded object is bound by the matrix dative argument. In this case, scrambling of the embedded object across the matrix dative argument, as in (103)b, destroys the binding relation, i.e. no reconstruction.

The contrast in grammaticality between (102)b and (103)b is unexpected under an analysis in which the nature of the position to which scrambling takes place determines the A/A'-nature of scrambling (hence the distribution of reconstruction effects): In both sentences scrambling has taken place to exactly the same location, and therefore we would expect that reconstruction effects occur either in both sentences or in neither sentence, contrary to the fact. However, under the current analysis in which reconstruction effects are incorporated into the binding condition in terms of  $\beta$ -marking, the contrast finds a simple explanation. In (102)a, the pronoun contained in the embedded object is  $\beta$ -marked at D-structure by the PRO subject, which is in turn controlled by the matrix dative quantifier. Scrambling cannot affect this  $\beta$ -marking, and the long distance scrambled counterpart (102)b is grammatical as expected. In (103)a, the pronoun contained in the embedded object is  $\beta$ -marked at D-structure by the matrix dative argument. Since the  $\beta$ -marking in this case is by a non-subject, scrambling can change the  $\beta$ -marking relation. In its scrambled counterpart (103)b, the  $\beta$ -marking relation has indeed changed and the intended binding is not acceptable.

Finally I discuss a potential problem for the current treatment of reconstruction effects. Consider (104).

(104) \* **casin-i John-ul** miwuehanta  
 self-NOM John-ACC hates  
 lit. ‘Himself hates John.’

(104) can be ruled out by one of the following two ways: The anaphor *casin* in the subject position is unbound, i.e. principle A violation. Or the R-expression *John* is bound by the anaphor, i.e. principle C violation. If we scramble the object NP across the subject, as in

(105), the sentence becomes acceptable.<sup>12</sup>

(105) ?**John**<sub>i</sub>-ul **casin**-i t<sub>i</sub> miwuehanta.

The current analysis predicts (105) to be ungrammatical. It is because the  $\beta$ -marking of *John* by the anaphor *casin* at D-structure should be retained through all levels, hence causing a principle C violation. Contrary to this prediction, the sentence is good. I don't understand what the right solution for this problem is, and leave it as an open problem.

## 2.2.6 Apparent Parasitic Gaps

Examples such as (106)b,c and (107)b, where scrambled *wh*-phrases bind two gaps, have been analyzed as parasitic gap constructions (cf. [Hoji 1985] and [Saito 1989] for Japanese, [Lee 1989a] for Korean), leading to the conclusion that scrambling is an instance of A'-movement.<sup>13,14</sup> If this is indeed the case, then it poses a problem for the claim that scrambling is in principle A-movement. In this section, however, I argue that the so-called parasitic gaps in this language are not real parasitic gaps, but that they are empty pronouns bound by scrambled phrases, i.e. instances of creation of pronoun binding by scrambling. Main evidence for this argument comes from the absence of subjacency effects in licensing the gaps at issue.

- (106) a. ??Minho-ka [nwukwunka-ka **gap**<sub>i</sub> yespo-ki ceney]  
 Minho-NOM someone-NOM peep into-NMZ before  
**etten pyenci**<sub>i</sub>-lul ccieplyess-ni  
 which letter-ACC tore up-QM  
 'Which letter did Minho tear up before anyone could peep into it?'
- b. **etten pyenci**<sub>i</sub>-lul Minho-ka [nwukwunka-ka **gap**<sub>i</sub> yespo-ki ceney] t<sub>i</sub>  
 ccieplyess-ni
- c. Minho-ka **etten pyenci**<sub>i</sub>-lul [nwukwunka-ka **gap**<sub>i</sub> yespo-ki ceney] t<sub>i</sub>  
 ccieplyess-ni

<sup>12</sup>(105) is slightly marginal, as indicated by '?,' which is probably due to the awkwardness of this construction in a null context. However, the contrast in acceptability between (104) and (105) is clear. Furthermore, (105) sounds perfectly natural in a proper discourse context. Consider the following conversation:

A: seysang-ey [e<sub>i</sub> casin-ul miwueha-nun] salam<sub>i</sub>-i eti iss-e  
 on earth self-ACC hate-REL person-NOM where exist-QM  
 'Where on earth is the person who hates himself?'

B: **John**<sub>i</sub>-ul **casin**-i t<sub>i</sub> miwuehanun-kel  
 John-ACC self-NOM hate-assertive  
 'John hates himself.'

The order given in (B), which is the same as (105), is perfectly natural as a response to an utterance (A).

<sup>13</sup>Somehow (106)a sounds better than (107)a although the gap in question and its antecedent are in the same configuration in both sentences.

<sup>14</sup>Larson (to appear), using the "Light Predicate Raising" idea, claims that Adjunct Parasitic Gaps result from complex predicate formation (or argument sharing), and do not have to do with A'-dependencies crucially.

- (107) a. ?\*[ $t_i$  hanpen **gap**; po-n] salam<sub>i</sub>-i **nwukwu**<sub>j</sub>-eykey panhayss-ni  
 once see-REL person-NOM who-DAT had a crush on-QM  
 lit. ‘Who<sub>j</sub> did the person who saw him<sub>j</sub> once have a crush on?’

b. **nwukwu**<sub>j</sub>-eykey [ $t_i$  hanpen **gap**; po-n] salam<sub>i</sub>-i  $t_j$  panhayss-ni

### No subjacency effects

The subjacency test proves that the gaps in question in (106) and (107) are not real parasitic gaps or at least differ from parasitic gaps in English.

[Chomsky 1986] notes that the distribution of parasitic gaps is sensitive to subjacency, as illustrated by the contrast in grammaticality between (108) and (109):

- (108) \*this is the man John interviewed  $t_i$  before reading the book [you gave to **pq<sub>i</sub>**]

- (109) ?this is the man John interviewed  $t_i$  before hearing about the plan [to speak to **pg<sub>i</sub>**]

The parasitic gap is contained in a relative clause in (108), and in a complement clause of the head noun *plan* in (109).<sup>15</sup> Considering that a relative clause is a strong island while a complement clause of a noun is a weak island for subjacency, the contrast in grammaticality between (108) and (109) is easily explained if we assume that the distribution of parasitic gaps is sensitive to subjacency.

As will be discussed in Ch. 6, islandhood of various clauses for scrambling in Korean is generally weaker than that for wh-movement in English. Nevertheless, relative clauses are clear islands for scrambling (cf. [Fukui 1988] for similar behavior in Japanese). Applying the subjacency test to a sentence in which the gap at issue is contained inside two relative clauses, we find that the gaps in question do not obey subjacency (cf. [Saito 1992] for Japanese), however. Consider (110).

- (110) John-i etten pyenci<sub>i</sub>-lul [<sub>REL1</sub>  $t_k$  [<sub>REL2</sub>  $t_j$  **gap**<sub>i</sub> ponay-n] yeca<sub>j</sub>-lul  
 John-NOM which letter-ACC send-REL] woman-ACC  
 ciltwuha-nun] caki-pwuin<sub>k</sub>-eykey  $t_i$  poye cwuess-ni  
 be-jealous-of-REL] self’s wife-DAT showed-QM  
 lit. ‘Which letter<sub>i</sub> did John show to his wife who is jealous of the woman  
 who sent  $t_i$ ?’

In (110), the gap in question ‘ $t_i$ ’ is contained in relative clause REL2, which is in turn contained in another relative clause REL1. Still the sentence is grammatical, indicating that the gaps in question are not sensitive to islands, and therefore they are not of the same nature as parasitic gaps in English.

<sup>15</sup>Note that in both cases, the clauses containing the parasitic gaps are contained in another island, an adjunct clause. Since a parasitic gap typically occurs in an island to begin with, having another island aside from the island which contains the parasitic gap is crucial in testing whether a parasitic gap obeys subjacency.

## Apparent parasitic gaps as empty pronouns

Given the fact that the distribution of apparent parasitic gaps in Korean differs from that of parasitic gaps in English, and that Korean is a ‘pro-drop’ language which allows an object or PP to be dropped in addition to a subject, it seems reasonable to conclude that the gaps in question are empty ‘pro.’ In fact, creation of pronoun binding by scrambling discussed in section 2.2.1 is in favor of this conclusion: The gaps in question in (106)b,c, (107)b, and (110) are empty pronouns bound by the scrambled phrase in A-positions.

I conclude this section by giving one more piece of evidence that the gaps at issue are empty pronouns rather than parasitic gaps. The gaps can be discourse bound, besides co-varying with the potential antecedent gap. Discourse boundness is clearly a characteristic of a pronoun, not a parasitic gap.<sup>16</sup> Consider (107)b, which is repeated here as (111).

- (111) **nwukwu**<sub>j</sub>-eykey [t<sub>i</sub> hanpen **gap**<sub>j</sub> po-n] salam<sub>i</sub>-i t<sub>j</sub> panhayss-ni  
who-DAT once see-REL person-NOM had a crush-QM  
‘Who<sub>j</sub> did the person who saw him<sub>j</sub> once have a crush on t<sub>j</sub>?’  
‘Who<sub>j</sub> did the person who saw someone<sub>k</sub> once have a crush on t<sub>j</sub>?’

In (111), the referent of the gap in question ‘gap<sub>j</sub>’ may be consistent with that of the scrambled argument *nwukwu-eykey* (bound reading), or it could refer to an entity in the discourse such as *John, Mary*, etc.

## 2.3 Previous analyses

In this section, I review three previous analyses of scrambling. They include [Mahajan 1990], [Webelhuth 1989], [Webelhuth 1992], and [Saito 1992]. These analyses are divided into two groups depending on how they capture A- and A'-movement characteristics of scrambling: Mahajan proposes that the landing site of scrambling can be strictly divided into A-position and A'-position and that A- and A'-movement properties of scrambling are due to the landing site being an A- and A'-position, respectively. On the other hand, Webelhuth and Saito propose that there is a third position type which shares properties of both A- and A'-position. I will argue that none of these analyses can successfully accommodate the Korean data discussed in this chapter.

### 2.3.1 Mahajan 1990

[Mahajan 1990] attempts to completely reduce scrambling to the standard types of movement. That is, it is either A-movement derived by substitution to SPEC positions, or A'-movement derived by adjunction to a maximal projection. I briefly summarize his analysis, and discuss some inadequacies of his analysis with respect to his own data and the data discussed in this chapter.<sup>17</sup>

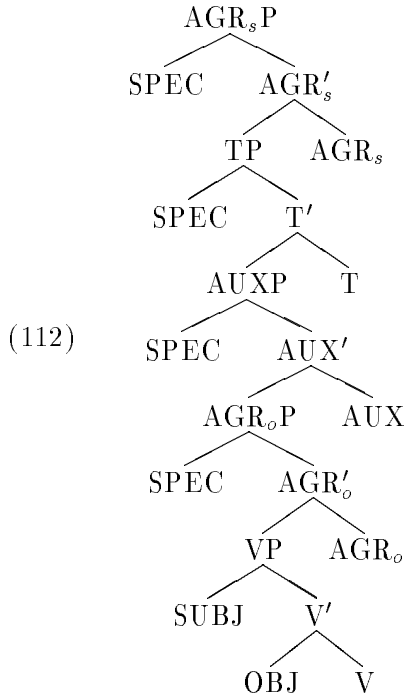
Assuming a highly articulated phrase structure along the lines of [Pollock 1989] and [Chomsky 1991], as in (112), [Mahajan 1990, 14] argues that scrambling is a non-unitary

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<sup>16</sup>I am grateful to Sabine Iatridou for pointing this out to me.

<sup>17</sup>[Webelhuth 1992] gives a detailed critique of Mahajan’s analysis.

phenomenon: It is A-movement when it is substitution into the SPEC positions of functional categories, while it is A'-movement when it is an adjunction to maximal projections.<sup>18</sup>



The main motivation for positing such an elaborate phrase structure lies in the fact that Hindi has both subject agreement and direct object agreement, as illustrated in (113) and (114), respectively.

(113) raam roTii khaataa thaa  
 Ram-m bread-f eat-m (imp.) be-m (pst.)  
 ‘Ram (habitually) ate bread.’

(114) raam-ne roTii khaayii thii  
 Ram-m bread-f eat-f (perf.) be-f (pst.)  
 ‘Ram had eaten bread.’

In addition to the morphological motivation based on agreement, Mahajan justifies the SPEC positions by arguing that scrambling to a SPEC position is case-driven. That is, NPs that are not structurally case marked VP internally must scramble to a SPEC position where they receive case via SPEC-HEAD agreement, cf. [Mahajan 1990, 71].<sup>19</sup> Under the system based on such a phrase structure, multiple scrambling of A-movement properties

<sup>18</sup>[Mahajan 1990, 11] uses the term L-related/non-L-related position instead of A-/A'-position, and argument shift/adjunction to XP instead of A/A'-movement. Since the distinction does not affect the discussion below, I continue to frame it in terms of the A-/A'-distinction for expository convenience.

<sup>19</sup>According to Mahajan, in Hindi structural case assigned by SPEC-HEAD agreement is not lexically case-marked. An NP which is marked with an overt particle such *-ne* and *-ko* is lexically case-marked.

is possible due to the availability of numerous SPEC positions, and that of A'-movement properties, due to multiple adjunctions.

Despite the conceptual elegance of the claim that scrambling can be identified with either substitution or adjunction, which in turn corresponds to the standard A- or A'-movement, his system has some problems. Consider (115) and (116) ((23) and (25) in [Mahajan 1990, 25-26]).

- (115) \* **uskii** bahin **sab-ko** pyaar kartii thii  
 their sister-f (SUB) everyone (DO) love do-f (imp.) be-f (pst.)  
 'Their sister loved everyone.'

- (116) **sab-ko**<sub>i</sub> **uskii** bahin t<sub>i</sub> pyaar kartii thii.

The verb in (115) is imperfective, and the sentence shows subject agreement. Therefore the subject must have been scrambled to the SPEC AGR-s position to be assigned case, without disrupting the base order. Since there is no more SPEC position available to the left of SPEC AGR-s, scrambling of the direct object *sab-ko* across the subject occupying SPEC AGR-s position is predicted to be A'-movement. Contrary to this prediction, however, scrambling of the object as in (116) exhibits an A-movement property: The scrambled object *sab-ko* 'everyone-DO' which is a quantifier binds the pronoun contained in the subject phrase.

Given this problem, Mahajan (p.c.) suggests two possible ways out. One is to generate an empty SPEC position above SPEC AGR-s, which would be headed by an empty head which can license an inherent case. The other is to case mark the subject lower down in the tree, say SPEC AGR-o position, which can be motivated by the fact that in Hindi subject and object agreement are identical in morphology and in complementary distribution, and therefore subject and object are structurally case marked from the same position. Whichever solution we adopt, however, it contradicts the main spirit for positing extra functional projections. As for the first option of positing an empty SPEC headed by an empty head, it doesn't have any morphological justification, and more importantly, is not independently motivated. As for the second option, if both subject and object are case assigned from the same position, then it is not clear why the multiple functional projections are necessary to begin with.

In addition to the problem discussed above, Mahajan needs a stipulation which vitiates the association of the A/A'-property of scrambling with substitution/adjunction distinction. Consider the examples below, which are (45) and (46) in [Mahajan 1990, 34], respectively.

- (117) raam-ne<sub>i</sub> mohan-ko<sub>j</sub> apnii<sub>i/j</sub> kitaab IO<sub>Taaii</sub>  
 Ram(SUB) Mohan(IO) self's book-f(DO) return-perf-f  
 'Ram<sub>i</sub> returned self's<sub>i/j</sub> book to Mohan<sub>j</sub>.'

- (118) raam-ne<sub>i</sub> [apnii<sub>i/\*j</sub> kitaab]<sub>k</sub> mohan-ko<sub>j</sub> t<sub>k</sub> IO<sub>Taaii</sub>  
 Ram(SUB) self's book-f(DO) Mohan(IO) return-perf-f

(117) is in the base order, and (118) is its scrambled counterparts. In (117), the reflexive pronoun *apnii* contained in the DO can be bound either by the subject or by the IO. Scrambling of the DO across the IO, as in (118), destroys the binding by IO, while maintaining the binding by subject. Destruction of binding in (118), however, is not expected under

his analysis. In principle, adjunction to any intermediate functional projection should be possible — the order in (118) may have been derived by adjunction (as well as substitution) of the DO to an intermediate function projection — therefore we never expect scrambling to destroy a binding relation which obtains in the base order. Noting this shortcoming of his analysis, [Mahajan 1990, 35 (fn. 18)] stipulates that (leftward) adjunction to projections lower than IP is ruled out. A consequence of this stipulation, however, is that scrambling beyond IP is always A'-movement (adjunction), and scrambling within IP is always A-movement (substitution), which makes the substitution/adjunction distinction redundant as a tool to distinguish the two types of scrambling.

Even though Mahajan does not make it explicit, there is some indication in his data that distribution of reconstruction effects is not so much due to the nature of the position to which scrambling takes place as due to the grammatical function of the binder, i.e. binding by a subject (cf. section 2.2 for Korean), for which he needs another stipulation. Consider (119), which is another scrambled counterpart of (117), which is (47) in [Mahajan 1990, 35].

(119) [apnii<sub>i</sub>/<sub>\*j</sub> kitaab]<sub>k</sub> raam-ne<sub>i</sub> mohan-ko<sub>j</sub> t<sub>k</sub> IO Taaii  
 self's book-f(DO) Ram(SUB) Mohan(IO) return-perf-f

In (119), the direct object containing the reflexive pronoun has scrambled across the subject. In this case, the subject still binds the reflexive pronoun despite the fact that the latter is not c-commanded by the former. But the binding by the IO is destroyed. For the binding by the subject, the scrambled DO has to undergo reconstruction. But this reconstruction cannot be to its D-structure position, otherwise destruction of binding by the IO is unaccounted for. To explain the binding fact in (117)c, Mahajan assigns it the derivation (120), and adds another stipulation that reconstruction is possible only to a variable position.

(120) [apnii<sub>i</sub>/<sub>\*j</sub> kitaab]<sub>k</sub> raam-ne<sub>i</sub> t'<sub>k</sub> mohan-ko<sub>j</sub> t<sub>k</sub> IO Taaii

In (120), the trace of the scrambled object indicated by 't<sub>k</sub>' is an A-bound trace (anaphor), and the intermediate trace 't'<sub>k</sub>' is an A'-bound trace (variable). Therefore the scrambled DO reconstructs to the position occupied by t'<sub>k</sub>, and this is why binding by the IO is impossible even after reconstruction.

To summarize so far, Mahajan's analysis of scrambling has the following problems:

- Despite the existence of multiple SPEC positions, his system cannot accommodate the A-movement property of scrambling in which an object has scrambled across a subject in SPEC IP, cf. (116).
- To capture the fact that scrambling to a position lower than SPEC IP does not license reconstruction, Mahajan stipulates that adjunction is possible only to a maximal projection higher than IP. This stipulation vitiates the association of substitution/adjunction with A/A'-type scrambling movement, which had given conceptual elegance to his system.
- To explain the limited distribution of reconstruction effects in examples such as (119), Mahajan assumes that scrambling of a DO to sentence initial position in a ditransitive



sentence has to be in two steps: scrambling first to the position immediately preceding the IO (A-movement), and then scrambling to sentence initial position preceding the subject (A'-movement). And he stipulates that reconstruction is possible only to a variable position.

I now turn to data in Korean which Mahajan's system cannot accommodate. In section 2.2.5, I discussed some data involving long distance scrambling out of a controlled clause. The examples are repeated here as (121) and (122).

- (121) a. na-nun **enu haksayng-eykey-na** [PRO caki-uy immwu-lul cwungsilhi  
I-TOP every student-DAT-UQ self-GEN duty-ACC faithfully  
hala-ko] seltukhayssta  
do-COMP persuaded  
'I persuaded every student to do his duty faithfully.'
- b. ?na-nun [caki-uy immwu]-lul **enu haksayng-eykey-na** [PRO t<sub>j</sub> cwungsilhi  
hatolok] seltukhayssta
- (122) a. na-nun **enu haksayng-eykey-na** [PRO ku-uy pwumo-lul  
I-TOP every student-DAT-UQ he-GEN parent-ACC  
manna pokeyssta-ko] yaksokhayssta  
come and visit-COMP promised  
'I promised every student to visit his parents.'
- b. \*na-nun [ku-uy pwumo-lul]; **enu haksayng-eykey-na** [PRO t<sub>j</sub>  
manna pokeyssta-ko] yaksokhayssta

The matrix dative argument which is a quantifier binds the pronoun contained in the embedded object in both (121)a and (122)a, which are in the base order. Scrambling the embedded object across the matrix dative argument, as in (121)b and (122)b, results in difference in grammaticality: Binding is retained in (121)b (reconstruction), while it is destroyed in (122)b. This contrast in grammaticality, however, cannot be explained in Mahajan's system. If we suppose that any scrambling beyond the IP in which the scrambled element originates is A'-movement, then both examples are predicted to be equally good since the scrambled phrase can undergo reconstruction. But (122)b is ungrammatical. The landing site of scrambling in these examples may be interpreted in the following two ways: Suppose that scrambling to any position lower than SPEC IP is always A-movement, and scrambling to any position higher than SPEC IP, A'-movement, regardless of whether it is local or long distance scrambling. Then both examples are predicted to be equally bad, since the scrambled elements cannot reconstruct. Nevertheless (121)b is grammatical.

On the other hand, my analysis which attributes reconstruction effects in scrambling to special status of subject in binding adequately captures the contrast, as explained in detail in section 4.4. Despite their identical configuration, the crucial difference between (121)a and (122)a is that the embedded subject in (121)a is controlled by the matrix dative argument, while the embedded subject in (122)a is controlled by the matrix subject. Therefore, in (121)a, the element which binds the pronoun contained in the embedded object is the embedded PRO subject rather than the matrix dative argument. Since binding by a subject

at D-structure retains through all levels of representation, the binding is still acceptable after scrambling, as in (121)b. In (122)a, the binder is the matrix dative argument and the binding is destroyed after scrambling.

### 2.3.2 Webelhuth 1989

[Webelhuth 1989] assumes that scrambling is adjunction to either IP or to VP. Noting that scrambling in German has properties of both A- and A'-movement, he proposes that scrambling is movement to a mixed position which is neither an A- or an A'-position.

The main evidence supporting the claim that scrambling is movement to a mixed position comes from examples in which a scrambled element exhibits properties of A- and A'-movement at the same time. Consider (123) below:

- (123) Peter hat [**jeden Gast**]<sub>i</sub> [ohne e<sub>i</sub> anzuschauen] **seinem** Nachbarn t<sub>i</sub> vorgestellt  
 Peter has every guest without to-look-at his neighbor introduced  
 'Peter introduced **every guest** to **his** neighbor without looking at **him**.'

In (123), the scrambled phrase *jeden Gast* can bind the pronoun *seinem* (A-movement) and can license the parasitic gap in the adjunct clause (A'-movement) simultaneously. On the basis of this example, Webelhuth concludes that a scrambled phrase occupies a third type of position, namely, a *mixed position*, which shares the properties of both A- and A'-position.

The analysis of scrambling as movement to a mixed position makes a clear prediction with respect to reconstruction. That is, reconstruction is always optional, and therefore scrambling can only enhance the grammaticality of the sentence in the base order. However, this prediction is not borne out when we consider the Korean data discussed in the previous section: Reconstruction is obligatory when the binder is a subject. Otherwise, reconstruction is impossible. In fact, [Lee and Santorini 1991] and [Frank et al. 1992] show that German patterns exactly like Korean with regard to the two types of binding which I examined in this thesis. Therefore, Webelhuth's analysis is not adequate for German, either.

Aside from the problem involving reconstruction discussed above, my analysis shares the following properties with Webelhuth's.

- The property of the landing site of long distance scrambling is no different from that of local scrambling.
- An adjoined position created by scrambling can have properties of an A-position, contrary to the standard assumption that adjoined positions are A'-positions.

In fact, the following quote from [Webelhuth 1989, 412-414] has led me to propose the adjoined argument hypothesis which derives the second property above.

The binding theory in Chomsky is stated as a theory of A-binding, i.e. it defines binding constraints between two argument positions ... Since the notion of A-binding is basic in this system, it categorizes argument positions against all others, in particular, against both operator and adjoined positions ... As we have seen above, this classification of positions is too coarse since it cannot express the

correct generalization that ...adjoined positions pattern with both. The latter fact went unnoticed probably because the relevant data in its support are only available in a language with more overt adjunction than English, the language Chomsky's BT was based on ...The theory resulting from the two assumptions that we have just spelled out leaves room for another type of position, namely one that is neither an argument position nor an operator position, i.e. mixed position ...

I believe that Webelhuth's reasoning in the above quote is right. Namely, A-movement properties of scrambling are due to the availability of an adjoined position as an A-position in scrambling languages, rather than due to the multitude of functional projections.

### 2.3.3 Saito 1992

[Saito 1992] notes the following facts with regard to scrambling in Japanese.

- Local scrambling creates pronoun binding and anaphor binding: A-movement
- Local scrambling exhibits reconstruction effects for anaphor binding, and strong crossover effects: A'-movement
- Long distance scrambling always behaves like A'-movement

From the behavior of local scrambling, he concludes that scrambling is to a non-operator A'-position, the properties of which are identical to a mixed position in [Webelhuth 1989] for the present purposes: Both binding and reconstruction are possible from such a position.

To accommodate the pure A'-movement properties of long distance scrambling, he argues that a non-operator A'-position cannot be licensed at LF, following [Tada 1990].<sup>20</sup> Instead, one of the following three things has to happen to the position at LF: (a) the position completely disappears (i.e. reconstructs), (b) it is reanalyzed as an operator position, (c) it is reanalyzed into an A-position. When a scrambled position is reanalyzed as an A-position, it has to form an A-chain with its trace, which obeys the generalization in (124), cf. [Saito 1992, 100].

- (124) Each link of an A-chain must be 0-subjacent. (i.e. No barrier can intervene between two members of a single A-chain.)

The pure A'-movement properties of long distance scrambling follow from the fact that a long distance scrambled element out of a finite clause can never form an A-chain with its trace due to the existence of a barrier between the two, i.e. the intervening CP.

Saito's analysis makes exactly the same prediction as Webelhuth's; namely, reconstruction is optional and hence scrambling only improves the grammaticality of a sentence. However, the fact is that reconstruction is obligatory when the binder is a subject. Otherwise reconstruction is impossible, and therefore a grammatical sentence in its base order can become ungrammatical through scrambling.

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<sup>20</sup>Contrary to Saito's claim that long distance scrambling is always A'-movement, [Yoshimura 1990] notes that long distance scrambling behaves identically to local scrambling with regard to pronoun binding by a quantifier. [Ueyama 1990] also notes that long distance scrambling may create anaphor binding depending on the property of the matrix verb.

In summary, none of the analyses discussed here have correctly characterized the crucial parameter for determining the reconstruction effects in binding, namely the grammatical function of the binder (subject). These analyses capture A- and A'-movement characteristics of scrambling in the language under their scrutiny differently: Mahajan proposes that landing site of scrambling can be strictly divided into A-position and A'-position and that A- and A'-movement properties of scrambling are due to the landing site being an A- and A'-position, respectively. As discussed, this proposal needed two major stipulations concerning adjunction and reconstruction sites to capture the limited distribution of reconstruction effects, let alone the inadequacy of the system in accounting for A-movement properties of scrambling. On the other hand, Webelhuth and Saito propose that there is a third position type which shares properties of both A- and A'-position. Under such an analysis, sentences can only be improved by scrambling. New binding can always be created by exploiting A-movement, while old binding may always be retained through A'-movement. However, the data involving binding by an object show that sentences can become ungrammatical by scrambling.

## Chapter 3

# Scrambling and Scope

This chapter examines the interaction between scrambling and scope interpretations of wh-phrases and negative polarity item *amwu N* ‘any N’. As in raising (section 3.1), scrambled elements optionally reconstruct for scope interpretations and undergo further LF-movement (section 3.2 and section 3.3). Scope reconstruction in scrambling has an important implication for the theory of scrambling, namely, that scrambling involves movement, not base-generation.

### 3.1 A/A'-distinction and scope

While A'-moved elements reconstruct for binding, as discussed in Ch. 2, A-moved elements reconstruct for scope interpretation.

#### 3.1.1 Scope reconstruction

As discussed in [May 1977], a quantifier which is moved to an A-position optionally undergoes reconstruction (or quantifier lowering) for its scope interpretation. Consider (125).

(125) **Someone<sub>i</sub>** is likely [<sub>IP</sub>  $t_i$  to win the game]

In (125), the quantified NP *someone* may take scope over the matrix verb, which presupposes that there is a particular individual (who is talked about) who is likely to win the game. Or it may be in the scope of the matrix verb with no such presupposition. [May 1977] accounts for this ambiguity by assuming that in LF *someone* may raise and adjoin to the matrix IP for the wide scope reading, or it may reconstruct to its D-structure position (and then adjoin to the embedded IP) for the narrow scope reading.

Scope reconstruction as a diagnostic for A-movement implies that it is distinct from reconstruction for binding which is an A'-movement characteristic, cf. Ch. 2. However, [Cinque 1990, 13] claims that the two types of reconstruction pattern together. Below I attempt to justify the view that scope reconstruction and reconstruction for binding are distinct, drawing on [Williams 1986]. I also argue that the scope ambiguity in (126), which can be taken as evidence that an A'-moved element undergoes scope reconstruction, has an explanation which does not involve reconstruction.

- (126) **How many patients** do you think that **every doctor** in the hospital can visit in an hour?

### Scope reconstruction vs. Reconstruction for binding

Consider (127)a and its topicalized counterpart (127)b, which are (30)b and (30)a in [Williams 1986, 275], respectively.

- (127) a. I think Bob didn't see **many of my friends**.  
b. **Many of my friends**, I think Bob didn't see.

According to Williams, (127)a is ambiguous with regard to the interpretation of the numeral quantifier *many of my friends* and the negation, while there is no such ambiguity in (127)b. If an A'-moved element reconstructs for scope interpretations, the absence of scope ambiguity in (127)b is unexpected. Moreover, the absence of scope reconstruction effects in (127)b contrasts with the presence of the reconstruction effects for binding in topicalization, as in (128)b.

- (128) a. I think **Bob** didn't see a picture of **himself**.  
b. [A picture of **himself**]<sub>i</sub>, I think **Bob** didn't see t<sub>i</sub>.

On the basis of the contrast in reconstruction effects between (127) and (128), we expect that an A'-moved element containing both an anaphor and a quantifier will exhibit reconstruction effects with regard to anaphor binding, but not with regard to scope interpretation. This expectation is borne out, as illustrated in (129):

- (129) [**Many pictures of himself**]<sub>i</sub>, I think Bob<sub>j</sub> didn't see t<sub>i</sub>.

In (129) *himself*, which is contained in the moved phrase, is contrued with *Bob*, indicating that there is reconstruction for binding. However, the narrow scope reading of the quantified expression *many pictures* is not available, suggesting that there is no reconstruction for scope.

Another fact which indicates that reconstruction for scope and binding is distinct involves the interpretation of the quantifier *each*. As [Kroch 1974] observes, the quantifier *each*, unlike *every* and *all*, occurs most naturally only where there is a potential scope ambiguity to be resolved, i.e. it must distribute over something. This is illustrated by the difference in acceptability for sentences in (130) (taken from [Williams 1986, ex. (30), p. 275]).

- (130) a. ?**Each patient** left (cf. All the patients left.)  
b. **Each patient** saw **his** own chart.  
c. **Each patient** saw **a different doctor**.

In (130)b, the quantifier binds the pronoun whose reference varies in accordance with the subject of the sentence; (130)c contains an indefinite subordinate to *each* whose reference varies as the subject varies. The interesting fact about (130)b and (130)c is that they involve fundamentally different relations: The former involves a binding relation between a quantifier and a pronoun in A-positions, while the latter involves a scope relation between

two quantifiers, *each* and the indefinite. If reconstruction effects for scope interpretation and binding involve the same principle/mechanism, then we expect that the binding relation in (130)b and the scope relation in (130)c remain the same after the same kind of movement. This expectation, however, is not borne out, as illustrated by the contrast in grammaticality between (131)a and (131)b (ex. (29)a and (29)b in [Williams 1986, 275], respectively):

- (131) a. What **each patient** saw was **his** own chart.  
           (before movement: **Each patient** saw **his** own chart.)  
       b. \*What each patient saw was a different doctor.  
           (before movement: Each patient saw a different doctor.)

The pronoun binding relation is maintained in (131)a, while the quantifier scope relation is destroyed in (131)b.

Another example, which indicates that clefting (A'-movement) does not maintain the scope interpretation(s) which exists in the canonical sentence, is given in (132) (taken from ex. (46) in [Carlson 1977]).

- (132) a. **Everyone** ate **a tomato**.  
       b. It was **a tomato** that **everyone** ate.

(132)a is ambiguous between “Each person ate his/her tomato” and “A tomato is shared by all” (132)b, however, has only the reading that a tomato is shared by all.

The contrast in acceptability between (130)c and (131)b, and the lack of a reading in (132)b which is available in (132)a suggest that scope reconstruction and reconstruction for binding are distinct.

### Reconstruction vs. QR

Consider (133) and its Italian counterpart in (134), which is taken from [Kroch 1989] and [Cinque 1990, 12], respectively.

- (133) **How many patients** do you think that **every doctor** in the hospital can visit in an hour?
- (134) **Quanti pazienti**<sub>i</sub> pensi            che **ognuno dei medici**    riesca a visitare t<sub>i</sub>  
       how many patients do you think that every one of the doctors can    visit  
       in un'ora  
       in an hour  
       ‘How many patients do you think that every one of the doctors can visit in an hour?’

In both (133) and (134), the moved wh-phrases can have scope either over or under the universal quantifier phrases. That is, the questions can be satisfied either by a family of answers, like *I think that Dr. Rossi can visit 5 in one hour, Dr. Bianchi 7, and so on*, or by just one number, like *Only 7*. [Giorgi and Longobardi 1991, 89-91] explain the ambiguity of such sentences by positing the optional reconstruction of the moved wh-phrase *how many patients/quantı pazienti* to their D-structure position (cf. [Kroch 1989] for a detailed explanation). If this account is correct, it constitutes evidence against the view that scope reconstruction is particular to A-movement.

However, I argue that the scope ambiguity in examples like (133) and (134) can have an alternative account in terms of QR of the embedded quantifiers to the matrix clause, following the suggestion of Anthony Kroch (p.c.), and that the QR account is better motivated than the reconstruction account. First, there are some data which indirectly support the QR account. They include the cases in which a quantifier in an embedded clause takes its scope over an in-situ matrix element.<sup>1</sup>

Consider (135), which is taken from [Fodor and Sag 1982, ex. (49), p. 367].

- (135) This producer **believes** that **every** actor in our company is too fat to appear in public.

According to Fodor and Sag, the universal quantifier *every actor* in the embedded clause can take scope over the matrix verb *believe*, even though the more natural reading is the other way around. If we change the quantifier to *each*, however, the wide scope reading of the quantifier is favored, as illustrated by (136), which is [Fodor and Sag 1982, ex. (50), p. 367].

- (136) This producer **believes** that **each** actor in our company is too fat to appear in public.

More importantly, a quantifier in an embedded clause interacts with a quantifier in the matrix clause, as illustrated in (137).<sup>2</sup>

- (137) **Someone** thinks **every** candidate has a chance.

In (137), the wide scope reading of *every* is possible, especially with parallel stress on the two quantifiers (Anthony Kroch and Michael Hegarty (p.c.)). Again, if we change *every* to *each*, as in (138), the wide scope reading of *each* becomes more prominent.<sup>3</sup>

- (138) **Someone** thinks **each** candidate has a chance.

There are apparently problematic data for the claim that the wide scope reading of *every* in (126) is due to QR of *every*, not due to reconstruction of the A'-moved phrase *how many patients*. Consider the Italian example (139) taken from [Cinque 1990, 12].

- (139) **Quanti pazienti**<sub>i</sub> pensano che **ognuno** dei medici riesca a vusutarli;  
 how many patients think that every one of the doctors can visit them  
 in un'ora?  
 in one hour  
 'How many patients think that every one of the doctors can visit them in an hour?'

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<sup>1</sup>This is contrary to [Aoun and Hornstein 1985], who argue that any finite clause is a scope island.

<sup>2</sup>I am grateful to Robert Frank, Michael Hegarty, Caroline Heycock and Antony Kroch for giving me scope judgments on various examples in this section.

<sup>3</sup>Angelika Kratzer (in the talk given at Penn in November 1992) argues that the scope interaction between the matrix verb and the quantifier in the embedded clause in examples like (135) and (136) is distinct from scope interaction between two quantifiers. Instead, the scope ambiguity in (135) and (136) hinges on the presupposition in the model. Even if Kratzer's claim is correct, scope interaction between two quantifier NPs in examples like (137) and (138) indicates that QR from the embedded clause to the matrix clause is possible.



According to Cinque (and Longobardi), (139) is unambiguous: The wide scope reading of the universal quantifier *ognuno* is not available. In (140), which is an English counterpart of (139), the wide scope reading of the embedded quantifier *every heart surgeon* is hardly available.<sup>4</sup>

- (140) **How many patients** will say **every heart surgeon** in the hospital is the best one around?

If a quantifier in an embedded clause can raise to the matrix clause, as I argued for the scope ambiguity of (133) and (134), the absence of the wide scope reading of the embedded quantifiers in (139) and (140) is rather surprising. The asymmetry in scope interpretations between (133) and (134) on the one hand, and (139) and (140) on the other, seems to favor the reconstruction account. However, below I give [May 1985]’s account for such contrasts, which does not involve reconstruction.

Consider the examples in (141) and (142).

- (141) a. **What**<sub>i</sub> did **everyone** bring t<sub>i</sub>?  
 b. **Who**<sub>i</sub> t<sub>i</sub> brought **everything**?
- (142) a. **Who**<sub>i</sub> did **everyone** talk to t<sub>i</sub>?  
 b. **Who**<sub>i</sub> t<sub>i</sub> talked to **everyone**?

[May 1985] observes that the (a) sentences, with a quantified NP in subject position and wh-trace in object position, are ambiguous, having either a “single-question” or “family-of-questions” reading. On the other hand, the (b) sentences, with a quantifier in object position and wh-trace in subject position, are unambiguous, having only a single-question reading. May analyzes the results in terms of a path theory of scope relations. May’s account rests on the following three points:

- (143) (i) A’-moved elements generate a path to their trace.  
 (ii) Paths may not cross.  
 (iii) A “family-of-questions” reading is possible for WH and Q only when Q adjoins to the highest S in the S’ containing WH-trace.

Given (143)i – (iii), a family-of-questions reading will be possible in sentences like (141)a and (142)a in which Q c-commands WH in underlying form. The relevant LF representation involves no crossing paths, as schematically represented in (144):

- (144) [S’ WH<sub>i</sub> [S Q<sub>k</sub> [S ...e<sub>k</sub> ...t<sub>i</sub> ...]]]

However, when WH c-commands Q in underlying form, as in (141)b and (142)b, the representation necessary for a family-of-questions reading will involve crossing paths:

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<sup>4</sup>It is worth noting that if we use the quantifier *each* instead of *every* in (140), the wide scope reading of the quantifier *each* becomes clear, as shown in (i).

i. **How many patients** think **each** of the heart surgeons is the best?

(145) [S' WH<sub>i</sub> [S Q<sub>k</sub> [S ...t<sub>i</sub> ...e<sub>k</sub> ...]]]

No “family-of-questions” reading will thus be possible for such sentences. The only well-formed LF-representations for (141) and (142)b will be ones in which the paths are completely non-intersecting:

(146) [S' WH<sub>i</sub> [S t<sub>i</sub> [VP Q<sub>k</sub> [VP ...e<sub>k</sub> ...]]]]

The quantifier/wh-phrase configuration in (134) and (133), according to May’s analysis, is represented in (147), and that of (139) and (140) is represented in (148).

(147) [S' WH<sub>i</sub> [S Q<sub>k</sub> [S<sub>matrix</sub> ...[S<sub>embedded</sub> e<sub>k</sub> ...t<sub>i</sub> ...]]]]]

(148) [S' WH<sub>i</sub> [S<sub>matrix</sub> t<sub>i</sub> [S<sub>embedded</sub> [VP Q<sub>k</sub> [VP ...e<sub>k</sub> ...]]]]]]]

In (147), the paths for the wh-phrase and the quantifier do not cross, the quantifier is adjoined to the matrix clause to which the wh-phrase has moved, and the “family-of-questions” reading is available. On the other hand, in (148), the quantifier phrase is not adjoined to the matrix clause which contains the trace of the moved wh-phrase, and therefore the “family-of-questions” reading is impossible.<sup>5</sup>

To summarize, scope reconstruction is independent of reconstruction for binding: The former is an A-movement characteristic, and the latter, an A'-movement characteristic.

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<sup>5</sup>[Sloan 1991, 225] gives the following list of examples, which contradict both the reconstruction account and May’s account for the contrast in scope ambiguity between (133) and (140).

- a. **Who**<sub>i</sub> did **everyone** see t<sub>i</sub>?
- b. **Who**<sub>i</sub> do you think **everyone** saw t<sub>i</sub>?
- c. #**Who**<sub>i</sub> does **everyone** think you saw t<sub>i</sub>?
- d. #**Who**<sub>i</sub> does **everyone** think t<sub>i</sub> saw you?
- e. #**Who**<sub>i</sub> do you think **everyone** saw Mary kiss t<sub>i</sub>?
- f. #**Who**<sub>i</sub> did **everyone** see Bill’s picture of t<sub>i</sub>?

In each of these examples, *everyone* c-commands the wh-trace, and therefore *everyone* must be able to take scope over the wh-phrase under the reconstruction account. Furthermore, since *everyone* in each example will be able to adjoin to the matrix IP without forming a crossing path, the wide scope reading of the quantifier should be possible. However, only (a) and (b) are ambiguous, and (c)–(f) allow only the reading where *who* has scope over *everyone*. Sloan explains this contrast by hypothesizing (g) below:

- g. A quantifier can be interpreted as wide w.r.t. a wh-term in matrix COMP if the quantifier
  - (i) c-commands the wh-trace and (ii) is within the governing category of the wh-trace.

Applying (g) to the examples (a)–(f), only in (a) and (b) is the quantifier *everyone* within the governing category (for the purpose of binding) of the wh-trace. Sloan’s solution predicts the following:

- h. *Who does everyone expect to win?* is ambiguous.
- i. *How many patients are likely to every doctor to die?* is unambiguous.
- j. In *How many patients does someone/most people think that everyone saw?*,

*someone* cannot have scope over *how many patients*, even though *everyone* can.

### 3.1.2 LF-movement

Another characteristic which distinguishes A-movement from A'-movement is that A'-moved elements at S-structure cannot move further at LF (cf. [Uriagereka and Lasnik 1988, Ch. 6.5], [Aoun et al. 1981]), while A-moved elements can. Consider (149) and (150):

- (149) Q: Who thinks **who**<sub>i</sub> is likely t<sub>i</sub> to be late?
- (150) A1: Mary thinks Bill is likely to be late and Tom thinks Sue is likely to be late.  
A2: \*John thinks who is likely to be late.  
A3: \*John.

In (149) the wh-phrase *who* in the embedded clause has moved to an A-position. The only possible reading of the sentence is a multiple question reading in which the embedded wh-phrase takes scope over the matrix clause, as illustrated by the acceptable answer (150)A1, and the unacceptable answers (150)A2 and (150)A3. This multiple question interpretation can be obtained by positing LF-movement of the embedded wh-phrase to the matrix clause.

A wh-phrase which occupies an A'-position at S-structure, however, cannot undergo LF-movement. Consider (151) and (152).

- (151) Q: Who<sub>i</sub> t<sub>i</sub> knows [<sub>CP</sub> what<sub>j</sub> [<sub>IP</sub> John bought t<sub>j</sub>]]?
- (152) A1: Mary knows what John bought.  
A2: \*Mary knows that John bought apples.

In (151), the wh-phrase *what* occupies [SPEC,CP] at S-structure. As illustrated by the acceptable answer (152)A1 and the unacceptable answer (152)A2, the wh-phrase *what* in the embedded clause in (151) cannot raise at LF to take matrix scope, contrary to the A-moved wh-phrase in (149).<sup>6</sup>

To summarize, an A-moved element optionally reconstructs for scope interpretations, and undergoes further LF-movement.

## 3.2 Scrambling of wh-phrases

In this section I show that scrambled phrases optionally reconstruct and undergo LF-movement just like standard A-movement.

### 3.2.1 Licensing condition on wh-phrases

As discussed by [Choe 1985] and [Kim 1989] among others, in Korean a wh-word has two interpretations: one as an indefinite NP and the other, as a real wh-word, as shown in table 3.1.

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<sup>6</sup>[Aoun et al. 1981, 76] captures this difference in LF-raising between an element in A-position and one in A'-position in terms of the generalization stated below:

Wh-R (meaning wh-raising, as opposed to QR) affects wh-phrases in A-position.

wh-word	wh-interpretation	indefinite NP interpretation
<i>nwukwu</i>	who	someone
<i>mwues</i>	what	something
<i>eti</i>	where	somewhere
<i>encey</i>	when	sometime
<i>enu N</i>	which N	some N

Table 3.1: Interpretation of a potential wh-word

For a potential wh-word to be interpreted as a wh-phrase, it has to be within the scope of a question morpheme such as *-ni*, which also licenses the sentence as a question. Consider the contrast in interpretation between (153)a and (153)b: In (153)a, there is no question morpheme, and the potential wh-word *mwues* can only be interpreted as an indefinite quantifier, and the whole sentence is interpreted as declarative. On the other hand, (153)b, which is identical to (153)a except that there is question morpheme *-ni*, can be interpreted as either a wh-question or a yes/no-question: In the former, the potential wh-word is interpreted as a wh-phrase, and in the latter, as an indefinite quantifier.

- (153) a. Mary-ka **mwues**-ul sass-**ta**  
 Mary-NOM something-ACC bought-DEC  
 ‘Mary bought **something**/\*What did Mary buy?’  
 b. Mary-ka **mwues**-ul sass-**ni**  
 Mary-NOM what/something-ACC bought-QM  
 ‘**What** did Mary buy?’/‘Did Mary buy **something**?’

Although a wh-word and a question morpheme must occur in the same clause at D-structure for the sentence to be interpreted as a wh-question, there is an exception: When the matrix verb is one of the so called bridge verbs such as *malha-* ‘say’ or *sayngkakha-* ‘think,’ a question morpheme associated with the matrix clause can license a wh-word in the embedded clause, as illustrated in (154) and (155) (hereafter I ignore the indefinite NP interpretation of a wh-word):

- (154) Minswu-nun [Younghee-ka **mwues**-lul mekessta-ko] sayngkakha-**ni**  
 Minswu-TOP Younghee-NOM wh-ACC ate-COMP think-QM  
 ‘**What** does Minswu think that Younghee ate?’  
 (155) Minswu-nun [Younghee-ka **mwues**-lul mekessta-ko] malhayss-**ni**  
 Minswu-TOP Younghee-NOM wh-ACC ate-COMP said-QM  
 ‘What did Minswu say that Younghee ate?’

A wh-word which occurs beyond the c-command domain of a question morpheme at D-structure cannot be licenced by the question morpheme, as in (156).

- (156) \* **nwu**-ka [Minswu-ka sihem-ul poass-**nunci**] an-ta  
 who-NOM Minswu-NOM exam-ACC took-QM know-DEC  
 ‘Who knows if Minswu took the exam?’

(157) is the licensing condition on wh-words, which correctly rules in grammatical sentences (153)b, (154), (155), and rules out ungrammatical sentence (156).

(157) **Licensing condition on wh-phrases**

For a potential wh-word to be interpreted as a wh-phrase, it has to be within the c-command domain of a question morpheme at LF.

Note that (157) is a necessary, not a sufficient condition, since even if a wh-word is within the c-command domain of a question morpheme, it can still be interpreted as an indefinite NP, as in (153)b.

Another question concerning the interpretation of a wh-phrase is how an operator-variable relation is established for scope. For this I follow the standard convention that a wh-phrase raises at LF to form an operator-variable relation with its trace. In particular, I adopt [Saito 1989]’s proposal and assume that a wh-word moves to COMP position which is occupied by the question morpheme.<sup>7</sup>

### 3.2.2 Scope reconstruction

As has been observed by [Saito 1989], [Saito 1992] for Japanese, long distance scrambling of a wh-phrase beyond the clause which contains the licensing question morpheme does not affect the wh-question interpretation. This is illustrated by the identical interpretation of (158)a (in the base order) and (158)b (in a scrambled order).

- (158) a. na-nun [Minswu-ka **mwues**-ul ceyil coaha-**nunci**] an-ta  
 I-TOP Minswu-NOM what-ACC best like-QM know-DEC  
 ‘I know **what** Minswu likes best.’  
 b. **mwues**<sub>i</sub>-ul [na-nun Minswu-ka t<sub>i</sub> ceyil coaha-**nunci**] an-ta  
 what-ACC I-TOP Minswu-NOM best like-QM know-DEC  
 ‘I know **what** Minswu likes best.’

The interpretation of (158)b indicates that the scrambled element reconstructs to its base position, and then moves to the COMP occupied by the question morpheme (QM) to take scope over the embedded clause.<sup>8</sup> Examples in (159) also suggest that a scrambled wh-element undergoes reconstruction for scope interpretation.

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<sup>7</sup>On the other hand, [Kim 1989, 361] argues that wh-phrases are no different from other quantifiers, and hence undergo QR and are adjoined to IP or VP at LF. Which proposal I assume does not make any difference for the present purposes.

<sup>8</sup>The same point has been made for Japanese by [Saito 1992] and [Déprez 1989].

- (159) a. [S<sub>1</sub> na-nun [S<sub>2</sub> motwu-ka [S<sub>3</sub> Minho-ka **nwukwu**-lul coahanta-ko]  
I-TOP all-NOM Minho-NOM who-ACC like-COMP  
sayngkakha-**nunci**] kwungkumha-ta]  
think-QM wonder-DEC  
‘I wonder **who** everyone thinks that Minho likes.’
- b. ?[S<sub>3</sub> Minho-ka **nwukwu**-lul coahanta-ko]<sub>i</sub>, [S<sub>1</sub> na-nun [S<sub>2</sub> motwu-ka t<sub>i</sub>  
Minho-NOM who-ACC like-COMP I-TOP all-NOM  
sayngkakha-**nunci**] kwungkumha-ta]  
think-QM wonder  
‘I wonder **who** everyone thinks that I like.’

The most deeply embedded complement clause of (159)a, S<sub>3</sub>, which contains the wh-phrase, has been scrambled to sentence initial position in (159)b beyond the c-command domain of the question morpheme *nunci*. Even though its acceptability is slightly degraded, (159)b maintains the indirect question interpretation which obtains in the base order sentence (159)a: The scrambled clause reconstructs to its base position from which the wh-phrase *nwukwu* raises to the COMP position occupied by *nunci*.

Reconstruction of a scrambled element for scope interpretations is optional, as illustrated by the examples in (160).<sup>9</sup>

- (160) a. ne-nun [Minswu-ka **nwukwu**-lul coaha-**nunci**] a-**ni**  
you-TOP Minswu-NOM who-ACC like-QM know-QM  
‘Do you know who Minswu likes?’
- b. **nwukwu**-lul ne-nun [Minswu-ka t<sub>i</sub> coaha-**nunci**] a-**ni**  
who-ACC you-TOP Minswu-NOM like-QM know-QM  
‘Who do you know Minswu likes?’/‘Do you know who Minswu likes?’

(160)a, which is in the base order, has two question morphemes: *-ni* which is associated with the matrix clause, *-nunci* which is associated with the embedded clause. The wh-word in the embedded clause *nwukwu* is licensed only by the embedded question morpheme, and the whole sentence is interpreted as a yes/no question.<sup>10</sup> However, after scrambling of the wh-word to sentence initial position, as in (160)b, the whole sentence can be interpreted as a wh-question as well as a yes/no question. These two interpretations can be easily explained by positing an optional reconstruction of the scrambled phrase: For the yes/no question interpretation, the scrambled wh-word reconstructs to its base position and then raise to the COMP position of the embedded clause.<sup>11</sup> For the wh-question interpretation, the

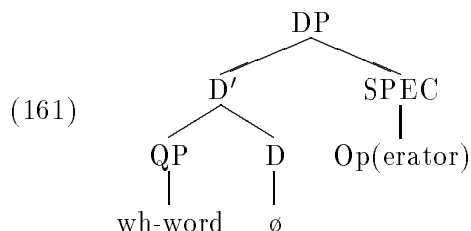
<sup>9</sup>(160)b is an instance of scrambling out of a wh-island. As will be discussed in detail in the next chapter, a wh-complement clause does not constitute an island for scrambling. However, for an opposing view, see [Choe 1992].

<sup>10</sup>With a focal stress on the wh-phrase *nwukwu*, I can marginally get the wh-question interpretation of the whole sentence.

<sup>11</sup>I am assuming that a moved element reconstructs to its D-structure position, and then moves from there to the embedded COMP for scope, following [May 1977], [May 1985], and [Saito 1989]. However, as Sabine Iatridou (p.c.) points out to me, an alternative way of explaining the reconstruction effects is to directly reconstruct to the embedded COMP, assuming that the movement takes place successive cyclically and that the moved element moves through the embedded COMP.

scrambled wh-word raises to the COMP position of the matrix clause without undergoing reconstruction. This optional reconstruction we observe in scrambling with regard to wh-phrase scope interpretation is consistent with the behavior of standard A-movement which I discussed in section 3.1.

Before moving to the next topic, I review [Watanabe 1991]’s account for Japanese data similar to (158)b and (159)b, and argue that his analysis makes a wrong prediction for the interpretation of the data like (160)b. Watanabe assumes that wh-phrases in Japanese have the structure shown in (161).



He calls the (invisible) operator in [SPEC DP] the *pure wh-operator*, and the head of the DP does not have any phonological content. He argues that there is an obligatory invisible wh-movement at S-structure in Japanese, which is analogous to an overt wh-movement in English, and by which the covert specifier of the DP (Op) moves to [SPEC CP]. CP is headed by the question morpheme *-ka*. The moved covert specifier must bind a variable to avoid violating the ban against vacuous quantification stated in (162).

(162) **Ban against vacuous quantification:** An operator must bind a variable.

Under this system, local scrambling of a wh-phrase to sentence initial position can be schematically represented, as in (163).

(163) [DP<sub>i</sub> [IP ... t<sub>i</sub> ...] QM wh-op<sub>i</sub>]

In (163), DP<sub>i</sub> is a scrambled wh-word, t<sub>i</sub> is its trace, and ‘wh-op<sub>i</sub>’ is the covert specifier of DP<sub>i</sub>: All these three elements share the same index. Remember that movement of the covert specifier to [SPEC CP] is obligatory, regardless of the absence or presence of scrambling.

Now consider some Japanese examples and their schematic representations below. (These are (156), (157), (163), (164), (165)a and (165)b in [Watanabe 1991] in the order given. The explanation for each example is also his.)

(164) ?  **dono hon<sub>i</sub>-o** [Mary-ga [John-ga toshokan-kara t<sub>i</sub> karidasita **ka**]  
 which book-ACC Mary-NOM John-NOM library-from checked out QM  
 siritagatteiru]  
 want to know  
 ‘Mary wants to know which book John checked out from the library.’

(165) [IP [CP DP<sub>i</sub> [IP ... [CP [IP ... t<sub>i</sub>] **ka** wh-op<sub>i</sub>] ... ]]]

In (164) and its schematic representation (165), the *wh*-operator can bind the trace of the scrambled DP. Therefore the sentence is relatively good although it is slightly degraded due to subadjacency violation.

- (166) ?? [John-ga  **dono hon-o toshokan-kara karidasita to**]<sub>i</sub>  
 John-NOM which book-ACC library-from checked-out COMP  
 Mary-ga [minna-ga t<sub>i</sub> omotteiru  **ka**] siritagatteiru  
 Mary-NOM all-NOM think QM want to know  
 ‘Mary wants to know which book everybody thinks that John checked out from the library.’

- (167) [IP [CP ...DP<sub>i</sub>...]<sub>j</sub>][IP ...[CP [IP ...t<sub>j</sub>...]  **ka wh-op<sub>i</sub>**] ...]

In (166) and its representation (167), nothing is bound by the *wh*-operator, and hence the ban against vacuous quantification is violated. That is why (166) is worse than (164).

- (168) \* [[Mary-ga t<sub>i</sub> yonda to]<sub>j</sub> [sono hon-o<sub>i</sub> [IP John-ga t<sub>j</sub> itta]]]  
 Mary-NOM read COMP that book-ACC John-NOM said  
 ‘John said that Mary read that book.’

- (169) [IP [CP ...t<sub>i</sub>...]<sub>j</sub>][IP DP<sub>i</sub>[IP ...t<sub>j</sub>...]]

In (168), the non-*wh* scrambled phrase *sono hon*, which is represented as DP<sub>i</sub> in (169) does not bind its own trace. According to Watanabe, this is a violation of the ban against vacuous quantification, since he assumes that scrambling is A'-movement, and the sentence is unacceptable.

A question arises with regard to the contrast in grammaticality between (166) and (168). That is, why is (166) better than (168) despite the fact that both of them equally violate the ban against vacuous quantification? To account for this contrast, Watanabe stipulates the following: The *wh*-operator and the trace of the scrambled phrase in (166) forms a non-real chain, while the scrambled phrase and its trace in (168) form a real chain. And then he proposes (170).

- (170) **Ban against vacuous quantification:**  
 The head of a nontrivial A'-chain must bind something.  
 Proviso: The violation counts less significantly for non-real chains.

This solution, however, leaves it completely unexplained why there is such a distinction between a chain for a *wh*-operator and a chain for scrambling. Rather the contrast in acceptability between (166) and (168) seems to be due to difference in the degree of the processing difficulty of the two sentences.

More importantly, his analysis cannot account for the ambiguity of the sentences such as (160)b. Consider (171)a and (171)b (which are due to Naoki Fukui (p.c.)), which are Japanese counterparts to (160)a and (160)b, respectively.



- (171) a. anata-wa [Taroo-ga **nani**-o katta **ka**] sitte-imasu-**ka**  
 you-TOP Taroo-NOM what-ACC bought QM know-QM  
 ‘Do you know what Taro bought?’  
 b. **nani**<sub>i</sub>-o anata-wa [Taroo-ga t<sub>i</sub> katta **ka**] sitte-imasu-**ka**  
 what-ACC you-TOP Taroo-NOM bought QM know-QM  
 ‘Do you know what Taro bought?’/¿What do you know whether Taro bought?’

Just as in Korean, in (171)a the wh-phrase *nani* which is in situ, takes scope only over the embedded clause. After scrambling of the wh-phrase to sentence initial position, as in (171)b, the wh-phrase takes either the embedded clause or the matrix clause scope, even though the latter interpretation is slightly weak, as indicated by the question mark.

The representations of (171)a and (171)b under Watanabe’s system are given in (172).

- (172) a. anata-wa [Taroo-ga **nani**<sub>i</sub>-o katta **ka** wh-op<sub>i</sub>] sitte-imasu-**ka**  
 b. **nani**<sub>i</sub>-o [Taroo-ga t<sub>i</sub> katta **ka** wh-op<sub>i</sub>] sitte-imasu-**ka**

For Watanabe, the overt wh-phrases in (172)a and (172)b are coindexed with the covert wh-operators which have moved to the embedded [SPEC CP]. Since the scope of overt wh-phrase is the domain of the covert wh-operator, the scrambled wh-phrase in (172)b is predicted not to take matrix clause scope; there is no wh-operator in the matrix [SPEC CP] which is coindexed with it. Nevertheless, the scrambled wh-phrase takes scope over the matrix clause as well as over the embedded clause, contrary to the prediction.

To summarize, the data such as (160)b and (171)b suggest that the scope of a wh-phrase is determined by the location of a question morpheme rather than by the covert wh-operator which Watanabe proposes.

### 3.2.3 LF-movement of scrambled wh-phrases

Besides undergoing optional reconstruction, a scrambled element can move at LF. Consider (154), repeated here as (173), and its scrambled counterpart (174).

- (173) Minswu-nun [Younghee-ka **mwues**-lul mekessta-ko] sayngkakha-**ni**  
 Minswu-TOP Younghee-NOM what-ACC ate-COMP think-QM  
 ‘**What** does Minswu think that Younghee ate?’  
 (174) Minswu-nun **mwues**<sub>i</sub>-lul Younghee-ka t<sub>i</sub> mekessta-ko sayngkakha-**ni**  
 Minswu-TOP what-ACC Younghee-NOM ate-COMP think-QM  
 ‘**What** does Minswu think that Younghee ate?’

In (173), the wh-phrase *mwues* in the embedded clause takes scope over the matrix clause. This fact can be explained by assuming that the in-situ wh-phrase raises to the matrix COMP at LF. Scrambling of the wh-phrase, as in (174), does not affect the wide scope interpretation of the wh-phrase. If scrambling is A’-movement, then the wide scope interpretation of the scrambled wh-phrase is unexpected since an element in an A’-position cannot move further at LF, as discussed in section 3.1. More examples are given below.

- (175) **nwu**-ka [Minho-ka **etten wuntong**-ul coaha-**nunci**] a-**ni**  
 who-NOM Minho-NOM which sport-ACC like-QM know-QM  
 ‘Who knows which sport Minho likes?’

In (175), out of the two *wh*-phrases, only the one in the matrix clause *nwu(kwu)* takes the matrix scope, as illustrated by a possible answer, as in (176), and an impossible answer, as in (177).<sup>12</sup>

(176) Younghee-ka [Minho-ka etten wuntong-ul cohaha-nunci] al-a  
 Younghee-NOM Minho-NOM what-ACC like-QM know-DEC  
 ‘Younghee knows what Minho likes.’

(177) Younghee-ka tennis-lul Minho-ka coaha-nunci al-a  
 Younghee-NOM tennis-ACC Minho-NOM like-QM know-DEC  
 ‘Younghee knows whether Minho likes tennis.’

(178) is a scrambled counterpart of (175). In contrast with (175), the scrambled *wh*-phrase *etten wuntong* can take either matrix or embedded scope. Hence, either (176) or (177) can be the answer to the question. The availability of the wide scope reading of the scrambled *wh*-phrase indicates that a scrambled element can move at LF.<sup>13</sup>

(178) **nwu-ka etten wuntong-ul** Minho-ka cohaha-**nunci** a-**ni**  
 who-NOM which sport-ACC Minho-NOM like-QM know-QM

### 3.3 Scrambling of Negative Polarity Items

Interpretation of a scrambled negative polarity item (NPI) suggests that a scrambled element reconstructs for scope purposes. Here I use the term “scope” of NPIs in a non-standard sense: In the case of quantifiers and *wh*-phrases, which are standard scope-bearing elements, they take scope over other elements. However, for NPIs at issue, it is not the case that NPIs take scope over other elements, but that they have to be within the scope of negative operators. That is, scope reconstruction of NPIs is to refer to the fact that NPIs reconstruct to be within the scope of a negative morpheme, not to the fact that they reconstruct to take scope over other elements.

#### 3.3.1 Licensing of NPIs

For an NPI to be licensed in Korean, it has to be within the *c*-command domain of a trigger such as negation, cf. [Ladusaw 1979], [Linebarger 1987], [Laka 1990] similarly to the licensing of *wh*-phrases discussed in the previous section.<sup>14</sup> Consider the examples below.

(179) a. **amwuto** Minswu-lul coaha-ci **an-nunta**  
 anyone Minswu-ACC like-NMZ neg-do  
 lit. ‘**Anyone** does **not** like Minswu.’  
 b. Minswu-ka **amwuto** coaha-ci **an-nunta**  
 Minswu-NOM anyone like-NMZ neg-do  
 ‘Minswu does **not** like **anyone**.’

<sup>12</sup>The *wh*-phrase in the embedded clause marginally takes the matrix scope with a focal stress on it, though.

<sup>13</sup>The position occupied by the scrambled *wh*-phrase in (178) is ambiguous: It can be either within or beyond the embedded clause boundary. Since I am assuming that a *wh*-phrase moves to the closest COMP for scope (based on the facts in base-order sentences), the scrambled phrase is to be analyzed as being in a position beyond the embedded clause for the matrix scope interpretation.

<sup>14</sup>[Lee 1992] discusses negative polarity items in Korean in more detail.

- (180) a. \* **amwuto** Minswu-lul coahanta  
 anyone Minswu-ACC like  
 b. \* Minswu-ka **amwuto** coahanta  
 Minswu-NOM anyone like

(179)a,b illustrate that NPis can occur in subject as well as in object position. (180)a,b show that an NPI cannot be licensed without its trigger. An NPI which is generated outside the c-command domain of a potential licenser at D-structure results in an ungrammatical sentence, as in (181)

- (181) \* **amwuto** [Younghee-ka Minswu-lul coahaci **an-nunta-ko**] sayngkakhanta  
 anyone Younghee-NOM Minswu-ACC like neg-do-COMP think  
 lit. ‘**Anyone** thinks that Younghee does **not** like Minswu.’

A licensing condition on NPI which is relevant for the present purpose is stated in (182).

- (182) **Licensing condition on NPI**  
 An NPI must be c-commanded by its trigger within a CP which contains both at D-structure.

### 3.3.2 Reconstruction of a scrambled NPI

As in the case of wh-phrases, scrambling of an NPI beyond the c-command domain of its licenser does not affect the grammaticality of the sentence.

- (183) **amwuto**<sub>i</sub> na-nun [t<sub>i</sub> Minswu-lul coaha-ci **an-nunta-ko**] sayngkakhanta  
 anyone I-TOP Minswu-ACC like-NMZ neg-do-COMP think  
 lit. ‘**Anyone**<sub>i</sub>, I think t<sub>i</sub> does **not** like Minswu.’
- (184) **amwuto**<sub>i</sub> na-nun [Minswu-ka t<sub>i</sub> coahaci **an-nunta-ko**] sayngkakhanta  
 anyone I-TOP Minswu-NOM like neg-do-COMP think  
 lit. ‘**Anyone**<sub>i</sub>, I think Minswu does not like t<sub>i</sub>.’

In (183) and (184), the NPI which is the embedded subject and object, respectively, has been long-distance scrambled beyond the c-command domain of the embedded clause negation. Nevertheless, the sentences receive the same interpretation as the one in the base-order.<sup>15</sup> Grammaticality of (183) and (184) and their interpretations indicate that the scrambled NPI reconstructs to its D-structure position for its licensing.

Reconstruction of a scrambled NPI is optional. Consider the examples in (185).

- (185) a. \* na-nun [Mary-ka **amwuto** miwehanta-ko] sayngkakhaci **an-nunta**  
 I-TOP Mary-NOM anyone hate-COMP think neg-do  
 lit. I don’t think Mary hates anyone.  
 b. ? **amwuto**<sub>i</sub> na-nun [Mary-ka t<sub>i</sub> miwehanta-ko] sayngkakhaci **an-nunta**  
 anyone I-TOP Mary-NOM hate-COMP think neg-do

<sup>15</sup>Many people find (183) and (184) to be marginal, compared to their unscrambled counterparts. This is probably due to the following reason: *amwuto* has both existential (indefinite) and presuppositional reading in its base position. As I will argue in section 6.2.3 of Ch. 6, only a presupposed element can undergo scrambling. That is, the only reading available after scrambling is the one in which the NPI is presupposed. Hence, those who try to get the indefinite reading for (183) and (184) would find them to be unacceptable. Nevertheless, they are perfectly acceptable under the presuppositional reading.

In (185)a, the NPI in the embedded clause cannot be licensed by the negation in the matrix clause since they do not meet condition (182). Scrambling of the NPI to sentence initial position as in (185)b, however, enables the NPI to be licensed by the matrix clause negation. The creation of NPI licensing by scrambling we observe in (185)b indicates that reconstruction is optional. Otherwise, the sentence should remain ungrammatical.

To summarize, facts concerning NPI licensing suggest that scrambled elements optionally reconstruct for scope interpretations, which is consistent with the behavior of typical A-movement.

## **3.4 Implications**

### **3.4.1 Scrambling as movement**

It has been controversial whether scrambling involves movement or is base-generated. Scope reconstruction facts discussed in this chapter are important in this regard since they are clear evidence that long distance scrambling involves movement. The question then is whether or not local scrambling is the same syntactic phenomenon as long distance scrambling. Although this issue is not easy to settle, there are some arguments in favor of the same analysis for both types of scrambling: First, in Ch. 2, I showed that both types of scrambling behave the same with regard to binding. Second, as I will discuss in Ch. 6, both local and long distance scrambling are subject to the same discourse conditions. That is, only a presupposed element can undergo scrambling. In the absence of evidence to the contrary, and given the two facts mentioned above, it seems reasonable to conclude that local and long-distance scrambling are the same syntactic phenomenon and therefore local as well as long-distance scrambling involves movement

### **3.4.2 Reconstruction for binding and scope**

In Ch. 2, I argued that reconstruction effects with regard to binding in scrambling are due to the special status of subjects in binding, while there is no such restriction for reconstruction with regard to scope interpretation (involving wh-phrases and negative polarity items). This leads to the conclusion that reconstruction for binding is independent of reconstruction for scope interpretation in scrambling.

## Chapter 4

# Scrambling as case-driven A-movement

In this chapter I propose that scrambling in Korean is case-driven obligatory movement. This is consistent with the A-movement properties of scrambling discussed in the previous two chapters, and the ECONOMY PRINCIPLE under which movement is considered as the “last resort.” This proposal crucially differs from the widely accepted view that scrambling is optional, cf. [Fukui 1992].

In section 4.1 I establish that scrambling is a consequence of case-driven obligatory movement based on an analysis of case and word order possibilities in event nominal clauses. In section 4.2, I propose the Case Assignment Rule, which incorporates the notion of  $\theta$ -index to case assignment, to ensure that each argument is assigned the right kind of case, e.g. subject is assigned nominative case, and object accusative case, not vice versa, in a transitive verb sentence. In section 4.3 I discuss apparent problems to my proposal. In section 4.4, I argue that long-distance scrambling is case-driven just like local scrambling, and examine some potential problems for this proposal. Finally, in section 4.1.5, I discuss the implications of the current proposal on the theory of scrambling.

### 4.1 Scrambling as case-driven adjunction to IP

Case and word order possibilities in event nominal clauses to be discussed in section 4.1.1 indicate that nominative case is assigned by a functional head, and accusative case by a complex category consisting of a lexical head with feature [–stative] and a functional head, which is formed by verb-raising to INFL. Assuming the VP-internal subject hypothesis, all arguments have to move out of VP and are adjoined to IP to be assigned case. Scrambling is due to the fact that arguments may be arranged in any order for the purpose of case assignment since both nominative and accusative case assigners are in the same position after verb raising which is motivated by accusative case licensing.

#### 4.1.1 Case and word order possibilities in event nominal clauses

Some nouns (typically event nouns) have their own argument structure, and arguments occurring in an NP can be marked only genitive in Korean, as illustrated in (186):

- (186) a. Kim kyoswu-uy    wencahayk-uy    yenkwu  
 Kim professor-GEN nuclear weapon-GEN research  
 ‘Prof. Kim’s research on nuclear weapons’
- b. \*Kim kyoswu-ka    wencahayk-uy    yenkwu  
 Kim professor-NOM nuclear weapon-GEN research
- c. \*Kim kyoswu-ka    wencahayk-ul    yenkwu  
 Kim professor-NOM nuclear weapon-ACC research
- (187) a. \*Kim kyoswu-uy    wencahayk-uy    yenkwuhanta  
 Kim professor-GEN nuclear weapon-GEN do research  
 ‘Prof. Kim does research on nuclear weapons.’
- b. \*Kim kyoswu-ka    wencahayk-uy    yenkwuhanta  
 Kim professor-NOM nuclear weapon-GEN do research
- c. Kim kyoswu-ka    wencahayk-ul    yenkwuhanta  
 Kim professor-NOM nuclear weapon-ACC do research

The head of the examples in (186) is the event noun *yenkwu* ‘research,’ while the lexical head of the examples in (187) is the verb *yenkwuhanta* ‘to research.’ The main difference between the two cases is that in (186) all the arguments have to be marked with genitive case, while in (187), they have to be marked with verbal case.<sup>1</sup>

As discussed by [Iida 1987], [Shibatani and Kageyama 1988], [Sells 1990], [Miyagawa 1991] for Japanese, and [Cho and Sells 1991] for Korean, when the event noun is followed by an aspect morpheme, such as *(to)cwung* ‘during’, *(cik)hwu* ‘(right) after’, *(tang)si* ‘when’, etc., the arguments exhibit additional case possibilities, as illustrated in (188).<sup>2,3</sup>

<sup>1</sup>By verbal case, I refer to nominative and accusative case, as opposed to genitive case.

<sup>2</sup>Strings relevant for the present discussion are indicated by square brackets. The matrix clause *cencayng-i ilenassta* ‘a war took place’ is added to show that the subject of the nominal clause (*Kim kyoswu* in this case) does not have to coincide with the subject of the matrix clause (*cencayng*).

<sup>3</sup>At first glance, an event noun followed by an aspect morpheme is analogous to the combination of an event noun plus light verb *hata* (i.e. light verb construction). However, there is a crucial difference between the two, namely, no particles can intervene between an event noun and an aspect morpheme, cf. (a), while various particles can freely intervene between an event noun and the light verb, as noted in [Sells 1991], cf. (b):

- a. \*yenkwu-lul/to/man    hwu  
 research-ACC/EVEN/ONLY after  
 ‘after 0/even/only research’
- b. yenkwu-lul/to/man    hata  
 research-ACC/EVEN/ONLY do  
 ‘do 0/even/only research’

Furthermore, an adverb and a non-event noun can combine with the light verb, as in (c), while they cannot combine with an aspect marker, as in (d).

- c. keyulli/chwungsilhi/yok-hata  
 negligently/faithfully/curse-do  
 neglect/do faithfully/curse
- d. \*keyulli/chwungsilhi/yok-hwu  
 negligently/faithfully/curse-after

- (188) a. [Kim kyoswu-uy wencahayk-uy            yenkwu-cwung] cencayng-i ilenassta  
           Kim Prof.-GEN nuclear weapon-GEN research-during war-NOM took place  
           ‘*During Prof. Kim’s research on nuclear weapons, a war took place.*’
- b. ? [Kim kyoswu-ka wencahayk-uy            yenkwu-cwung] cencayng-i ilenassta  
       Kim Prof.-NOM nuclear weapon-GEN research-during ...
- c. [Kim hyoswu-ka wencahayk-ul            yenkwu-cwung] cencayng-i ilenassta  
       Kim Prof.-NOM nuclear weapon-ACC research-during ...
- d. \* [Kim kyoswu-uy wencahayk-ul            yenkwu-cwung] cencayng-i ilenassta  
       Kim Prof.-GEN nuclear weapon-ACC research-during ...

The arguments may all be marked with genitive case, as in (188)a, or all with verbal case, as in (188)c. Also, the subject can be marked with nominative case, and the object with genitive case (mixed case array), as in (188)b.<sup>4</sup> The combination shown in (188)d, however, is totally unacceptable, where the subject is marked genitive and the object accusative, in that order.<sup>5</sup>

Depending on the kind of case an argument bears, the arguments exhibit different degrees of word order freedom. Only the permutation of nominative subject and accusative object is allowed, as in (189)c.

- (189) a.\*wencahayk-uy            Kim kyoswu-uy    yenkwu-cwung  
           nuclear weapon-GEN Prof. Kim-GEN    research-during
- b.\*wencahayk-uy            Kim kyoswu-ka    yenkwu-cwung  
           nuclear weapon-GEN Prof. Kim-NOM    research-during
- c. wencahayk-ul            Kim kyoswu-ka    yenkwu-cwung  
           nuclear weapon-ACC Prof. Kim-NOM    research-during
- d.\*wencahayk-ul            Kim kyoswu-uy    yenkwu-cwung  
           nuclear weapon-ACC Prof. Kim-NOM    research-during

#### 4.1.2 An analysis

The key to the analysis of the data described above is to come up with an adequate case licensing condition. A case licensing condition which accommodates the whole range of the data can be informally stated as in (190).

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<sup>4</sup>A mixed case array in general sounds rather marginal compared to a purely verbal or a purely nominal case array, as James Yoon (p.c.) points out.

<sup>5</sup>An anonymous reviewer of *Language Research* judged both (188)b and (188)c to be marginal, marking them with ‘?’. This indicates that the judgment of the data is subject to individual variation. Nevertheless, people seem to agree on the contrast between (188)a,b,c on the one hand, and (188)d on the other, and my goal is to account for this contrast.

- (190) a. Genitive case is licensed by the event noun.  
 b. Accusative case is licensed by the complex category resulting from head movement of the event noun to the position of the aspect morpheme.  
 c. Nominative case is licensed by the aspect morpheme.

The occurrence of genitive case with a bare head noun, as in (186)a, suggests that genitive case is licensed by the head noun. The contrast in grammaticality between examples (186)b,c and (188)b,c indicates that the presence of an aspect morpheme is crucial for both nominative and accusative case licensing. However, the ungrammaticality of (189)d in which the object is marked accusative in the presence of the aspect morpheme suggests that the mere presence of an aspect morpheme is not sufficient for accusative case licensing, and requires the accusative case licensing condition in (190)b.

In giving a precise formulation of case licensing condition in (190), I assume that lexical categories have feature [F0], and functional categories, [F1], following [Grimshaw 1991]. In addition I assume the following:

- (191) a. An aspect morpheme is a functional head with feature [F1] and has an independent projection in the phrase structure.  
 b. An event noun has feature [-stative].

Incorporating the above assumptions into the informal case licensing condition (190), we have the case licensing condition in (192).

- (192) a. Genitive case is licensed (via head government) by an  $X^0$  category with feature [+N -V].  
 b. Accusative case is licensed (via head government) by a complex  $X^0$  category with feature [-stative F1].  
 c. Nominative case is licensed (via head government) by an  $X^0$  category with feature [F1].

The category with feature [+N -V] in (192)a is a noun (the event noun in the present discussion). Feature [F1] in (192)c comes from either an aspect or a tense morpheme (in the case of verbal clauses). A complex category with feature [-stative F1] in (192)b is formed by the combination of an event noun with feature [-stative] and an aspect morpheme with feature [F1]. Head government and its related notion, relativized minimality, are defined as in (193) and (194).

- (193) **Head Government:** X head-governs Y iff  
 (i)  $X \in \{A, N, P, V, INFL, Asp\}$   
 (ii) X m-commands Y  
 (iii) No barrier intervenes  
 (iv) Relativized Minimality is respected
- (194) **Relativized Minimality:** X  $\alpha$ -governs Y only if there is no Z such that  
 (i) Z is a typical potential  $\alpha$ -governor for Y,  
 (ii) Z c-commands Y and does not c-command X.



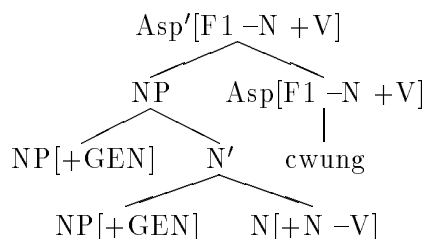


Figure 4.1: Derivation of GEN-GEN combination

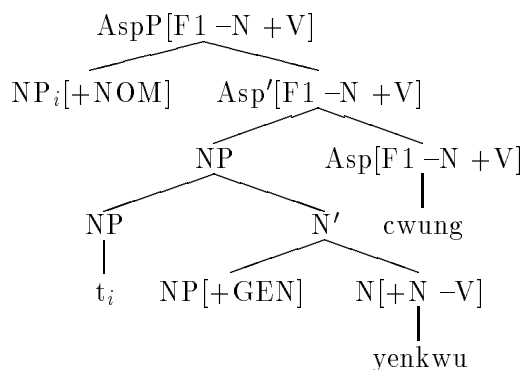


Figure 4.2: Derivation of NOM-GEN combination

Case possibilities of the examples in (188) can be explained in the following way in terms of the case licensing condition in (192).

In Figure 4.1, the genitive case on both the subject and the object is licensed by the head noun, and the aspect morpheme does not participate in case licensing at all.

In Figure 4.2, the genitive case on the object is licensed by the head noun, and the nominative case on the subject by the aspect morpheme, after the subject moves to the position (AspP-adjoined position in this case) governed by the aspect morpheme with feature [F1].

In Figure 4.3, a complex category with feature [F1 -stative] needs to be formed for accusative case licensing, and the only way to form this complex category is via head movement of the event noun to the position occupied by the aspect morpheme. After head movement, the object moves out of NP to be assigned accusative case by the newly formed complex category Asp[F1 -stative]. The subject moves out of NP to be assigned nominative case by the aspect morpheme, which happens to have a complex feature [F1 -stative] as a result of head movement.<sup>6</sup>

<sup>6</sup>In [Grimshaw 1991], not only lexical but also functional categories have categorial feature specification with regard to N/V, and INFL has feature [-N +V]. If we assume that Asp also has feature [-N +V], then an event noun which I assume to have feature [+N -V] cannot form a legitimate extended projection with Asp due to their conflicting features. One way of making the current system compatible with the extended projection system in [Grimshaw 1991] is assume that an event noun is category neutral with respect to N/V and therefore can combine with either a [+N -V] or a [-V +V] category, as Grimshaw herself suggests to

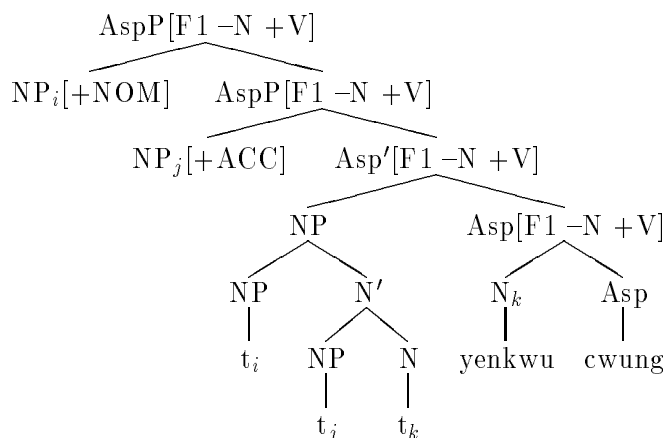


Figure 4.3: Derivation of NOM-ACC combination

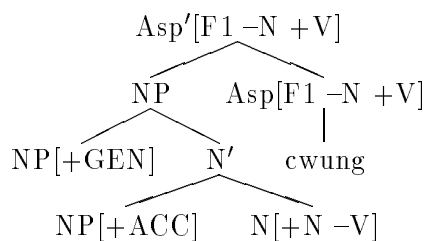


Figure 4.4: Derivation of GEN-ACC combination

Figure 4.4 is a representation of the GEN-ACC combination, which is ungrammatical. The ungrammaticality is due to the conflicting demands on the position of the head noun for genitive and accusative case licensing: For the genitive case licensing on the subject, the head noun has to stay in situ, while for the accusative case licensing on the object, it has to move to the position of the aspect morpheme to form a complex category with feature [-stative F1]. Since these two conflicting demands cannot be satisfied simultaneously, the string is ruled out.

The characteristics of my analysis are summarized as follows: First, head movement is a necessary condition for accusative case licensing which requires a complex category with feature [F1 -stative]. Second, after head movement of the head noun, both the nominative case licenser with feature [F1] and the accusative case licenser with feature [F1 -stative] are in the same position. This leads us to expect that a nominative subject and an accusative object can be arranged in any order for the purpose of case licensing. This expectation is met as evidenced by the grammaticality of the minimal pair strings (188)c and (189)c. In this analysis, scrambling is a consequence of case-driven movement, and therefore it is predicted that if there is no case-driven movement, there is no scrambling, either. This

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account for light verb constructions in Korean and Japanese.

prediction is indeed borne out as evidenced by (189)a in which the order permutation of the two arguments marked with genitive case results in ungrammaticality:<sup>7</sup> Genitive case is licensed by the head noun without the arguments' having to move out of the NP. Hence, there is no way to get the permuted word order. Finally, an implicit assumption in my analysis is that when there is movement, it is the moved element (the head of the chain) not its trace (the tail of the chain), that is responsible for case licensing. This assumption has an interesting consequence on scrambling when combined with the proposal by [Heycock and Kroch 1992]; namely, any licensing relation satisfied by the head of a chain at S-structure cannot in addition license a trace, and the trace has to delete unless it is independently licensed. I will discuss this consequence in detail in section 4.4.

### 4.1.3 Extension to verbal clauses

The case licensing conditions and the analysis of scrambling given in the previous section can be easily extended to verbal clauses (i.e. a clause the lexical head of which is a verb, as opposed to a noun). As I have been assuming all along, under the VP-internal subject hypothesis, the D-structure representation of a verbal clause looks roughly like Figure 4.1 except that the node labels Asp, NP, N', and N are replaced by INFL, VP, V' and V, respectively, abstracting away from other unspecified projections such as CP. Assuming the case licensing condition in (192), a verb has to raise to INFL to form a complex category with feature [-stative F1] (feature [-stative] is due to the verb, and feature [F1], due to INFL) for accusative case licensing. Both the subject and the object move out of VP to be assigned case, resulting in a representation like Figure 4.5.

Since both the nominative case licenser, INFL[F1], and the accusative case licenser, INFL[-stative F1], are in the same position, the subject and the object may be arranged in any order, giving rise to scrambling effects. A question arises concerning how to ensure the subject is assigned nominative case and the object accusative case, and not vice versa. I address this question and propose a solution for it in section 4.2.<sup>8</sup>

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<sup>7</sup>In [Lee 1991b], I argued that scrambling among genitive phrases is possible, assuming base-generation of arguments in any order. I ascribed the marginality of (189) to the 'anti-ambiguity' condition on scrambling which will be discussed at length in the next section. I supported my argument by giving examples such as (i) where scrambling among genitive phrases is slightly more acceptable than (189). The only difference between (189) and (i) is that the adverbial phrase *mikwuk-eyse-uy* is added in (i).

(i) ??wencahayki-uy, Kim kyoswu-uy, mikwuk-eyse-uy ti yenkwu-cwung ...  
 nuclear weapon-GEN Prof. Kim-GEN America-LOC-GEN research-during  
 'during Prof. Kim's research on nuclear weapons in America, ...'

However, I retract that for the following reasons: The nature of unacceptability of (189) is somewhat different from that caused by the anti-ambiguity constraint in the sense that unacceptability of an example which violates the anti-ambiguity constraint can be improved significantly if a proper discourse context is provided, while the unacceptability of examples such as (189) remains pretty much constant in almost any context. The improved acceptability of (i) seems to be achieved by a long intonation break between each genitive marked phrase. If there is no intonation break, the sentence sounds significantly degraded.

<sup>8</sup>Assuming that a root clause in Korean is a CP as [Choe 1988] argues, a question arises whether a verb raises all the way up to COMP or stops at INFL. As far as my analysis on case licensing is concerned, a verb has only to raise to INFL. However, taking up [Choe 1988]'s proposal, [Whitman 1991] argues that a verb raises to COMP on a par with verb raising to COMP in German even though the two languages differ in that verb raising in German is visible, while in Korean it is string vacuous. Even if we assume that a verb

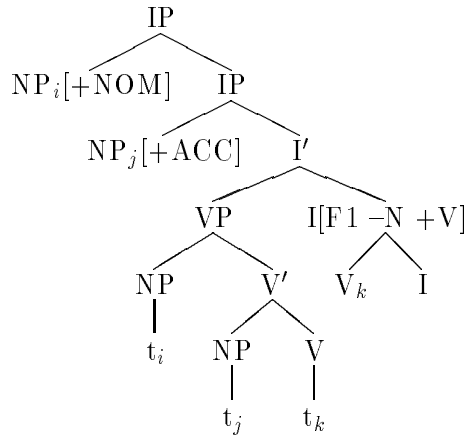


Figure 4.5: S-structure representation of a verbal clause

#### 4.1.4 Comparison with Miyagawa 1991

[Miyagawa 1991] also argues that scrambling is closely related to the existence of verb raising on the basis of case and word order possibilities in Japanese, which are identical to the Korean data discussed in section 4.1.1. In this section, I compare Miyagawa's system to the one I propose here.

As far as genitive and nominative case licensing is concerned, there is no difference between Miyagawa's and my analysis. The two analyses diverge in the way accusative case licensing is done and in the role of a trace in case licensing. Miyagawa assumes the accusative case licensing condition stated in (195) and the Government Transparency Corollary, which is a way of allowing a trace (the tail of a chain) to participate in case licensing.

- (195) Accusative case is licensed by two steps:
- a. Case feature assignment by a [+ACC] noun/verb at D-structure.
  - b. Case realization at S-structure via government by a functional head (Asp, INFL).
- (196) Government Transparency Corollary (Baker 1988):  
 A lexical category which has an item incorporated into it governs everything which the incorporated item governed in its original structural position.

Under (195), (196), and obligatory verb raising to INFL which Miyagawa also assumes, an object may be assigned accusative case either in its D-structure position or in IP-adjoined position: An object is assigned the [+ACC] feature in its D-structure position, cf. (195)a. If the object does not move out of VP, accusative case is realized via Government Transparency Corollary (the verb raises to INFL, and INFL can then govern the object position). If the object moves out of VP and is adjoined to IP, accusative case is realized via direct government by INFL. In this system, scrambling is due to the fact that an object can be assigned accusative case either in its D-structure position or in IP-adjoined position.

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raises to COMP, the current analysis of case licensing and scrambling can still be maintained.

Similarities and differences between Miyagawa’s and my system can be summarized as follows: First, both systems assume obligatory verb raising to INFL. In my system it is motivated by accusative case licensing, while in Miyagawa’s system, there is no obvious motivation for it. Second, scrambling is a consequence of obligatory case-driven movement in my system, while it is a consequence of the optionality of object movement for accusative case realization. Third, in my system, only the head of a chain licenses case, while in Miyagawa’s either the head or the tail of a chain can license case (via Government Transparency Corollary). Finally, in my system the case licensing condition in (192) is enough to account for the whole range of data in section 4.1.1, while the case licensing condition which Miyagawa assumes cannot accommodate the same range of data. In particular, the ungrammaticality of (189)d, repeated here as (197), cannot be explained by Miyagawa’s case licensing condition alone.

- (197) \*wencahayk<sub>i</sub>-ul Kim kyoswu-uy t<sub>i</sub> yenkwu-cwung  
nuclear weapon-ACC Prof. Kim-NOM research-during  
‘during Prof. Kim’s research on nuclear weapons’

The genitive case on the subject is assigned by the head noun in situ. For the accusative case on the scrambled object, [+ACC] is assigned by the head noun at D-structure, and the accusative case can be realized by being governed by Asp at S-structure. Namely, the string is predicted to be good in Miyagawa’s system, contrary to the fact, and therefore Miyagawa needs an extra mechanism to rule out such a string.<sup>9</sup>

#### 4.1.5 Implications

I discuss implications of the case licensing condition and the proposed analysis of scrambling as a consequence of case-driven obligatory movement of arguments.

#### Separation of case assignment from $\theta$ -role assignment

In my analysis, verbal case assignment is completely dissociated from  $\theta$ -role assignment.  $\theta$ -roles are assigned VP-internally under the strict sisterhood condition, while verbal case

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<sup>9</sup>In his unpublished work, [Miyagawa 1990] independently argues that scrambling is a consequence of case-driven movement as I claim in this thesis. This earlier view of Miyagawa’s is summarized [Miyagawa 1991, fn.19] and given below:

In an earlier version of this paper, I suggested that the objective case marker in Japanese is realized outside of VP, by adjoining to the projection of I. This has the advantage that we can simplify the statement for the environment in which Case realization is licensed: Case (nominative and accusative) may be realized if it occurs in a position immediately dominated by the projection of a functional category such as Infl, Asp. Scrambling, then, is simply an instance in which the object NP moves in front of the subject NP to realize Case instead of the position after the subject NP. This analysis also allows us to suggest the following generalization regarding overt and Abstract case.

Overt case marker must be realized outside of VP (directly dominated by projection of I) while Abstract case must be realized within VP.

While I believe that this analysis is promising, it also has a number of conceptual problems, and I will not pursue it in this paper.

is assigned VP-externally in any order as long as case licensing conditions are met.<sup>10</sup> As [Miyagawa 1991] has already noted for Japanese, this difference between  $\theta$ -role and case assignment is responsible for both the configurational and the non-configurational aspects of Korean: It is configurational with regard to  $\theta$ -role assignment. It is non-configurational with respect to case assignment, which results in scrambling.<sup>11</sup>

## Adjoined arguments

Under case licensing condition (192), Case can be assigned to an IP-adjoined position as well as a [SPEC IP] position since either position can be governed by INFL. In fact, a SPEC position does not enjoy a special status compared to an adjoined position. The nondistinctness of an adjoined position from a SPEC position in Korean is both empirically and theoretically well-motivated.

Empirically, as will be discussed in detail in Ch. 5, accusative/nominative case can be assigned to time/place adverbial as well as to an argument in Korean. And case assignment to an adverbial is subject to exactly the same case licensing condition as that to an argument. Assuming the standard view that time/place adverbials are adjoined to an IP (or I'), case assignment to an IP-adjoined argument is expected. Theoretically, [Hoekstra 1991] argues that there is no need to distinguish between adjuncts and specifiers independently of agreement; rather, a specifier is an adjunct that agrees with the head. If we assume that Hoekstra is right, and that Korean does not have an agreement of a pronominal nature, all specifiers in Korean are independent of agreement and therefore there is no distinction between adjuncts and specifiers.

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<sup>10</sup>The mismatch between case and  $\theta$ -role assignment has been implicit in the case of exceptional case marking (ECM). Case assignment is completely dissociated from  $\theta$ -role assignment in the Minimalist Framework proposed in [Chomsky 1992].

<sup>11</sup>Note that there is an asymmetry between a nominal (not followed by a functional category with feature [+V -N]) and a verbal clause with regard to case assignment and  $\theta$ -role assignment: In a nominal clause, the head noun has the ability to assign both  $\theta$ -role and case, while in a verbal clause, the head verb has only  $\theta$ -role assigning ability. Anthony Kroch (p.c.) suggests that it is unlikely that there is such an asymmetry between verbs and nouns, and that  $\theta$ -role and case assignments are completely dissociated in both cases. The idea can be instantiated along the following lines: There is an abstract category projection which constitutes the core argument structure, which is common in nominal and verbal projections, and is lower in the hierarchy than the projections of N and V.  $\theta$ -roles are assigned by the head and arguments raise out of their argument structure to be assigned genitive case by a noun, or accusative case by a verb (maintaining the traditional idea that accusative case is assigned by a verb, not by the combination of a verb and a functional category). This alternative seems to be both conceptually more elegant and to have a better potential to cover the wider range of data occurring in Japanese including case possibilities in purposive expressions which are discussed in [Sells 1990, 10] and illustrated below:

i. John-ga America-ni eigo-o BENKYOO-si ni wa kyonen itta  
 John-NOM America-to English-ACC study-do(VSTEM) purposive TOP last year went  
 'John went to America last year in order to study English.'

ii. John-ga America-ni eigo-o BENKYOO ni wa kyonen itta  
 John-NOM America-to English-ACC study purposive TOP last year went

In (ii), the arguments exhibit verbal case array despite the fact that there is no clear functional category of a verbal nature. A way of analyzing this data consistent with Anthony Kroch's suggestion is to assume the abstract argument structure, and an abstract verbal projection which is responsible for verbal case assignment. Under my system, an obvious way of accommodating such data is to assume that the purposive particle *ni* is a functional category with feature [F1 +V -N], just like other aspect morphemes discussed in this chapter.

## Obligatoriness of scrambling

In my system, scrambling is a consequence of case-driven obligatory movement, contrary to the widely accepted view that scrambling is optional. Obligatoriness of scrambling is a welcome result under the ECONOMY PRINCIPLE outlined in [Chomsky 1991] and [Chomsky 1992, 45]. The basic economy-of-derivation assumption is that operations are driven by necessity: they are “last resort,” applied if they must be, not otherwise.

The properties of scrambling discussed in Ch. 2 along with other recent studies of scrambling (cf. [Webelhuth 1989], [Déprez 1989], [Mahajan 1990], [Miyagawa 1991], [Saito 1992], [Hoffman and Turan 1991]) further support the view that scrambling is forced. As [Fukui 1992] argues, under the economy approach, optional movement will be permissible only if its application is “costless.” Alternatively, optional movement will not affect the interpretation of a sentence if we reasonably assume that a change in interpretation is accompanied by a certain cost. However, as discussed in Ch. 2, scrambling affects binding relations, and consequently the interpretation of the sentence, leading to the conclusion that scrambling cannot be optional.

## 4.2 Theta-index and case assignment

The case licensing mechanism which I proposed in the previous section leaves the question of how to ensure that each argument is assigned appropriate case, i.e. subject is assigned nominative case, and object, accusative case, not vice versa, in an unergative transitive verb sentence.<sup>12</sup> I argue that case assignment is sensitive to the  $\theta$ -role which an argument carries.<sup>13</sup> Before I propose a revised case licensing condition, I sketch the factors involved in case licensing in Korean, and introduce the notion of  $\theta$ -indexing.

### 4.2.1 Property of the predicate and $\theta$ -hierarchy

There are two important factors involved in case assignment in Korean, i.e. the category of the predicate (e.g. verbs, adjectives) and the hierarchy of the  $\theta$ -role carried by an argument.

#### Adjectives vs. Verbs

As [Kim 1990] notes, adjectives in Korean, unlike in languages like English, do not appear under a higher copula verb. Instead, they are directly inflected for tense, aspect and modality (cf. Navaho (Anderson 1971), Mohawk (Postal 1979) and Japanese (Kuno 1973)). In this respect, adjectives are almost indistinguishable from verbs in Korean. However, there are two crucial differences between adjectives and verbs: First, the morpheme  $-(nu)n-$  which is identified as the present tense marker can only be suffixed to verbs, not to adjectives, as shown in (198) and (199):

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<sup>12</sup>I am grateful to James Yoon for directing my attention to this issue.

<sup>13</sup>As will become clear later, this should not be confounded with the claim that it involves inherent case assignment.

- (198) Adjective:  
 a. Minho-ka ttokttokha-ta  
 Minho-NOM smart-DEC  
 ‘Minho is smart.’  
 b. \*Minho-ka ttokttokha-**n**-ta  
 Minho-NOM smart-PRES-DEC
- (199) Verb:  
 a. \*Minho-ka wus-ta  
 Minho-NOM laugh-DEC  
 ‘Minho laughs.’  
 b. Minho-ka wus-**nun**-ta  
 Minho-NOM laugh-PRES-DEC

Second, adjectives do not have accusative case assigning ability, regardless of the number of arguments they select for, while verbs do have such an ability. For instance, all the arguments of an adjectival predicate *mwusep-ta* ‘to be afraid of’ are marked nominative, as in (200), while the object of a verbal predicate *al-ta* ‘to know’ is marked accusative, as in (201).

- (200) Minho-ka holangi-**ka**/\***lul** mwusepta  
 Minho-NOM tiger-NOM/ACC be afraid of  
 ‘Minho is afraid of a tiger.’
- (201) Minho-ka Mary-**lul**/\***ka** anta  
 Minho-NOM Mary-ACC/NOM know  
 ‘Minho knows Mary.’

Following the tradition in Korean and Japanese linguistics, cf. [Kuno 1973b], [Kang 1986], I call adjectives [+stative], and verbs, [-stative] predicates.<sup>14</sup> However, I would like to point out that the [ $\pm$ stative] predicate distinction I assume here should be distinguished from the states and activities predicate distinction in [Dowty 1979].<sup>15</sup>

<sup>14</sup>As discussed in section 4.1, a noun also can bear the feature [ $\pm$ stative], e.g. event nouns such as *yenkwu* ‘research’ are [-stative] and result nouns such as *chayksang* ‘desk’ are [+stative].

<sup>15</sup>The following illustrates some of the states and activities predicate classification which [Dowty 1979] proposes:

- I. States(Statives)  
 A. Intransitive Adjectives  
 1. With individuals as subjects: *be tall, big, green, American, quadrilateral*.  
 2. With propositions as subjects: *be true, false, likely, doubtful*.  
 ...  
 C. Transitive and Two-place phrasal adjectives  
 1. *like; similar, identical, related to NP*.  
 [These are the symmetric predicates of Lakoff and Peters 1969]  
 2. *proud, jealous, fond of NP*.  
 ...  
 ...  
 II. Activities



There are at least two diagnostics by which we can distinguish [-stative] predicates from [+stative] predicates in Korean.<sup>16</sup> First, only [-stative] predicates (verbs) can occur with the progressive forming morpheme *-ko issta*, as illustrated by the grammaticality of (202) in which the predicate is [-stative], and the ungrammaticality of (203) in which the predicate is [+stative], cf. [Kim 1991].

(202) Kim-i ikos-ul hyanghay o-ko issta  
 Kim-NOM this place-ACC toward come-PROG  
 ‘Kim is coming toward this place.’

(203) \* Kim-i yongkamha-ko issta  
 Kim-NOM brave-PROG  
 ‘Kim is being brave.’

Second, while [-stative] predicates are compatible with the present perfect tense which is formed by combining the verb root with the verb *-e o-ta*, [+stative] predicates are not. This is illustrated by the grammaticality of (204) containing a [-stative] predicate, and the ungrammaticality of (205) containing [+stative] predicate.

(204) hankwukmintul-un ssal-ul cwusik-ulo mek-e o-assta  
 Koreans-TOP rice-ACC main meal-INST have eaten  
 ‘Koreans have eaten rice as main meal.’

(205) \* Kim-i yongkamha-ye o-assta  
 Kim-NOM have been brave  
 ‘Kim has been brave.’

### Theta hierarchy

In addition to its sensitivity to the category of the potential case-assigner (i.e. selecting predicate), the case assigned to an argument is sensitive to the  $\theta$ -hierarchy among the arguments belonging to the same argument structure. Among the arguments selected for by the same verb (i.e. [-stative] predicate), the argument which carries the highest  $\theta$ -role in a  $\theta$ -hierarchy is assigned nominative case, and the others, accusative case. The situation never arises in which an argument with a higher  $\theta$ -role is assigned accusative case, and an argument with a lower  $\theta$ -role, nominative case. Examples in (206) illustrate the (im)possible case array of the arguments of the ditransitive verb *senmwulha-ta* ‘to give as a present.’

- 
- A. Adjectives [all adjectival and predicate nominal activities are volitional]  
 1. Intransitive: *be brave, greedy*.  
 2. Two-place phrasal: *be rude, nice, polite, obnoxious to NP*.  
 ...

Note that in Dowty’s classification, some adjectives belong to the category of activity predicates, while in my classification they belong to [+stative] predicates.

<sup>16</sup>[Dowty 1979, 55] lists five criteria for distinguishing statives from non-statives: (a) only non-statives occur in the progressive, (b) only non-statives occur as complements of *force* and *persuade*, (c) only non-statives can occur as imperatives, (d) only non-statives co-occur with the adverbs *deliberately, carefully*, (e) only non-statives appear in pseudo-cleft constructions. These criteria, however, are not directly applicable to my [ $\pm$ stative] predicate distinction, except for the one on progressive formation.

- (206) a. Mary-ka Minho-eykey chayk-ul senmwulhayssta  
 Mary-NOM Minho-DAT book-ACC gave as a present  
 ‘Mary gave Minho a book as a present.’  
 b. ? Mary-ka Minho-lul chayk-ul senmwulhayssta  
 Mary-NOM Minho-ACC book-ACC gave as a present  
 c. \* Mary-lul Minho-eykey chayk-i senmwulhayssta  
 Mary-NOM Minho-DAT book-NOM gave as a present

Table 4.1 gives a schematic representation of possible case arrays according to the category of the predicate and the  $\theta$ -hierarchy of the argument.

	#1	#2	#3	...
[-stative]	NOM	ACC	ACC	...
[+stative]	NOM	NOM	NOM	...

Table 4.1: Possible case array of arguments

The numbers at the top row in Table 4.1 represent the  $\theta$ -hierarchy of the arguments selected by the same predicate in a decreasing order, 1 being the argument carrying the highest  $\theta$ -role. The first column of the table represents the category of the predicate, [-stative] being verbs, and [+stative], adjectives. According to the table, all the arguments selected by an adjective ([+stative]) are marked nominative, and the arguments selected by a verb ([-stative]) are marked accusative except for the argument which carries the highest  $\theta$ -role, which is marked nominative.

### Arguments with inherent case

From my discussion on case assignment so far, a question arises concerning arguments with inherent case.<sup>17</sup> In particular, Table 4.1 does not say anything about such arguments. I argue that an argument with an inherent case is assigned structural case at S-structure, and is subject to exactly the same condition as arguments with no inherent case.

Subjects (experiencer) of transitive adjectives may be marked with dative case, which I assume to be an inherent case, as in (207).

- (207) Minho-eykey holangi-ka mwusepta  
 Minho-DAT tiger-NOM be afraid of  
 ‘Minho is afraid of a tiger.’

Nominative case can be assigned to the dative case-marked subject, as in (208).

- (208) ? Minho-eykey-ka holangi-ka mwusepta  
 Minho-DAT-NOM tiger-NOM be afraid of  
 ‘Minho is afraid of a tiger.’

Accusative case can be assigned to a dative case-marked object in a ditransitive verb sentence, as in (209).

<sup>17</sup>I assume that inherent case is assigned at the same level that  $\theta$ -role is assigned, and structural case (nominative and accusative) is assigned at S-structure.

- (209) ? Mary-ka Minho-**eykey-lul** chayk-ul senmwulhayssta  
 Mary-NOM Minho-DAT-ACC book-ACC gave as a present  
 ‘Mary gave Minho a book as a present.’

Genitive case can be assigned to a dative case-marked argument, as in (210).

- (210) Kim chongcang-uy swusek haksayng-**eykey-uy** colepcang-uy swuye  
 Kim president-GEN rank one student-DAT-GEN graduation certificate-GEN award  
 ‘President Kim’s award of a graduation certificate to the best student’

To summarize, arguments marked with an inherent case can be assigned structural case as well, and therefore do not constitute an exception to the general pattern of case assignment summarized in Table 4.1. For the cases where inherently case marked arguments are not marked with overt structural case, I assume that they are due to PF case particle deletion.

#### 4.2.2 Theta-index

For  $\theta$ -role assignment I assume the mechanism proposed in [Fukui 1986, 106-108], which is summarized below.  $\theta$ -marking takes place under strict sisterhood, as defined in (211).

- (211)  $\alpha$  and  $\beta$  are sisters if they are dominated by the same node.

An argument structure, a “ $\theta$ -grid” in the sense of [Stowell 1981], is more than just an unordered list of  $\theta$ -roles: it is structured according to the “closeness” of a  $\theta$ -role to the predicate.<sup>18</sup> This is represented by the linear order of the  $\theta$ -role in a  $\theta$ -grid, i.e. the lefthand  $\theta$ -role is “higher” than the one to its right. For example, in (212)  $\theta_i$  is higher than  $\theta_{i+1}$  to the lexical head to which the  $\theta$ -grid is associated, and  $\theta_1$  is the highest  $\theta$ -role.

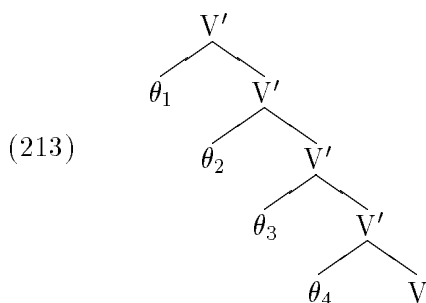
- (212)  $\theta$  - grid =  $\langle \theta_1, \dots, \theta_i, \theta_{i+1}, \dots, \theta_n \rangle$

The “discharge” of the  $\theta$ -roles takes place sequentially from right to left under the strict sisterhood without skipping over a non- $\theta$ -marked position. This mode of  $\theta$ -role discharge is schematically represented in (213).

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<sup>18</sup>The argument structure I am assuming here is close to the prominence theory of argument structure advocated in [Grimshaw 1990] in which argument structure represents the argument-licensing capacity of a predicate without specifying any semantic information about its arguments, except for their relative prominence (hierarchy). Crucially I am not adopting the Uniformity of Theta Assignment Hypothesis proposed by [Baker 1988], and stated below:

THE UNIFORMITY OF THETA ASSIGNMENT HYPOTHESIS (UTAH):  
 Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure.



In (213), the only position which gets  $\theta$ -marked directly by the V is the sister of the verbal head V, and all the other  $\theta$ -roles in a given  $\theta$ -grid are assigned compositionally from the bottom up under the sisterhood relation.

Besides the account of  $\theta$ -role assignment described above, I make an additional assumption that once a  $\theta$ -role is assigned to an argument, the argument carries a numerical index (i.e.  $\theta$ -index) which is identical to the number of the  $\theta$ -role in the  $\theta$ -grid.

(214) **Theta-indexing algorithm:**

- a.  $\theta$ -roles are discharged in a bottom-up fashion according to the  $\theta$ -grid of the lexical head.
- b. The number associated with each  $\theta$ -role ( $\theta$ -index) in the  $\theta$ -grid is inherited by the argument assigned the  $\theta$ -role.

In (215) below, the  $\theta$ -grid of the verb is  $\langle \text{agent}_1, \text{goal}_2, \text{theme}_3 \rangle$ . The complement *senmwul* carries  $\theta$ -index ‘3,’ the dative argument *Younghee*, ‘2,’ and the subject *Minho*, ‘1.’

- (215) Minho<sub>1</sub>-ka Younghee<sub>2</sub>-eykey senmwul<sub>3</sub>-ul cwuessta  
 Minho-NOM Younghee-DAT present-ACC gave  
 ‘Minho gave Younghee a present.’

According to the theta-indexing algorithm, the argument which is assigned the highest  $\theta$ -role always carries theta-index 1.

### 4.2.3 Case assignment rule

Case licensing condition (192) is repeated as in (216).

- (216)
- a. Genitive case is licensed (via head government) by an  $X^0$  category with feature [+N -V].
  - b. Accusative case is licensed (via head government) by a complex  $X^0$  category with feature [-stative F1].
  - c. Nominative case is licensed (via head government) by an  $X^0$  category with feature [F1].

Incorporating  $\theta$ -index and the case pattern for Korean summarized in Table 4.1, I propose the Case Assignment Rule in (217).<sup>19</sup>

<sup>19</sup>[Kang 1986] proposed the case assignment rule given below:

(217) Case Assignment Rule:

- a. Assign genitive case if an argument is governed by an  $X^0$  category with feature [+N -V].
- b. Assign accusative case if an argument whose  $\theta$ -index is not 1 is governed by an  $X^0$  category with feature [-stative F1].
- c. Assign nominative case if an argument is assigned neither genitive nor accusative case, and is governed by an  $X^0$  category with feature [F1].

(217)a says that arguments which are governed by a noun are assigned genitive case. (217)b says that all the arguments of a [-stative] predicate (i.e. verb), except for the one which carries the highest  $\theta$ -role, is assigned accusative case. (217)c says that the argument of a [-stative] predicate which carries the highest  $\theta$ -role, and all the arguments of a [+stative] predicate (i.e. adjective), are assigned nominative case.<sup>20</sup>

(217) is particularly interesting because it combines the apparently conflicting views that nominative case is assigned by default (cf. [Kang 1986], [Kim 1990]), and that nominative case is assigned by INFL ([Yim 1985], [Ahn and Yoon 1989], [Whitman 1991]): The condition that nominative case is assigned to an argument which is assigned neither genitive nor accusative case instantiates the idea that nominative case is the default case in Korean. At the same time the condition that nominative case is assigned via government by a category with feature [F1] implements the idea that nominative case is assigned by INFL. In short, the view that nominative case is the default case and the view that nominative case is assigned by INFL are not mutually exclusive. In fact, both views are correct.

#### 4.2.4 Examples

##### Ditransitive verb sentences

The goal argument of ditransitive verb *cwu-ta* ‘give’ can be marked dative, accusative or the combination of dative and accusative, as in (218) in which the numbers subscripted to the arguments are their  $\theta$ -indices.<sup>21</sup>

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Generalized case marking in Korean ([Kang 1986, 116]):

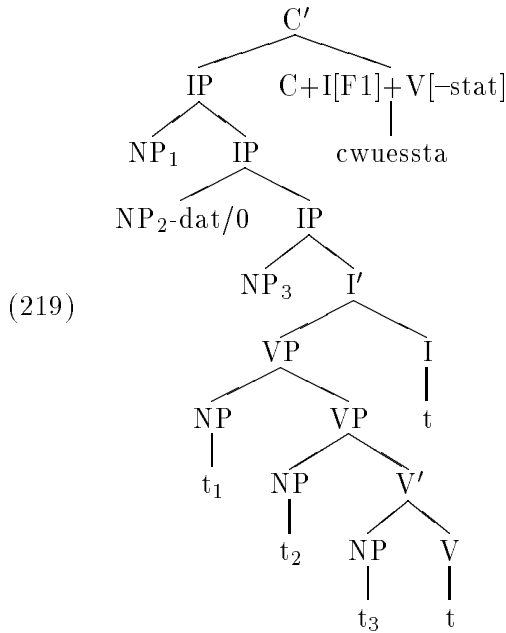
- a. ACC case is assigned to NPs which are sisters of [-stative] V.
- b. NOM case is assigned to all non-case-marked NP’s (default).

<sup>20</sup>There can arise a question concerning whether nominative on complements of transitive adjectives (e.g. *mwusep-ta* ‘to be afraid of’) is indeed assigned by INFL as I argue here, or by a complex category with feature [+stative F1], parallel to accusative case on complements of transitive verbs. I assume that they are assigned by INFL just like the nominative case borne by subject arguments based on the following fact in English: Transitive adjectives in English like *to be afraid* and *to be fond* lack the accusative case assigning ability, and their complements are assigned accusative case (which is assumed to be the default case in English) via dummy *of*-insertion. In analogy to English adjectives which do not have a case-assigning ability, I assume that adjectives in Korean do not have a case-assigning ability, and nominative case (which is the default case in Korean) is assigned to them under government by INFL.

<sup>21</sup>See [Ahn 1988] and [Maling and Kim 1992] for dative/accusative case alternation of the goal argument, and [Yoon and Yoon 1991] for case stacking of DAT+ACC and DAT+NOM.

- (218) Minho<sub>1</sub>-ka Younghee<sub>2</sub>-eykey/lul/?eykey-lul senmwul<sub>3</sub>-ul cwuessta  
 Minho-NOM Younghee-DAT/ACC/DAT-ACC present-ACC gave  
 ‘Minho gave Younghee a present.’

A schematic phrase structure representation of (218) is given in (219), in which the numbers associated with the NPs are  $\theta$ -indices.



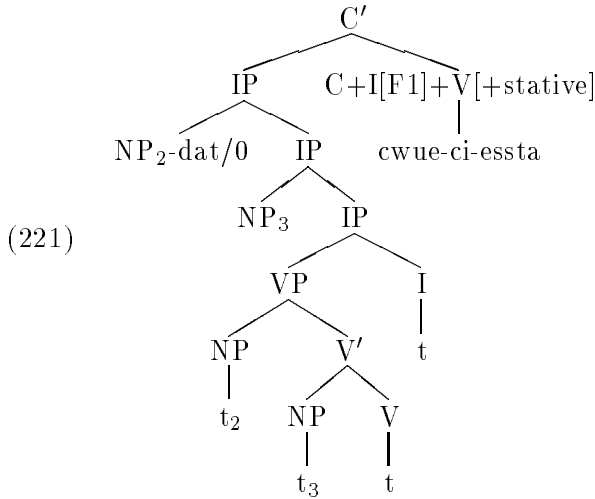
In (219), NP<sub>2</sub> and NP<sub>3</sub> are governed by the complex category I+V[F1 –stative], and therefore assigned accusative case. NP<sub>1</sub>, which carries  $\theta$ -index 1, cannot be assigned accusative case even though it is governed by I+V[F1 –stative], and is assigned nominative case by (217)iii.

Examples like (218), in which more than one argument is assigned accusative case, support my proposal that case is not assigned by SPEC-head agreement, since under such a view it is necessary to posit more than one projection of AGR<sub>O</sub> to accommodate multiple accusative case. Positing more than one projection of the same head, however, runs counter to the main motivation for positing an independent projection in the phrase structure: Each projection in the phrase structure is assumed to have its hierarchical status distinct from all other projections, and the hierarchy of each projection plays a crucial role in explaining various phenomena. For multiple projections of the same head, however, each projection does not correspond to distinct hierarchical status, defeating the motivation for positing distinct projections.

### Passives

Consider (220), which is the passive counterpart of (218). Following [Kang 1987], I assume that a passive predicate formed by the *ci* auxiliary, as that in (220), is [+stative].

- (220) Minho<sub>2</sub>-ka/eykey-ka/eykey/\*lul senmwul<sub>3</sub>-i/\*ul cwue-ci-ess-ta  
 Minho-NOM/DAT-NOM/DAT/ACC present-NOM/ACC give-PASS-PST-DEC  
 ‘Minho was given a present.’



In (221), there is no  $X^0$  category with feature either [+N -V] (for genitive case) or [F1 -stative] (for accusative case), and therefore all the arguments are assigned nominative case according to (217)iii.

As [Kang 1987] and [Hong 1991] show, lexical passives formed by *-i/hi/li/ki* affixation exhibit two distinct case possibilities, as illustrated in (222) (ex. (2a) and (2b) in [Kang 1987, 89]).<sup>22</sup>

- (222) ku namwu-ka kaci-ka/lul cal-**li**-ess-ta  
 the tree-NOM branch-NOM/ACC cut-PASS-PST-DEC  
 ‘A branch of the tree was cut.’

In (222), one argument of the lexical passive may be assigned either nominative or accusative. Concerning these two distinct case possibilities, I assume that a lexical passive is ambiguous between verbal and adjectival (cf. [Levin and Rappaport 1986]), both of which are formed in the lexicon and will be discussed in detail in Ch. 5. With this assumption, if the passive predicate is adjectival with feature [+stative], then all of its arguments will be assigned nominative case, while if it is verbal with feature [-stative], then the argument which carries the highest  $\theta$ -role (*ku namwu* in this case) is assigned nominative case, and others, accusative case.

<sup>22</sup>Passives in Korean are subdivided into two categories: One is so-called lexical passives which are formed by infixing one of the morphemes *-i*, *-hi*, *-li*, *-ki* between the verb stem and the tense morpheme, and the other, so-called *ci*-passives which are formed by adding the auxiliary verb *ci*- after the verb stem, as in *kala ci-ess-ta* ‘is changed.’ *Ci*-passives are [+stative], and lexical passives are either [+stative] (adjectival passive) or [-stative] (verbal passive).

## ECM constructions

Exceptional case marking (ECM) constructions in Korean appears to pose some problems for the Case Assignment Rule in (217).

- (223) nay-ka Minho-ul chencay-la-ko sayngkakhanta  
I-NOM Minho-ACC genius-COP-COMP think  
'I think Minho to be a genius.'

If we assume the standard analysis of exceptional case marking, the embedded subject *Minho* is assigned accusative case by the matrix verb somehow. However, this mode of exceptional case marking is ruled out in my analysis: The matrix verb has raised to the matrix INFL, and it is the trace of the raised verb which governs the exceptionally case-marked element, contradicting my assumption that only the head of a chain assigns case.

However, it has been argued in [Hong 1990] that the accusative NP in (223) is in fact an argument of the matrix predicate, rather than the embedded, giving rise to a representation in (224).

- (224) [<sub>S1</sub> nay-ka Minho<sub>i</sub>-lul [<sub>S2</sub> PRO<sub>i</sub> chencay-lako] sayngkakhanta]

If Hong is right, then case assignment to the arguments in the sentences like (223) will be no different from that in other sentences. The so-called exceptionally case marked element will carry a  $\theta$ -index assigned by the matrix verb, and be assigned case accordingly.

## Empty pro subject

The Case Assignment Rule (217) predicts that there is always at least one nominative case marked argument in a clause, the argument which carries  $\theta$ -index 1. This prediction seems to be borne out in general, except for some cases such as (225), in which there is no overt nominative case-marked argument.

- (225) kwukpangpwu-eyse choisin mwuki-lul taylyang kwuiphayssta  
Defense dept.-LOC most recent weapon-ACC large quantity purchased  
'The Defense Dept. purchased the most recent weapons in large quantities.'

Despite its surface form in which there is no missing argument, intuitively sentence (225) feels like there is a missing subject which receives the agent  $\theta$ -role of the verb, and the missing subject refers to entities related to the locative phrase *kwukpangpwu-eyse*. A translation which reflects this intuition is something like *People in the Defense Department purchased the most recent weapons in large quantities*. Taking this intuition seriously, we may be able to posit a *pro* subject in (222) which is linked to the locative phrase. If this is the case, then (225) is not a real counter-example to the case assignment rule, but the nominative NP is realized as *pro*.

## 4.3 Apparent problems

There are apparent problems for the proposal that obligatory VERB and INFL raising to COMP induce obligatory scrambling of arguments for case purposes. They include arguments



without an overt case morpheme, coordination in event nominal clauses, case assignment in infinitival clauses and the apparent impossibility of nominative argument scrambling. I will examine each phenomenon in turn and argue that they do not constitute real problems.

### 4.3.1 Arguments without overt case morphemes

I have been implicitly assuming that case licensing is realized by an occurrence of an overt case particle. Given this assumption, a question arises concerning the cases where an argument is not suffixed by an overt case particle, as in (226):

- (226) Minho            ku chayk            sasse  
 Minho (subj.) the book (obj.) bought  
 ‘Minho bought the book.’

The question is what kind of Case is borne by the bare arguments (arguments with no overt case particles suffixed to them), assuming that the Case Filter is universal. At least two answers present themselves.

- (227) a. The bare arguments are a result of case particle deletion at PF.  
 b. The bare arguments bear abstract Case as opposed to morphologically realized case.

If we assume that the absence of an overt case particle is due to case particle deletion at PF, we expect that reversing the order of arguments is equally possible in (226). This expectation, however, is not borne out. Consider (228) in which the order of arguments in (226) is reversed.

- (228) ??ku chayk, Minho sasse.

Certainly (228) is not as acceptable as the case in which arguments are marked with overt case. To convey the intended reading, a clear intonation break is necessary between *ku chayk* and *Minho*.

If we assume that the absence of an overt case particle is due to abstract Case assignment, a subsequent question arises concerning how abstract Case is assigned. Considering the unacceptability of examples like (228), it doesn't seem that abstract Case is assigned in the same way as overt case. An obvious hypothesis would be that abstract case (both nominative and accusative) is assigned VP-internally by the verb. This hypothesis, however, results in a contradiction when combined with the assumption that case is assigned by the head of a chain at S-structure and that verb raising is obligatory: After verb raising to COMP, the raised verb cannot govern the VP-internal arguments, and therefore cannot assign case, unless we adopt the Government Transparency Corollary.

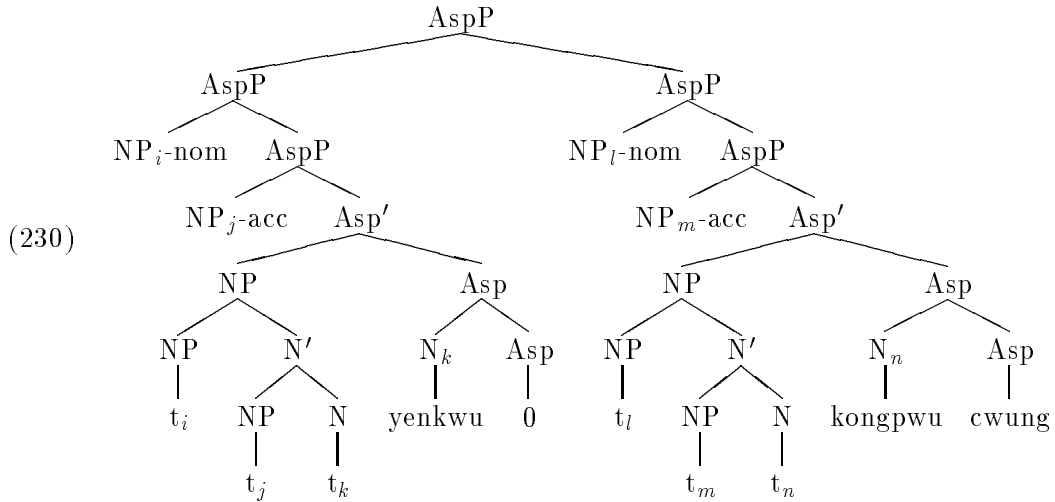
Another alternative is that abstract case is assigned VP-internally by the verb, and abstract case assignment takes place at the same level of grammar as  $\theta$ -role assignment. This alternative is consistent with my analysis of scrambling and overt case assignment. The only odd thing about this proposal is that in general abstract Case is assumed to be assigned at S-structure and  $\theta$ -role at D-structure. At the moment I am not sure what the correct analysis is for arguments without overt case particles, and leave this question open for further research.

### 4.3.2 Coordination in event nominal clauses

Event nominal clauses can be coordinated, as in (229) which is due to James Yoon.

- (229) [<sub>XP</sub> John-i swuhak-ul yenkwu], [<sub>XP</sub> Mary-ka thongsalon-ul kongpwu]-**cwung**  
 John-NOM math-ACC research Mary-NOM syntax-ACC research-during  
 ‘During John’s study of math and Mary’s study of syntax’

(229) looks like an NP coordination, i.e.  $XP = NP$ , and appears to pose a problem for my proposal that the functional feature [F1] is necessary for nominative and accusative case licensing: The head noun of the first conjunct is not followed by an aspect marker which I argue to be responsible for verbal case marking. Nevertheless the arguments exhibit verbal case array (i.e. the subject is marked nominative, and the object, accusative). However, if we assume that the category of the first conjunct is in fact AspP and contains an abstract aspect marker, as in (230), (229) does not pose a problem for the current proposal.



Alternatively, we could assume that (229) is an instance of right-node raising, as James Yoon points out to me in personal communication.

In fact there is indirect evidence that (229) is not an instance of NP coordination, i.e.  $XP \neq NP$ . In general NPs can be coordinated by using the conjunctive particle *-(k)wa*, as illustrated in (231).<sup>23</sup>

- (231) [John-uy swuhak-uy yenkwu]-**wa**, [Mary-uy thongsalon-uy kongpwu]  
 John-GEN math-GEN research-and Mary-GEN syntax-GEN study  
 ‘John’s study of math, and Mary’s study of syntax’

However, the use of the conjunctive particle *wa* to coordinate the category XP in (229) results in an ungrammatical string, as in (232).

<sup>23</sup>For other ways of coordinating NPs, refer to [Cho and Morgan 1987].

- (232) \* John-i swuhak-ul yenkwu-**wa** Mary-ka thongsalon-ul kongpwu-**cwung**  
 John-NOM math-ACC research-and/and Mary-NOM syntax-ACC study-during

If the category of the coordinated elements in (229) is really an NP in the absence of the aspect marker, the unacceptability of (232) is surprising, while it is easily explained if we assume that there is a zero aspect marker in the first conjunct. The unacceptability of (232) contrasts with the acceptability of (233).

- (233) ? [John-uy swuhak-uy yenkwu]-**wa** [Mary-uy thongsalon-uy kongpwu]-**cwung**  
 John-GEN math-GEN research-and Mary-GEN syntax-GEN study-during

(233) minimally differs from (232) in that all arguments are marked with genitive case (as opposed to verbal case), i.e. the head noun is not raised to the position occupied by the aspect marker. Therefore the category of the coordinated elements is NP, and the coordination by particle *-wa* is grammatical.

Coordination possibilities in event nominal clauses other than (232) and (233) are given below (in the examples, *kuliko* is another coordination word which can be used for coordination of any category).

- (234) i. John-i swuhak-uy yenkwu-**\*wa/??kuliko** Mary-ka thongsalon-uy kongpwu-**cwung**  
 ii. John-i swuhak-uy yenkwu-**\*wa/??kuliko** thongsalon-uy yenkwu-**cwung**

The (un)acceptability of (234)i is expected under my analysis: Given that the subject is marked nominative, the category of the coordinate must be AspP. Therefore, coordination by *kuliko* is fine, but coordination by *wa* is ruled out. Note that the marginal acceptability of the coordination by *kuliko* simply reflects the degraded acceptability of the mixed case array before coordination, cf. (188)c. Concerning (234)ii, it seems to be better treated as right-node raising or across-the-board, rather than simple, coordination. Regardless of the exact nature of coordination in (234)ii, however, it is clear from the nominative case on the subject that the head noun has been incorporated into the aspect marker by the time the coordination has taken place. Hence the category of the coordinate cannot be an NP, explaining the unacceptability of coordination by *wa*.

To conclude, the coordination in (229) is not a counterexample to my claim that a functional category with the feature [F1] participates in verbal case licensing, and that the licensing conditions on verbal case require obligatory scrambling of arguments out of their  $\theta$ -domain.

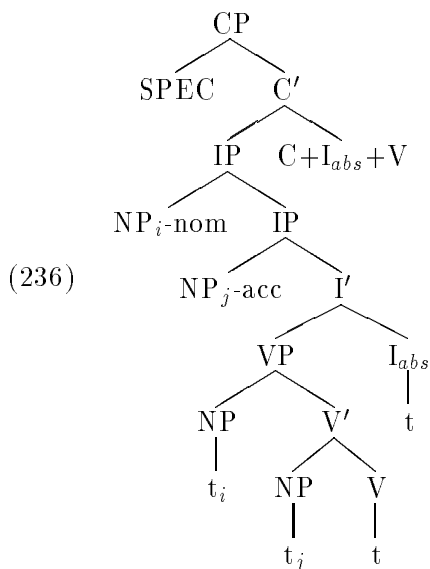
### 4.3.3 Case assignment in infinitival clauses

Obligatory case-driven scrambling out of VP which can result in permuted word orders crucially hinges on the existence of verb raising to COMP. Therefore, nominative/accusative case assignment in a clause, the category of which is not a CP, will run counter to this proposal. Apparently there exist such cases in Korean, namely, case assignment to a causee in causative constructions. It has been generally assumed that the categorial status of the clausal complement of a causative verb is IP or sometimes even VP. Nevertheless, arguments of the complement clause of a causative verb in Korean can be assigned nominative and accusative case, as illustrated in (235).

- (235) Younghee-nun [Minho-ka tayhakipsi-lul phokiha-key] mantulessta  
 Younghee-TOP Minho-NOM college entrance exam-ACC give up-COMP made  
 ‘Younghee made Minho give up taking the college entrance exam.’

The embedded clause of the causative verb *mantulta* ‘make’ in (235) is infinitival, yet the subject and the object are marked with nominative and accusative case, respectively. Therefore, examples like (235) appears to run counter to my claim.

However, I argue that this is not a real counterexample, and make the following assumptions: First, there is an abstract INFL in infinitival clauses, as has been standardly assumed for infinitival clauses in general. Second, the infinitival clause in (235) is either CP or C', contrary to the standard assumption that infinitival clauses are either IP or I'.<sup>24</sup> I further assume that the verb and the abstract INFL in an infinitival clause raise to COMP just as in finite clauses, as schematically represented in (236), cf. [Stowell 1982] for raising of tense operator to COMP at LF.



If the assumptions stated above are correct, then a sentence like (235) is not a counterexample to my proposal. In fact, the assumptions explain why there exists such a difference between English and Korean in the case possibilities of a causee in causative constructions: The categorial status of the complement clause of a causative verb is an IP in English, while it is a CP in Korean.<sup>25</sup>

<sup>24</sup>[Heycock 1987] speculates that there are no true small clauses in Korean, on the basis of her study of the same construction.

<sup>25</sup>It has been widely noted in the literature (cf. [Lee 1989b], [Bratt 1992] and references cited there) that the causee in periphrastic causative constructions in Korean can be marked accusative and dative as well as nominative. For the cases where the causee is marked accusative and dative, the categorial status of the complement clause might be an IP.

#### 4.3.4 Scrambling of nominative arguments

Certain stative predicates (i.e. transitive adjectives) in Korean subcategorize for nominative complements. Consider (237) and (238).

- (237) *Minho-ka caki citokyoswu-ka/\*ul mwusepta*  
 Minho-NOM self(GEN) advisor-NOM/ACC is afraid of  
 ‘Minho is afraid of his advisor.’
- (238) *nay-ka Minho-ka/\*lul cohta*  
 I-NOM Minho-NOM/ACC be fond of  
 ‘I am fond of Minho.’

The theme arguments *citokyoswu-ka* in (237) and *Minho-ka* in (238) apparently cannot be scrambled, as illustrated in (239) and (240).

- (239) *\*?caki citokyoswu<sub>i</sub>-ka, Minho-ka t<sub>i</sub> mwusepta.*
- (240) *\*Minho<sub>i</sub>-ka, nay-ka t<sub>i</sub> cohta.*

If I am right in claiming that verb (and INFL) raising induces scrambling for case purposes, thereby arranging arguments in any order, the unacceptability of the examples such as (239) and (240) is problematic: Nominative case is assigned by I[F1] in COMP to the scrambled arguments in any order.

Concerning this problem, I will argue that scrambling of arguments is only apparently blocked. A close examination of a wide range of data indicates that this blocking effect on nominative argument scrambling is due to the “anti-ambiguity” condition advanced in [Kuno 1980], which I take to be a discourse condition. I will first briefly review [Miyagawa 1991]’s proposal for a similar problem in Japanese, and then propose my explanation of the data.

#### Infl-lowering account

Discussing potential constructions in Japanese in which the predicate subcategorizes for either an accusative or a nominative complement, [Miyagawa 1991, 32-33] notes that if the complement is marked nominative, scrambling of the complement is almost impossible, which is analogous to the Korean examples in (239) and (240). This is illustrated below (the judgments are also Miyagawa’s).

- (241) *John-ga nihongo-o/ga hanas-e-ru*  
 John-NOM Japanese-ACC/NOM speak-can-present  
 ‘John can speak Japanese.’
- (242) *???nihongo<sub>i</sub>-ga John-ga t<sub>i</sub> hanaseru.*

Miyagawa explains the unacceptability of the scrambled sentence (242) by positing Infl-lowering,<sup>26</sup> adopting Takezawa’s analysis of case-assignment in potential constructions. According to Takezawa, the nominative case on the object NP in (241) is assigned by the lowered Infl, as illustrated in (243).

<sup>26</sup>Miyagawa assumes Infl-lowering to account for the unacceptability of the examples like (242), while maintaining Infl-raising to account for scrambling.

- (243) [IP ... [VP nihongo-**ga** hanas-e-**ru**<sub>i</sub>] t<sub>i</sub>]  
 Japanese-NOM speak-can-present

Assuming that this analysis is correct, the unacceptability of the scrambled phrase in (242) is easily explainable: The scrambled object NP has adjoined to IP. However, this IP adjoined position is not a Case realization position because the Infl has lowered to V, and therefore does not govern the moved NP.

Even though the Infl-lowering account seems to work well for the cases which Miyagawa discusses, there are some problems in applying it to the Korean examples I discuss. Going back to examples (237) and (238), the arguments may have ‘DAT–NOM’ case array in addition to the ‘NOM–NOM’ case array, as illustrated in (244).

- (244) Minho-eykey(-ka) caki citokyoswu-**ka** mwusepta  
 Minho-DAT-(NOM) self(GEN) advisor-NOM/ACC is afraid of  
 ‘Minho is afraid of his advisor/To Minho, his advisor is frightening.’

- (245) na-eykey Minho-**ka** cohta  
 I-DAT Minho-NOM/ACC be fond of  
 ‘I am fond of Minho/To me, Minho is nice.’

When the arguments exhibit ‘DAT–NOM’ case array, scrambling of the nominative complements is perfectly acceptable, as shown in (246) and (247).

- (246) ok-**caki citokyoswu**<sub>i</sub>-ka Minho-eykey t<sub>i</sub> mwusepta

- (247) ok-**Minho**<sub>i</sub>-ka na-eykey t<sub>i</sub> cohta

If the Infl-lowering account is correct, the acceptability of (246) and (247) is unexpected, since the scrambled nominative complement is adjoined to IP, and is not governed by the lowered Infl as in (239) and (240). Another fact which casts doubts on the Infl-lowering account is that if the experiencer arguments (subjects) are marked with the topic particle *-nun*, the acceptability of the sentences improves significantly, as in (248) and (249).

- (248) ?**caki citokyoswu**<sub>i</sub>-ka Minho-**nun** t<sub>i</sub> mwusepta.

- (249) ?**Minho**<sub>i</sub>-ka na-**nun** t<sub>i</sub> cohta.

### Proposal: Anti-ambiguity constraint

Concerning the apparent unacceptability of (239) and (240), I will argue that it is due to the “anti-ambiguity” constraint on scrambling which I take to be a discourse constraint, along the line of [Kuno 1980].<sup>27</sup> [Kuno 1980] argues that the unacceptability of scrambling in sentences like (242) above, and (251)b below (ex. (2) in [Kuno 1980]), is due to the *anti-ambiguity* device, which is stated as (250) (taken from [Saito 1985, 191]).

<sup>27</sup>Historically, one of the major arguments which have supported the view that nominative arguments cannot be scrambled comes from a certain asymmetry in the behavior of floating numeral classifiers (NC hereafter) which are associated with subjects and objects. Based upon the observation by [Kuroda 1983], [Saito 1985, 211–212] and [Miyagawa 1989] explain the contrast in acceptability between (b) and (d) by assuming that subjects can not be scrambled while objects can.

- 
- a. *Gakusei-ga sannin hon-o katta*  
 Student-NOM 3-CL[person] book-ACC bought  
 ‘Three students bought books.’
- b. \**Gakusei-ga hon-o sannin katta*  
 Student-NOM book-ACC 3-CL[person] bought
- c. *Gakusei-ga hon-o nisatu katta*  
 Student-NOM book-ACC 2-CL[book] bought  
 ‘A student bought two books.’
- d. *hon-o Gakusei-ga nisatu katta*  
 book-ACC Student-NOM 2-CL[book] bought

In (a), the NC *sannin* is associated with the subject NP, and the object NP cannot intervene between them, as shown in (b). In (c), the NC *nisatu* is associated with the object NP. Contrary to (b), however, the intervention of the subject NP between them does not result in an unacceptability, as shown in (d).

[Saito 1985] derives this contrast by positing asymmetry between nominative and accusative case assignment, which has the effect of preventing a nominative NP from being scrambled, but allows an accusative NP to be freely scrambled. Assuming that an NC is in modification relation to its host NP, and that they are generated adjacent to each other at D-structure, (b) is derived by first scrambling the object, and then scrambling the subject across the scrambled object, leaving the NC behind, as shown in (e). However, the derivation (e) is illegitimate since the subject NP cannot be scrambled, hence (b) is ungrammatical. On the other hand, (d) is derived by scrambling the accusative object, leaving the NC behind, as in (f). This derivation is legitimate, hence (d) is grammatical.

- e. *Gakusei-ga hon<sub>j</sub>-o [IP t<sub>i</sub> sannin [VP t<sub>j</sub> katta]]*  
 student-NOM book-ACC 3-CL bought
- f. *hon<sub>i</sub>-o [IP Gakusei-ga [VP t<sub>i</sub> nisatu katta]]*  
 book-ACC student-NOM 2-CL bought

The contrast between (b) and (d) remains unexplained in my analysis. Nevertheless, some facts in Korean (similar facts are observed also for Japanese in [Fukushima 1991]) lead me to believe that the account given by Saito is not on the right track. That is, the contrast between (b) and (d) disappears if we replace the NC by non-numeral floating quantifiers, as illustrated in (g) – (j).

- g. *yehaksayng-i motwu i saken-ul mokkyekhayssta*  
 female student-NOM all this event-ACC witnessed  
 ‘All female students witnessed this event.’
- h. *yehaksayng-i i saken-ul motwu mokkyekhayssta*
- i. *siptay-tul-i taypwupwun Michael Jackson-ul coahanta*  
 teenager-PL-NOM most Michael Jackson-ACC like  
 ‘Most teenagers like Michael Jackson.’
- j. *siptay-tul-i Michael Jackson-ul taypwupwun coahanta*

In (g) and (i), the floating quantifiers *motwu* and *taypwupwun* are associated with their subjects. Intervention of the object between the subjects and the floating quantifiers, as in (h) and (j) do not result in ungrammaticality, in contrast to (b) above. Of course, we need to explain why there is such a difference between (h) and (j) on the one hand, and (b) on the other. Nevertheless, the acceptability of (h) and (j) casts doubts on Saito’s claim that the ungrammaticality of (b) is due to the impossibility of scrambling of nominative arguments.

- (250) In general, the greater the likelihood of ambiguous interpretation, the more difficult it is to switch the word order of two NPs marked with the same grammatical formative (e.g. particle).
- (251) a. Taroo-**ga** tennis-**ga** zyoozu-da  
 Taroo-NOM tennis-NOM good at-is  
 ‘Taroo is good at tennis.’  
 b. \*tenisu;**-ga** Taroo-**ga** t<sub>i</sub> zyoozu-ta

Kuno does not make explicit what the nature of the anti-ambiguity device is. I interpret it as a discourse condition. That is, scrambling is associated with a particular discourse function such as presuppositionality, which will be discussed in Ch. 6, and the functor-argument structure of a scrambled sentence has to be inferrable from the discourse. Otherwise, the scrambled interpretation is disfavored even though the given scrambling is possible syntactically. If this explanation is correct, we expect that nominative argument scrambling is possible in an appropriate discourse context. Furthermore, scrambling of an oblique argument (e.g. accusative and dative argument) will be hard if the intended functor-argument structure of the scrambled sentence is not easily inferrable, even though scramblability of an oblique argument has never been put into a question. Below I will show that these expectations are indeed borne out.

### Scrambling of nominative arguments

Consider examples below in which scrambling of nominative arguments is perfectly acceptable.<sup>28</sup>

- (252) catongcha-ka sa-ko siphess-nuntey, **computer;-ka** aitul-i t<sub>i</sub> kkok  
 car-NOM buy-COMP wanted-but computer-NOM kids-NOM really  
 philyohata-ko hay-se computer-lul sassta  
 is in need of-COMP say-therefore computer-ACC bought

‘I wanted to buy a car, but a computer, my kids said that they really need, and therefore I bought a computer.’

In (252), the nominative complement *computer-ka* has been scrambled across the nominative subject *aitul-i*, yet the sentence is perfectly acceptable. The preceding sentence *catongcha-ka sa-ko siphess-nuntey* facilitates the intended scrambling.<sup>29</sup>

<sup>28</sup>Even though I argue that nominative argument scrambling is possible, I am unsure as to whether or not scrambling of adjunct nominative NPs in multiple nominative constructions is equally possible. If scrambling is blocked in multiple nominative constructions, it may be due to the same ordering constraints imposed on ordering of multiple modifiers in general.

<sup>29</sup>A question arises concerning whether *computer-ka* in (252) has undergone local or long-distance scrambling. The sentence containing the scrambled phrase is a complex sentence in which either the matrix or the embedded subject is *pro*, depending on how we analyze the sentence. The two possible representations are given in (a) and (b) below.

- a. computer;<sub>i</sub>-ka [aitul-i [pro t<sub>i</sub> kkok philyohata-ko] hay-se]  
 b. computer;<sub>i</sub>-ka [pro [aitul-i t<sub>i</sub> kkok philyohata-ko] hay-se]

The nominative complement has undergone long-distance scrambling in (a), while it is locally scrambled in (b). Which representation is the correct one, however, depends on one’s theory of the distribution of ‘pro.’



- (253) ecey wuli-nun [<sub>Rel</sub> kangwento-ey iss-nun] han mokcang-ey kassessta  
 yesterday we-TOP Kangwen province-in exist-REL a pasture-LOC went  
 ‘Yesterday we went to a pasture which is in Kangwen Province.’  
 kulentey **ku mokcang<sub>i</sub>-i** Minho-ka t<sub>i</sub> caknyen-kkaciman hayto  
 by the way that pasture-NOM Minho-NOM last year-only until  
 koaswuweniessta-ko malhayssta  
 was an orchard-COMP said  
 ‘By the way, that pasture, Minho said was an orchard even until last year.’

In (253), the embedded nominative subject *ku mokcang-i* has long-distance scrambled across the matrix nominative subject *Minho-ka*, and the sentence sounds more natural than its canonical order counterpart to my ear. More examples involving nominative argument scrambling are given below.

- (254) Local scrambling of nominative complement

**ton<sub>i</sub>-i** nay-ka t<sub>i</sub> sampayk wen issta  
 money-NOM I-NOM three hundred wen (unit of Korean currency) exist  
 ‘As for money, I have three hundred wen.’

- (255) Long-distance scrambling of a wh-subject of a transitive verb

nwu(kwu)<sub>i</sub>-ka [Minho-nun [t<sub>i</sub> nay cacenke-lul hwumchiekass-nunci] a-ni]  
 who-NOM Minho-TOP my bicycle-ACC stole-whether know-QM  
 ‘Does Minho know who stole my bicycle and ran away?’

- (256) Long-distance scrambling of subject NP of a transitive verb

[caki-uy kachwul]<sub>i</sub>-i Younghee-nun [t<sub>i</sub> emma-eykey khun chwungkyek-ul  
 self-GEN elope-NOM Younghee-TOP mother-DAT big shock-ACC  
 cwulila-nunkes]-ul alko issessta  
 would give-that]-ACC knew  
 ‘Younghee knew that her eloping would give a big shock to her mother.’

### Scrambling of oblique arguments

In addition to the cases in which scrambling of nominative arguments sounds perfectly natural with an appropriate discourse context, there are cases in which scrambling of accusative and dative arguments is unacceptable.

(257) is the base order sentence in which the psych verb *koylophita* ‘bother’ takes the clausal and the accusative argument. (258) is a scrambled counterpart of (257): The accusative complement *na-lul* has scrambled across the clausal argument, and the sentence is highly marginal.

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According to [Huang 1984], the correct representation would be (a), while [Suh 1991] argues that the correct representation is (b). The analysis we choose, however, does not affect my claim.

(257) [Chelswu-ka Younghee-lul salanghanta-nun] kes-i na-lul koylophiessta  
 Chelswu-NOM Younghee-ACC love-MOD that-NOM I-ACC bothered  
 ‘The fact that Chelswu loves Younghee bothered me.’

(258) ??na<sub>i</sub>-lul [Chelswu-ka Younghee-lul salanghanta-nun] kes-i t<sub>i</sub> koylophiessta

Scrambling of the accusative argument *Younghee-lul* of the embedded clause across the scrambled matrix accusative argument *em na-lul* in (258) is completely out, as illustrated by (259).

(259) \*Younghee<sub>j</sub>-lul na<sub>i</sub>-lul [Chelswu-ka t<sub>j</sub> salanghanta-nun] kes-i t<sub>i</sub> koylophiessta  
 Younghee-ACC I-ACC Chelswu-NOM love-MOD that-NOM bothered

The marginality of (258) and the unacceptability of (259) is quite unexpected since in general scrambling of an accusative argument is perfectly grammatical. However, under the anti-ambiguity constraint, the marginality of the sentences finds an easy explanation. Scrambling of an accusative argument across another accusative argument makes it hard to identify the functor-argument relation of each clause. In addition, a discourse context which accommodates the instance of scrambling as in (259) is not easily available, explaining the severe unacceptability of (259) compared to (258).

(260)b and (261)b illustrate that scrambling of a dative argument across another dative argument is as bad as scrambling of a nominative argument across another nominative argument.

(260) a. emma-ka apeci-eykey Minho-hantey yongton-ul mos-cwu-key hayssta  
 mom-NOM father-DAT Minho-DAT money-ACC neg-give-CE made  
 ‘Mom made father not give money to Minho.’

b. \*emma-ka **Minho**<sub>i</sub>-hantey apeci-eykey t<sub>i</sub> yongton-ul mos-cwu-key hayssta

(261) a. Chelswu-ka Younghee-eykey [nwu(kwu)-ka Youlee-eykey cangmikkos-ul  
 Chelswu-NOM Younghee-DAT who-NOM Youlee-DAT roses-ACC

senmwulhayss-nunci] mwulessta  
 gave as a present-whether asked

‘Chelswu asked Younghee who gave roses to Youlee as a present.’

b. \***Youlee**<sub>i</sub>-eykey Chelswu-ka Younghee-eykey [nwu(kwu)-ka t<sub>i</sub> cangmikkos-ul  
 senmwulhayss-nunci] mwulessta.

To summarize, the usual unacceptability of scrambling nominative arguments is only apparent, and is due to the anti-ambiguity constraint. The difficulty of scrambling of oblique argument across another oblique argument of the same sort further supports the claim.

#### 4.4 Long distance scrambling

I argue that long distance scrambling is no different from local scrambling in that it is equally case-driven. The only difference between them is the landing site of movement, i.e. inter clausal vs. intra clausal.

I will first sketch how long distance scrambling can be explained in a manner parallel to local scrambling. I then address the question of why long distance scrambling is not subject to the same kind of locality constraints as standard A-movement. The answer lies in understanding the nature of A-traces: Assuming that an A-trace is an anaphor subject to the Binding Principle (A), it is not surprising that there exists long distance movement of A-nature in the same language.

#### 4.4.1 Derivation of long-distance scrambling

Consider (262), which is an instance of long distance scrambling. Numbers associated with the arguments are their  $\theta$ -indices. Arguments, the  $\theta$ -indices of which are marked ', are the arguments of the embedded verb.

- (262) i chayk<sub>2'</sub><sub>i</sub>-ul Kim kyoswu<sub>1</sub>-ka [motwu<sub>1'</sub>-ka t<sub>i</sub> ilkeya hanta-ko]<sub>2</sub> malhayssta  
 this book-ACC Prof. Kim-NOM everyone-NOM must read-COMP said  
 'Prof. Kim said that everyone has to read this book.'

In (262), the long distance scrambled embedded object is adjoined to the matrix IP. It is assigned accusative case by the I+V[F1 –stative] complex associated with the matrix clause.

My analysis of long distance scrambling implies that there is no correlation between the subcategorization frame of a verb and case assignment, i.e. Case doesn't have to be assigned to an argument by its subcategorizing verb. This is anticipated by the dissociation of case assignment from  $\theta$ -role assignment discussed in section 4.1.5, and is further supported by facts concerning case assignment to an adverbial which will be discussed in detail in Ch. 5. The relevant point is that Case is assigned not only to an argument but also to an adverbial in Korean, indicating that case assignment has nothing to do with the subcategorization frame of a verb.

#### 4.4.2 Absence of locality constraints on scrambling

Even though I have been arguing that scrambling is case-driven A-movement, there is a clear difference between standard A-movements and scrambling: While standard A-movement is subject to the strict locality conditions, as illustrated by the ungrammaticality of (263)b, scrambling is not. Long distance scrambling out of a finite clause doesn't lead to an ungrammaticality, as in (264).

- (263) a. John<sub>i</sub> seems [t<sub>i</sub> to be intelligent]  
 b. \*John<sub>i</sub> seems that (it) is considered [t<sub>i</sub> to be intelligent]
- (264) [caki tongsayng]<sub>i</sub>-ul Minho-ka t<sub>i</sub> haktayhayssta  
 self's younger sibling-ACC Minho-NOM mistreated  
 'His younger sibling, Minho mistreated.'

However, if we assume that an A-trace is like an anaphor, and therefore is subject to the same locality conditions for anaphor binding, the lack of strict locality condition on scrambling in Korean is not surprising: Even though anaphor binding in English is subject to locality conditions like the specified subject condition (SSC), as in (265), and the nominative

island condition (NIC), as in (266), anaphor binding in Korean is subject to neither of these conditions, as illustrated in (267) and (268), [Yang 1988], [Progovac and Franks 1991], [Hong 1987].

- (265) John<sub>i</sub> expects Mary<sub>j</sub> to like herself<sub>j</sub>/\*himself<sub>i</sub>.
- (266) \*John<sub>i</sub> thinks that himself<sub>i</sub> is a genius.
- (267) Younghee<sub>i</sub>-ka Minho<sub>j</sub>-eykey caki-casin<sub>i</sub>/subj-ul chingchanha-key mantulessta  
 Younghee-NOM Minho-DAT self-self-ACC praise-CE made  
 ‘Younghee<sub>i</sub> made Minho<sub>j</sub> help herself<sub>j</sub>/himself<sub>i</sub>.’
- (268) Minho<sub>j</sub>-ka [caki-casin<sub>i</sub>-i checay-la-ko] sayngkakhanta  
 Minho-NOM self-self-NOM genius-COP-COMP think  
 ‘Minho<sub>j</sub> thinks that himself<sub>i</sub> is a genius.’
- (269) Minho<sub>j</sub>-ka [Younghee-ka caki<sub>i</sub>-lul pipanhayssta-ko] malhayssta  
 Minho-NOM Younghee-NOM self-ACC criticized-COMP said  
 ‘Minho<sub>j</sub> said that Younghee criticized self<sub>i</sub>.’

Given that long distance binding into a finite clause is possible in Korean,<sup>30</sup> the existence of long distance scrambling of A-nature is expected.

#### 4.4.3 A-chain

A question remains concerning how long scrambling is derived: Does it take place successive cyclically through intermediate traces or does it take place in one fell swoop? Whatever option we adopt, our current understanding of the theory poses a problem for an A-movement analysis of scrambling. Suppose the movement takes place out of the embedded VP to the matrix IP in one fell swoop, then subadjacency or a locality condition of a similar sort will be violated. On the other hand, if the movement takes place successive cyclically, intermediate traces become problematic. For instance, the derivation of (262), repeated here as (270), will be represented as in (271).

- (270)  $i$  chayk<sub>2*t*</sub>-ul Kim kyoswu<sub>1</sub>-ka [motwu<sub>1*t'*</sub>-ka  $t_i$  ilkeya hanta-ko]<sub>2</sub> malhayssta  
 this book-ACC Prof. Kim-NOM everyone-NOM must read-COMP said  
 ‘Prof. Kim said that everyone has to read this book.’
- (271)  $i$  chayk<sub>2*t'*</sub>-ul Kim kyoswu<sub>1</sub>-ka [ $t_i'$  motwu<sub>1*t'*</sub>-ka  $t_i$  ilkeya hanta-ko]<sub>2</sub> malhayssta.

The problem lies in the fact that the intermediate trace  $t'$  in (271) is in a case assignable position, and therefore the movement from the intermediate position to the landing site of the matrix clause does not constitute proper A-movement, hence is a violation of the condition on A-chains stated in (272):

- (272) A maximal A-chain  $(\alpha_1, \dots, \alpha_n)$  has exactly one Case-marked position (namely,  $\alpha_1$ ) and exactly one  $\theta$ -marked position (namely,  $\alpha_n$ ), [Chomsky 1986, 63].

<sup>30</sup>[Yang 1988] attributes the extended binding domain in Korean to the lack of AGR in this language.

I am agnostic about which is the better of these two options, even though the option that the movement takes place in one fell swoop seems more reasonable in that a sentence involving long distance scrambling sounds like a weak subadjacency violation comparable to wh-movement of a complement out of a weak island in English. In addition, allowing intermediate traces leads to highly unconstrained derivations. Empirically, there are some facts which call the current formulation of A-chain into question, in particular, the Case uniqueness condition. As [Yoon and Yoon 1991] argue and as we saw in section 4.2, an argument with an inherent case can be assigned structural case (nominative/accusative) in Korean.<sup>31</sup> The existence of such multiply case-marked arguments indicates that the condition on A-chains as currently formulated cannot be maintained. Finally, examples like (273) (due to Robert Frank (p.c.)) in English suggest that the condition on A-chains is too narrowly defined:

(273) Whom<sub>i</sub> do you believe [t<sub>i</sub> is smart]?

The wh-moved phrase *whom* in (273) has originated in the position (t<sub>i</sub>) to which nominative case is assigned. However, the case which is overtly realized is accusative, not nominative, indicating that the phrase is exceptionally case marked by the matrix predicate *believe* before movement. Whether we take the exceptional case marking to have taken place through movement or in-situ in (273), it is clear that the wh-moved phrase carries two Cases, namely, nominative and accusative, indicating that the chain condition which requires any well-formed chain to have only one element with Case cannot adequately cover all grammatical sentences.

#### 4.4.4 Where does long distance scrambling diverge from local scrambling?

I have assumed that when there is movement, it is the moved element, not its trace, which is responsible for case licensing, cf. section 4.1.2. This assumption results in a very interesting difference between local and long distance scrambling, when combined with the proposal in [Heycock and Kroch 1992]; namely, that any licensing relation satisfied by the head of a chain at S-structure cannot in addition license a trace. Consequently, given minimalist assumptions along the lines of [Chomsky 1991], [Chomsky 1992], a trace that has had all of the licensing conditions in which it participates preempted by the head of its chain must delete unless it is independently licensed.

Assuming that the Principle of Full Interpretation requires that a predicate-argument relationship should be identified within the same clause (i.e. the same extended projection), the trace of a locally scrambled element must be deleted while that of a long-distance scrambled element cannot: Case licensing is satisfied by the moved argument, and therefore the trace has to delete as far as case licensing condition is concerned. For the condition on predicate-argument identification, the trace of a locally scrambled argument is not necessary since the predicate and the moved arguments are within the same clause. However, the trace of a long-distance scrambled argument needs to remain for the predicate-argument

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<sup>31</sup>In fact under my system all arguments with inherent case obligatorily scramble out of their  $\theta$ -domain to be assigned structural case. The cases in which an argument with inherent case is not marked with an overt nominative/accusative case morpheme are ascribed to case-deletion at PF.

identification since the moved argument is not in the same clause as its subcategorizing predicate.<sup>32</sup> This difference between local and long distance scrambling in terms of the status of their trace captures the intuition which many people have had. That is, local scrambling can be easily handled in terms of base-generation, while long distance scrambling cannot (primarily due to the locality condition on  $\theta$ -role assignement), cf. [Hale 1982].

My analysis of both local and long distance scrambling as case-driven A-movement captures the identical properties of local and long distance scrambling with regard to binding. At the same time, the particular view on a trace advanced by [Heycock and Kroch 1992] which I adopt here adequately captures the intuition that a long distance scrambled argument leaves a trace behind, while a local scrambled element does not.

## 4.5 Deriving the parametric difference between English and Korean

The claim that scrambling is a consequence of case-driven obligatory movement of arguments on a par with standard A-movement, leads to the question of why English does not have scrambling. In this section, I show how to derive this parametric difference between the two languages.

I assume that the case licensing condition in (192) applies to English as well as Korean. The only difference between the two languages is the level at which accusative case is licensed: In Korean, accusative case is licensed at S-structure, while in English it is done at LF as [Chomsky 1992, 12] proposes.<sup>33</sup> Nominative case is licensed at S-structure in both languages. The absence and presence of overt scrambling in English and Korean, respectively, follow from the difference in the level at which accusative case is licensed: In Korean both a subject and an object move out of VP at S-structure, and the moved arguments can be arranged in any order for the purpose of case licensing, giving rise to scrambling effects. In English only a subject moves out of VP at S-structure since only nominative case is licensed at S-structure, resulting in the constant ‘subject-verb-object’ order. Movement of an object at LF for accusative case licensing is invisible, and therefore does not affect the surface word order.

A question, in turn, arises; namely, what induces the difference between English and Korean in the level at which accusative case is assigned? I argue that it is reduced to the level at which verb raising to INFL takes place. Recall that the precondition of accusative case assignment is verb raising to INFL. Verb raising takes place at S-structure in Korean (overt raising), but at LF in English (covert raising), cf. [Chomsky 1992, 25,43]. This difference is reduced to the nature of INFL in the two languages. That is, the V-feature of INFL in Korean is strong, while that in English is weak, cf. [Pollock 1989], [Chomsky 1992, 43].

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<sup>32</sup>This, of course, does not exclude the possibility that the trace of a locally scrambled element might be required by an independent principle, in which case the trace cannot delete. Note that the skeleton structure after trace deletion is compatible with one which does not posit functional projections and head movement as advocated in [Sells 1991], abstracting away from the node label.

<sup>33</sup>Roughly speaking, overt movement in [Chomsky 1992] corresponds to S-structure movement, and covert movement, to LF-movement.

## Chapter 5

# The Adjoined Argument Hypothesis

Throughout this thesis I have assumed that scrambling is adjunction. I have also argued that scrambling is like standard A-movement in that it is case-driven (Ch. 4.1.2) and exhibits properties of A-movement with regard to binding (Ch. 2). Combining these two, we reach the conclusion that adjoined positions are A-positions in Korean. From this, I hypothesize that adjoined positions can be A-positions in Korean and call this the *adjoined argument hypothesis*. In this chapter I attempt to strengthen this hypothesis by discussing various phenomena. They include case assignment to adverbials (section 5.1), binding by a nominative adjunct NP in multiple nominative constructions (section 5.2), and absence of island effects in scrambling out of a scrambled clause (section 5.3).

### 5.1 Case assignment to adverbials

In this section I discuss some data involving case assignment to adverbials, and argue that it is subject to the same case licensing conditions for arguments, and therefore constitutes further evidence that adjoined positions can be A-positions in Korean.

As first noted by [Maling 1989] and further elaborated in [Cho 1992a], in Korean accusative case can be assigned to adverbial NPs/PPs, in particular, to duration/frequency adverbials. Some examples are given below:

(274) Inho-ka i chayk-**ul** twu pen-**ul**/**\*i** ilkessta  
Inho-NOM this book-ACC two times-ACC/NOM read  
Inho read this book twice.

(275) Inho-ka i chayk-**ul** sey sikan-tongan-**ul**/**\*i** ilkessta  
Inho-NOM this book-ACC three hour-for-ACC/NOM read  
'Inho read this book for three hours.'

The frequency adverbial *twu pen* in (274), and the duration adverbial *sey sikan-tongan* in (275) are marked with accusative case, despite the fact that they are not arguments.<sup>1</sup>

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<sup>1</sup>Citing Audrey Li (1985)'s work, [Maling 1989] gives examples in Chinese which illustrate that not only an

Not only accusative but also nominative and genitive case can be assigned to adverbials, as illustrated in (276)—(279).

- (276) kil-i seoul-kkaci-**ka** hemhata  
road-NOM seoul-up to-NOM bad  
‘The road is bad up to Seoul.’
- (277) cinantal-i oltule pwutongsan kyengki-ka kacang cecohata  
last month-NOM this year real estate business-NOM most be sluggish  
‘The real estate business was most sluggish last month in this year.’
- (278) ceng trio-uy mikwuk-eyse-**uy** thukpyel kongyen  
Jung Trio-GEN America-LOC-GEN special performance  
‘Jung Trio’s special performance in America’
- (279) ceng trio-uy sam nyen-man-**uy** thukpyel kongyen  
Jung Trio-GEN three year-in-GEN special performance  
‘Jung Trio’s special performance in three years’

The data involving case assignment to adverbials illustrated above raise the question of how Case is assigned to adverbials. In particular, are adverbials subject to the same Case Assignment Rule as arguments? Below I argue that they are indeed subject to the same Case Assignment Rule, focusing on nominative and accusative case.

### 5.1.1 Sensitivity to the [ $\pm$ stative] distinction

Recall the Case Assignment Rule proposed in Ch. 4.1.2, repeated here as (280).

- (280) Case Assignment Rule:
- i. Assign genitive case if an argument is governed by an overt  $X^0$  category, the feature of which is compatible with [+N –V].
  - ii. Assign accusative case if an argument whose  $\theta$ -index is not 1 is governed by an overt  $X^0$  category with feature [–stative F1].
  - iii. Assign nominative case if an argument is assigned neither genitive nor accusative case, and is governed by an  $X^0$  category with feature [F1].

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argument NP but also an adverbial NP requires abstract Case, as in (a) and (b) below. The crucial difference between Chinese and Korean is that accusative case in Chinese cannot be assigned to an argument and an adverbial simultaneously in the same sentence, as illustrated by the ungrammaticality of (c), while such a situation is possible in Korean, as shown in (274) and (275) in the text.

- a. Ta nian le shu  
he read ASP book  
‘He reads a book.’
- b. Ta nian le sange xiaoshi  
he read ASP three hours  
‘He reads for three hours.’
- c. \* Ta nian (le) shu sange xiaoshi  
he read ASP book three hours  
‘He reads a book for three hours.’



If adverbials are subject to Case Assignment Rule (280) just like arguments, we expect case assignment to adverbials to be sensitive to the [ $\pm$ stative] distinction of the predicate. In particular, adverbials in intransitive verb ([–stative]) sentences are marked with accusative case, and those in transitive adjectival ([+stative]) sentences, nominative case. This expectation is borne out, as illustrated in (281)—(285):

- (281) catongcha-ka [swui-ci an-ko] sey sikan-tongan-**ul/\*i talyessta**  
 car-NOM stop-NMZ not-conj. three hour-for-ACC/NOM ran  
 ‘The car ran for three hours without stopping.’
- (282) olhay tul-e, hankang-i sey pen-**ul/??i elessta**  
 this year enter-cont. Han river-NOM three time-ACC/NOM froze  
 ‘The Han river froze three times this year.’
- (283) olhay tul-e, sonakpi-ka sey pen-**ul/??i oassta**  
 this year enter-cont. big rain-NOM three time-ACC/NOM came  
 ‘It rained heavily three times this year.’
- (284) nay-ka caknyen-ey mokton-**i** sey pen-**?i/\*ul** philyohayssta  
 I-NOM last year-LOC a lot of money-NOM three time-NOM/ACC was in need of  
 ‘I was in need of a lot of money three times last year.’
- (285) nay-ka Inho-**ka** sam nyen-tongan-**?i/\*ul** cohassta  
 I-NOM Inho-NOM three year-for-NOM/ACC be fond of  
 ‘I was fond of Inho for three years.’

The predicates in (281)—(283) are [–stative]: The predicate in (281) is unergative intransitive, and those in (282) and (283) are unaccusative. The adverbials in these sentences are all marked accusative, and cannot be marked nominative. On the other hand, the predicates in (284) and (285) are [+stative] (transitive adjectives), and the adverbials in these sentences can only be marked with nominative case. Note also that the predicates in (274) and (275), in which adverbials are marked accusative, are [–stative], and those in (276) and (277), in which adverbials are marked nominative, are [+stative].<sup>2</sup>

### 5.1.2 Passivization Test

The passivization test also confirms the hypothesis that Case on adverbials is of the same nature as that on arguments, as already pointed out by [Maling 1989].

<sup>2</sup>Assuming that adverbials are subject to the same case assignment rules as arguments, sentences like (282) and (283), where the predicates are unaccusative, and yet they license accusative case, constitute counterexamples to Burzio’s generalization, stated in (i), cf. [Chomsky 1985, 139]:

A verb (with an object) Case-marks its object iff it  $\theta$ -marks its subject.

Examples like (281)—(283) also contradict the view that case on adverbials is assigned via case agreement with the internal arguments of the verb. In these examples, there are no internal arguments with which the adverbials can agree with.

Consider (286) and (287), which are the passive counterparts of (274) and (275), respectively:<sup>3</sup>

- (286) i chayk-**i** twu pen-**i** ilkhissta  
 this book-NOM twice-NOM was read  
 This book was read twice.
- (287) i chayk-**i** sey sikan-tongan-**i** ilkhissta  
 this book-NOM three hour-for-NOM was read  
 ‘This book was read for three hours.’

In (286) and (287), both the complement and the adverbial, which are accusative in the active sentences, are marked nominative. This is exactly what we expect if the verb assigns accusative case directly to the argument and the adverbial, and passivization deprives the verb of accusative case assigning ability.<sup>4</sup>

The accusative/nominative case alternation of adverbials described above sharply contrasts with the behavior of semantic case, the use of which is constant regardless of the voice of the sentence. For example, the instrument case *-lo* in (288)a is maintained in its passive counterpart (288)b.

- (288) a. nay-ka koki-lul khal-**lo** callassta  
 I-NOM meat-ACC knife-INS cut  
 ‘I cut the meat with a knife.’
- b. koki-ka khal-**lo**/**\*ka** call-i-essta  
 meat-NOM knife-INS/NOM was cut  
 ‘The meat was cut with a knife.’

Assuming that both arguments and adverbials are subject to the same case assignment mechanism, we can revise Case Assignment Rule (280) as in (289) to accommodate Case assignment to adverbials.

(289) **Generalized Case Assignment Rule:**

- i. Assign genitive case if an NP/PP is governed by an overt  $X^0$  category, the feature of which is compatible with [+N -V].
- ii. Assign accusative case if an NP/PP whose  $\theta$ -index is not 1 is governed by an overt  $X^0$  category with feature [-stative F1].
- iii. Assign nominative case if an NP/PP is assigned neither genitive nor accusative case, and is governed by an  $X^0$  category with feature [F1].

The only difference between (280) and (289) is that the word “arguments” in (280) is replaced by “NP/PP” in (289). Rule (289) implies that any NP and PP is assigned structural

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<sup>3</sup>As I will discuss later, the adverbials can be marked accusative as well as nominative in the passives. I will argue that adverbials are marked accusative in verbal passives (where the predicates are [-stative]), and nominative in adjectival passives (where the predicates are [+stative]) in the sense of [Levin and Rappaport 1986].

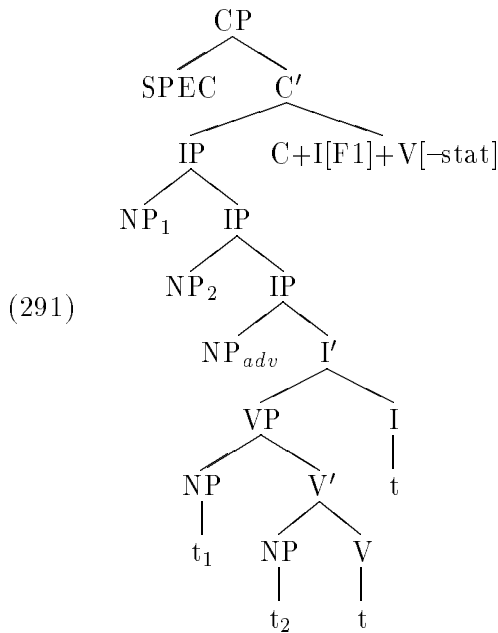
<sup>4</sup>Note that the accusative case borne by the adverbials discussed here differs from inherent case borne by bare NP adverbials in English as in *I will do it next week*, which are discussed in [Larson 1985].

case.<sup>5</sup>

Let us consider (274), repeated here as (290), and see how the arguments and the adverbial are assigned Case under the Generalized Case Assignment Rule.

- (290) Inho<sub>1</sub>-ka i chayk<sub>2</sub>-ul twu pen-ul/\*i ilkessta  
 Inho-NOM this book-ACC two times-ACC/NOM read  
 Inho read this book twice.

In (290), the number subscripted to each argument is the  $\theta$ -index of the argument, and it is not assumed that an adverbial is assigned a  $\theta$ -role. There are three elements to which Case needs to be assigned. (291) is the S-structure configuration of (290).



In (291), all of the three NPs are governed by the complex head I[F1]+V[-stat]. Among the three, NP<sub>2</sub> and NP<sub>adv</sub> are assigned accusative case according to (289)ii, and NP<sub>1</sub>, nominative case according to (289)iii.

<sup>5</sup>Case Assignment Rule (289) overgenerates since there are some PPs which cannot be marked with accusative case, and therefore cannot be treated as a subcase of case marker deletion at PF. For instance, the PP adverbial *khal-lo* ‘with a knife’ in (288) cannot be marked with accusative case, although the same phrase can be marked with nominative case with different predicates, as in (i).

[koki-lul calu-ki]-nun khal-lo-ka cohta  
 meat-ACC cut-NMZ-TOP knife-INST-NOM good  
 ‘Cutting meat with a knife is easy.’

Even though an instrumental PP cannot be marked with accusative case, there are instances in which the instrumental particle alternates with accusative case, as in (ii).

nay-ka Minhø-lul chinkwu-lo/lul samassta  
 I-NOM Minhø-ACC friend-INST/ACC took  
 ‘I took Minhø as a friend.’

### 5.1.3 Adjectival vs. Verbal Passives

As noted by [Maling 1989], adverbials in lexical passives may be marked accusative as well as nominative, as in (292), (293).

(292) i chayk-i twu pen-**ul/i** ilk-**hi**-essta  
 this book-NOM twice-ACC/NOM was read  
 This book was read twice.

(293) i chayk-i sey sikan-tongan-**ul/i** ilk-**hi**-essta  
 this book-NOM three hour-for-ACC/NOM was read  
 ‘This book was read for three hours.’

The case alternation on adverbials in lexical passives seems to be a puzzle: If a passive verb is [+stative], then we expect only nominative case, whereas if it is [-stative], only accusative case. I argue, however, that the case alternation is due to the fact that lexical passives are ambiguous between an adjectival passive (i.e. [+stative]) and a verbal passive (i.e. [-stative]) in the sense of [Levin and Rappaport 1986].<sup>6</sup>

[Levin and Rappaport 1986] note that passives in English are divided into adjectival and verbal passives. They argue, along with [Chomsky 1981] and [Marantz 1984], that the essential property of passive morpheme is the suppression of the external  $\theta$ -role: Affixing the passive morpheme to a verb prevents the verb from assigning its external  $\theta$ -role. An adjectival passive is formed from a verbal passive by a category conversion rule, which changes the category [+V,-N] into [+V,+N]: A verbal passive still maintains the ability to assign case to its internal argument, while an adjectival passive does not. They list three diagnostic environments for adjectival passives: First, negative prefix *un-* attaches only to adjectives (e.g. *unfriendly*, *unhappy*, but not to verbs. Therefore, passive participles that are prefixed with *un-*, as in *unshaven*, *unmarked*, *untouched*, are categorially adjectival and never verbal. Second, a number of verbs in English, such as *seem*, *remain*, *sound*, select adjectival but not verbal complements. A passive participle appearing as the complement to such a verb is therefore taken to be adjectival, but not verbal. Third, only adjectives may occur as prenominal modifiers.

The diagnostics Levin and Rappaport provide to distinguish adjectival passives from verbal passives in English are not applicable to Korean, however. Nevertheless, we can apply the two diagnostics which I described in Ch. 4.1.2 to distinguish adjectival predicates from verbal ones in Korean: Only verbs can co-occur with the progressive forming auxiliary *-ko issta* or present perfect tense forming auxiliary *-e o-ta*. Applying these two diagnostics, we expect that only an adverbial marked with accusative case is compatible with a lexical passive (a) in a progressive form, and (b) in a present perfect tense. This expectation is borne out.

(294) ku chayk-i taycwungtul-eyuyhay swu sipnyen-tongan-**ul/\*i** ilk-**hi-ko issta**  
 the book-NOM public-by several 10 year-for-ACC/NOM read-PASS-PROG  
 ‘The book has been being read by the public for several decades.’

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<sup>6</sup>The adjectival and verbal passive distinction here is comparable to the direct and adversity passive distinction in [Maling and Kim 1992]: A direct passive absorbs the accusative case assigning ability of the predicate, and an adversity passive adds a benefactive/malefactive subject argument but does not change the case assigning ability of the predicate.

- (295) *i nolay-ka semintul-saieyse swupayknyen-tongan-ul/\*i*  
 this song-NOM common people-among hundreds of years-for-ACC/NOM  
*pwul-li-e o-assta*  
 sing-PASS-PERF  
 ‘This song has been sung by common people for hundreds of years.’

(294) and (295) show that the progressive and the present perfect forming auxiliaries are not compatible with nominative adverbials, while being perfectly compatible with accusative ones. This indicates that the nominative/accusative case alternation on adverbials in lexical passives is due to the ambiguous nature of lexical passive predicates as either adjectives ([+stative]) or verbs ([-stative]).

Finally, [Levin and Rappaport 1986]’s claim that adjectival passives are derived from verbal passives via a category conversion rule correctly predicts the absence of a passive for an adjectival predicate even if it is transitive, as illustrated by the ungrammaticality of (296) and (297), which are the potential passive counterparts of (284) and (285), respectively:<sup>7</sup>

- (296) \* *caknyen-ey mokton-i philyohay-ci-essta*  
 last year-LOC large amount of money-NOM is in need-PASS-PAST  
 ‘A large amount of money was needed last year.’

- (297) \* *Inho-ka coha-ci-nta*  
 Inho-NOM be fond of-PASS-PRES  
 ‘Inho is liked (by someone).’

To summarize, I have argued that adverbials are subject to the same case licensing conditions as arguments.<sup>8</sup> Distribution of accusative case marked adverbials in intransitive and unaccusative verb sentences, which is surprising under the standard assumption on accusative case assignment, finds an easy explanation under the Generalized Case Assignment Rule (289). Nominative/accusative case alternation on adverbials in lexical passives is due to the ambiguous nature of a lexical passive predicate as a verb and an adjective.

#### 5.1.4 Implications

If we adopt the standard assumption that adverbials are generated in adjoined positions, from the claim that Case assigned to an adverbial is of the same nature as that assigned to an argument, it follows that Case is assigned to a base-generated adjoined position. This supports my claim that Case is assigned to a scrambled element which is adjoined.

Of course, at least two alternative conclusions may be drawn from the fact that arguments and adverbials are subject to the same case licensing conditions. One is, adverbials occupy complement positions on a par with complements, as has been assumed in

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<sup>7</sup>(297) is perfectly grammatical in the reading that ‘Inho is becoming good/nice,’ which is due to the lexical ambiguity of the predicate *coha-*, and is irrelevant for the present discussion. Note that transitive adjectival sentences in English such as *I am afraid of John* and *I am fond of Mary* do not have passive counterparts, either.

<sup>8</sup>This conclusion is consistent with [Cho and Sells 1991]’s claim that both case-marked NPs and adverbials are verbal modifiers, and therefore are not distinguished in the phrase structure.

[McConnell-Ginet 1982], [Larson 1988] and [Cho 1992a].<sup>9</sup> The other is, adverbials occupy SPEC positions and case is uniformly assigned under SPEC-head agreement.<sup>10</sup> Whichever alternative we take, we would need to posit multiple projections of the same category for cases in which there is more than one element of the same case: Whether the adverbials are in complement positions or in SPEC positions, the heads which license these positions would have to be of the same category since the same case will be licensed by the heads of the same category and feature. However, I do not adopt these alternatives, and continue to assume that adverbials are adjoined.

## 5.2 Binding by an adjunct

Another fact which indicates that adjoined positions in Korean behave like A-positions comes from binding by an adjunct. The main data involve binding by an adjunct nominative NP in so-called multiple nominative constructions.

Multiple nominative constructions (MNC hereafter) are a widely discussed topic in Korean and Japanese linguistics. Here I briefly sketch some characteristics of the constructions which are minimally necessary for my argument here.<sup>11</sup> In Korean (and Japanese), a clause may have multiple nominative case marked NPs (or PPs), only one of which is subcategorized for by the predicate of the clause. Consider (298) and (299).

(298) pwukpankwu-**ka**          mwunmyengkukka-**ka** yeca-**ka**          swumyeng-**i**    kilta  
north hemisphere-NOM civilized country-NOM woman-NOM life span-NOM long  
‘For the North hemisphere, for civilized countries, for women, life spans are long.’

(299) ku samnyen-tongan-**i**          cencayng-**i** kacang simhayssta  
the three years-during-NOM war-NOM most was severe  
‘The war was most severe during the three years.’

In (298), there are four nominative NPs. The predicate *kil-ta* ‘long’ selects for one (theme) argument: Only the innermost nominative NP *swumyeng-i* ‘life span-NOM’ is subcategorized for by the predicate. The remaining three nominative NPs are therefore adjuncts, assuming that only selected elements are arguments. The extra nominative phrases can be PPs as well as NPs, as illustrated by *ku samnyen-tongan* ‘the three years-during’ in (299). In principle, there is no upper limit in the number of nominative phrases as long as certain semantic/pragmatic conditions (roughly an ‘aboutness’ condition) are met. As [Hong 1990] points out, in general MNCs are better with individual level than with stage level predicates, probably because the former refer to a permanent feature of an entity predicated of, and provide a better characterization of it, compared to the latter which refer to a temporarily

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<sup>9</sup>Saito (in the talk given in the Mid-Atlantic Workshop on East Asian Linguistics, February 1992, University of Delaware) independently argues on the basis of ECP facts in English that time and place adverbials are complements of the verb, and are distinct from reason and manner adverbials.

<sup>10</sup>Uniform mode of case assignment via SPEC-head agreement has most recently been advocated in [Chomsky 1992].

<sup>11</sup>For more detailed discussions of the topic, I refer the reader to [Yang 1972], [Kuno 1973b], [Saito 1982], [Yim 1985], [Yoon 1987], [Heycock and Lee 1989], among many others.

acquired feature.<sup>12</sup> This recursive nature of the occurrence of nominative NPs indicates that the non-selected nominative NPs in these constructions are adjuncts and occupy adjoined positions, and makes implausible an analysis in which they occupy the specifier of, say, a Topic Phrase.

The relevance of the multiple nominative constructions for the present discussion is that an adjunct nominative NP in MNCs can participate in binding, contrary to the standard assumption that binding is possible only from an A-position. Consider the examples in (300).

- (300) a. *Minho*-ka *caki*-uy apeci-ka paykmancangca-ita.  
 Minho-NOM self-GEN father-NOM millionaire-COP  
 ‘Minho’s father is a millionaire.’
- b. [*Minho*-wa *Younghee*]-ka, *selo*-ka macwu poassta.  
 Minho-and Younghee-NOM each other-NOM face-to-face saw  
 ‘Minho and Younghee looked at each other.’
- c. [*Minho*-wa *Younghee*]-ka, *selo*-ka selo-lul chasko issta.  
 Minho-and Younghee-NOM each other-NOM each other-ACC is looking for  
 ‘Minho and Younghee are looking for each other.’

In the above examples, the outermost nominative NPs *Minho-ka*, and *Minho-wa Younghee-ka* are adjuncts. Nevertheless, they bind the reflexive pronoun *caki* in (300)a, and the reciprocal pronoun *selo* ‘each other,’ in (300)b and (300)c, leading to the conclusion that adjoined positions behave like A-positions with regard to binding.<sup>13</sup>

An alternative account for the binding facts in (300), which would lead to an exactly opposite conclusion, i.e. adjunct nominative NPs are A'-elements, is to analyze the reflexive/reciprocal pronouns as resumptive pronouns which are bound by the adjunct nominative NPs which are operators. However, this alternative analysis turns out to be untenable when we consider the Principle C.

- (301) \* *ku*-ka [*Minho*-uy apeci]-ka paykmancangca-ita  
 he-NOM Minho-GEN father-NOM millionaire-COP  
 lit. ‘As for *him*, *Minho*’s father is a millionaire.’

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<sup>12</sup>This generalization does not exclude the possibility that a stage level predicate can participate in an MNC.

i. *Minho*-ka atul-i kachwul-haysse  
 Minho-nom son-nom ran away from home  
 ‘As for Minho, his son ran away from home.’

The predicate in (i) *kachwul-hata* is a stage level predicate, and yet it participates in the MNC.

<sup>13</sup>With regard to licensing of the whole NP (adjunct NPs in the present context) in multiple case constructions, various linguists have observed that certain nouns are relational in the sense that they always have an (implicit) possessor, cf. [Yoon 1989]. Cross-linguistically, relational nouns include body parts and kinship terms. Nouns with relational interpretations may be thought of as having an open position for an implicit possessor, or an unsaturated argument structure, cf. [Yoon 1990]. Note that it is not possible to analyze the subject arguments in (300) as relational nouns with implicit possessors since the reflexive pronoun itself is the possessor in (300)a.

- (302) \* *kutul-i* [Minho-wa Younghee]-ka macwupoassta  
 they-NOM Minho-and Younghee-NOM looked at each other  
 lit. ‘As for *them*, *Minho* and *Younghee* looked at each other.’

(301) and (302) are parallel to (300)a and (300)b, respectively, except that the outermost nominative NPs are pronouns and the expressions bound by them are r-expressions. If the outermost nominative NPs are indeed operators occupying an A'-position, then the binding theory is not applicable to the position. Therefore we expect that the sentences (301) and (302) are grammatical under the coreferential reading between the pronoun and the r-expressions. However, the sentences are ungrammatical. This can be easily explained if we assume that the adjunct nominative pronouns bind the r-expressions, which is a violation of the principle C.

### 5.3 Islandhood of scrambled clauses

Another fact which is in favor of the adjoined argument hypothesis involves the lack of islandhood of scrambled argument clauses.

As I will discuss in Ch. 6 in detail, an adjunct (unselected by the predicate) clause is a rather strong island, while a complement clause is not an island or at most a very weak island for long distance scrambling. Relevant examples are given below:

- (303) Scrambling out of a propositional complement clause

- a. **ku namca<sub>i</sub>**-lul Younghee-ka [nwu-ka t<sub>i</sub> coahanta-ko] malhayss-ni  
 that man-ACC Younghee-NOM who-NOM like-COMP said-Q  
 lit. ‘That man<sub>i</sub>, Younghee said who likes t<sub>i</sub>?’
- b. ? **ilensik-ulo<sub>i</sub>** Minho-ka [nwu-ka t<sub>i</sub> saki-lul chinta-ko] malhayss-ni  
 This way Minho-NOM who-NOM cheating-ACC do-COMP said-Q  
 lit. ‘This way<sub>i</sub>, Minho said that who cheats t<sub>i</sub>?’

- (304) Scrambling out of an adjunct clause

- a. ?? **caki tongsayng<sub>i</sub>**-ul Minho-nun [amwulato t<sub>i</sub> ttayli-myen]  
 self’s brother-NOM Minho-TOP anyone hit-if  
 [pro kamantwuci ankeyssta-ko] malhayssta  
 revenge-COMP said  
 ‘Self’s brother<sub>i</sub>, Minho said that if anyone t<sub>i</sub> hits, then he would revenge.’
- b. ?\* **ilen sik-ulo<sub>i</sub>** Minho-nun [pro nalmata t<sub>i</sub> kongpwuha-myen]  
 this way-INST Minho-TOP every day study-if  
 [pro iltung-ul halkesila-ko] malhayssta  
 rank one-ACC will do-COMP said  
 ‘This way<sub>i</sub>, Minho said that if (I) study t<sub>i</sub> everyday, then (I) will be number one.’



Examples in (303) and (304) illustrate that long distance scrambling of an argument and an adjunct out of a selected complement clause is grammatical or slightly marginal, while long distance scrambling of an argument and an adjunct out of an unselected adjunct clause is ungrammatical or pretty bad.

Under the standard assumption, the categorial status of an adjoined clause is an adjunct, regardless of its selectional status as a (selected) complement or an (unselected) adjunct. Therefore, it is predicted that an adjoined complement clause/phrase constitutes an island just like an unselected adjunct clause/phrase, cf. [Ross 1974]. On the other hand, under the adjoined argument hypothesis, there is no categorial distinction between an adjoined element and an element occupying a complement position. Therefore, it is expected that there is no difference in islandhood between an in-situ complement clause and a scrambled complement clause which is adjoined. This expectation is borne out, supporting the adjoined argument hypothesis.<sup>14</sup>

### 5.3.1 Scrambling out of a scrambled complement clause

The verb *yaksokhata* ‘to promise’ in (305)a, which is in the base order, takes three arguments, i.e. a subject, a dative argument and a clausal complement. In (305)b, the object argument of the embedded clause S2 has been scrambled to sentence initial position. In (305)c, the adjunct *ilensik-ulo* of the embedded clause S2 has been scrambled to sentence initial position. Both (305)b and (305)c are perfectly acceptable.

(305) Scrambling out of the in situ complement clause

- a. [S<sub>1</sub> *nay-ka* Kim *silcang-eykey* [S<sub>2</sub> PRO *ilen sik-ulo*  
I-NOM Kim dept. head-DAT this way-INST  
  
[**chaki epmwukyehoik**]-ul *silhaynghakeyssta-ko*] *yaksokhayssta*]  
next quarter business plan-ACC carry out-COMP promised  
‘I promised the dept. head Kim that I would carry out the next quarter’s  
business plan this way.’
- b. [**chaki epmwukyehoik**]<sub>i</sub>-ul [S<sub>1</sub> *nay-ka* Kim *silcang-eykey* [S<sub>2</sub> PRO *ilen*  
*sik-ulo t<sub>i</sub>* *silhaynghakeyssta-ko*] *yaksokhayssta*]
- c. ?**ilen sik-ulo**<sub>j</sub> [S<sub>1</sub> *nay-ka* Kim *silcang-eykey* [S<sub>2</sub> PRO **t<sub>j</sub>** [**chaki**  
**epmwukyehoik**]-ul *silhaynghakeyssta-ko*] *yaksokhayssta*]

Now Consider the examples in (306).

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<sup>14</sup>Since I assume that even a canonical word order sentence is derived by obligatory scrambling, it is possible that even a complement clause in the canonical order is scrambled and adjoined to IP just like any other NP argument. Even if this is the case, the argument given in this section can be maintained.

- (306) Scrambling out of a scrambled complement clause
- a. [S<sub>1</sub> nay-ka [S<sub>2</sub> PRO ilen sik-ulo [chaki epmwukyehoik]-ul silhaynghakeyssta-ko]<sub>i</sub> Kim silcang-eykey t<sub>i</sub> yaksokhayssta]
- b. **chaki epmwukyehoik**<sub>j</sub>-ul [S<sub>1</sub> nay-ka [S<sub>2</sub> PRO ilen sik-ulo t<sub>j</sub> silhaynghakeyssta-ko]<sub>i</sub> Kim silcang-eykey t<sub>i</sub> yaksokhayssta]
- c. **ilen sik-ulo**<sub>k</sub> [S<sub>1</sub> nay-ka [S<sub>2</sub> PRO t<sub>k</sub> [chaki epmwukyehoik]-ul silhaynghakeyssta-ko]<sub>i</sub> Kim silcang-eykey t<sub>i</sub> yaksokhayssta]

In (306), the complement clause of (305)a has been locally scrambled across the dative argument *Kim silcang*. (306)b is derived by scrambling the complement NP *chaki epmwukyehoik* out of the scrambled clause in (306)a. (306)c is derived by scrambling the adverbial *ilen sik-ulo* out of the scrambled clause in (306)a. Both (306)b and (306)c are perfectly acceptable. In fact, for some reason (306)c is easier to process than (305)c. The acceptability of (306)b and (306)c indicates that a scrambled complement clause does not constitute an island for scrambling, as predicted by the adjoined argument hypothesis.

Before moving on to next topic, I would like to remark on the derivation of (306)b and (306)c. In addition to the derivation I described above, there is an alternative derivation for these sentences. That is, the sentences may be derived by first long-distance scrambling the accusative argument (or the adjunct) of S<sub>2</sub> to sentence initial position, and then scrambling the rest of clause S<sub>2</sub> across the matrix dative argument (remnant scrambling). A schematic representation of this alternative derivation is given below:

- (307) step 1: [chaki epmwukyehoik]<sub>j</sub>-ul [S<sub>1</sub> ... [S<sub>2</sub> ... t<sub>j</sub> ...] ...]  
 step 2: [chaki epmwukyehoik]<sub>j</sub>-ul [S<sub>1</sub> ... [S<sub>2</sub> ... t<sub>j</sub> ...]<sub>i</sub> ... t<sub>i</sub> ...]

If the derivation in (307) is allowed, then my argument that a scrambled clause does not constitute an island cannot be maintained since there is no scrambling out of a scrambled clause. As Michael Hegarty (p.c.) points out, however, this alternative derivation can be independently ruled out by the ‘strict cycle condition’ stated in (308) (cf. [Chomsky 1973]), and reinstated for the substitution operation in [Chomsky 1992].

- (308) No rule can apply to a domain dominated by a cyclic node A in such a way to affect solely a proper subdomain of A dominated by a node B which is also a cyclic node.

(308) says that rules cannot return to earlier stages of the cycle after the derivation has moved to larger, more inclusive domains. In (307), the second movement (remnant scrambling) takes place within the domain which is affected by the first movement, and hence violates the strict cycle condition.

A similar situation arises in some cases involving topicalization in English. There are two possible derivations for the ungrammatical string (309)c: One is by first topicalizing the VP in the embedded clause, as in (309)a, and then performing wh-movement out of the topicalized VP. The other is by first moving the wh-phrase to sentence initial position, and then topicalizing the embedded VP containing the trace of the wh-movement.

- (309) a. I know that [buy a book]<sub>i</sub>, John never will t<sub>i</sub>.  
 b. What<sub>j</sub> do you know that Joh never will buy t<sub>j</sub>?  
 c. \*What<sub>j</sub> do you know that [buy t<sub>j</sub>]<sub>i</sub> John never will t<sub>i</sub>?

Similarly, the ungrammatical string (310)c below, which is taken from [Lasnik and Saito 1992, 101], can be derived either by topicalization first and then wh-movement out of the topicalized phrase, or by wh-movement first and then remnant topicalization.

- (310) a. I think that [pictures of Picasso]<sub>i</sub>, John wanted.  
 b. What<sub>j</sub> do you think that John wanted [pictures of t<sub>j</sub>]?  
 c. \*What<sub>j</sub> do you think that [pictures of t<sub>j</sub>]<sub>i</sub>, John wanted t<sub>i</sub>?

(311) and (312) are schematic representations of the two possible derivations for (309)c and (310)c:

- (311) step 1: [S<sub>1</sub> ... [S<sub>2</sub> topic<sub>i</sub> ... t<sub>i</sub> ...]]  
 (topicalization within the embedded clause)  
 step 2: [S<sub>1</sub> what<sub>j</sub> ... [S<sub>2</sub> [<sub>top</sub> ... t<sub>j</sub> ... ]<sub>i</sub> ... t<sub>i</sub> ...]]  
 (wh-movement out of the topicalized phrase)
- (312) step 1: [S<sub>1</sub> what<sub>i</sub> ... [S<sub>2</sub> ... t<sub>i</sub> ...]]  
 (long-distance wh-movement)  
 step 2: [S<sub>1</sub> what<sub>i</sub> ... [S<sub>2</sub> [<sub>top</sub> ... t<sub>i</sub> ... ]<sub>j</sub> ... t<sub>j</sub> ...]]  
 (remnant topicalization within the embedded clause)

In (311), step 2 of the derivation violates either [Kuno 1973a]'s internal constituent effect or the adjunct island condition, and therefore the sentences will be correctly ruled out. In (312), the only way to rule out the derivation is by resorting to the strict cycle condition.<sup>15</sup>

In summary, the ungrammaticality of sentences (309)c and (310)c and the possible derivations for them indicate that the strict cycle condition has to be considered a legitimate condition in the grammar. Therefore (307) is an illegitimate derivation for scrambled sentences (306)b,c.

### 5.3.2 Islandhood of extraposed clauses/phrases in English

The absence of island effects in scrambling out of a scrambled clause contrasts with movement out of an extraposed (adjoined) complement clause/phrase in English.

Consider the sentences in (313) with the pleonastic object *it*, demonstrating what has been called 'extraposition structures,' cf. [Rosenbaum 1967], [Postal and Pullum 1988], [Rothstein 1991].

- (313) a. John regrets it [<sub>CP</sub> that Bill fired Susan]  
 b. John resents it [<sub>CP</sub> that Bill criticized me]  
 c. John hates it [<sub>CP</sub> that Bill fired Susan]  
 d. John pointed it out that [<sub>CP</sub> Bill hired Susan]

<sup>15</sup>[Lasnik and Saito 1992] incorporate the "strict cycle condition" into their system as principle of strict cycle and excludes all derivations similar to (312) in their discussion of topicalization in Ch. 3.

In the above examples, it has been generally assumed that the CPs have been extraposed from the direct complement position, which is filled by *it*. Alternatively, the CP complements are base-generated in a VP-adjoined position and the direct object position is reserved for the pleonastic *it*.<sup>16</sup>

Assuming that the extraposed complements in (313) are adjoined, we expect that extraction out of them will exhibit island effects comparable to extraction out of an unselected adjunct clause. This is indeed the case.

(314) Extraction out of a non-extraposed factive complement clause

- a. ?Who<sub>i</sub> does John regret [that Bill fired t<sub>i</sub>]
- b. ?Who<sub>i</sub> does John resent [that Bill criticized t<sub>i</sub>]
- c. ?Who<sub>i</sub> did John point out [that Susan hired t<sub>i</sub>]

(315) Extraction out of an extraposed factive complement clause

- a. \*Who<sub>i</sub> does John regret it [that Bill fired t<sub>i</sub>]
- b. \*Who<sub>i</sub> does John resent it [that Bill criticized t<sub>i</sub>]
- c. \*Who<sub>i</sub> did John point it out [that Susan hired t<sub>i</sub>]

(316) Extraction out of an adjunct clause

- a. \*What<sub>i</sub> did they cancel the show [because everyone saw t<sub>i</sub>]
- b. ??Who<sub>i</sub> did John shoot pool [while talking to t<sub>i</sub>]
- c. \*What<sub>i</sub> did John watch a movie [before he ate t<sub>i</sub>]

The extraction facts in (314)–(316) illustrate that an extraposed complement clause is as strong an island as an adjunct clause. Note that extraction out of an in-situ factive complement clause results in weak island effects, cf. [Cinque 1990].<sup>17</sup>

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<sup>16</sup>According to the projection principle as defined in [Chomsky 1981], however, the pleonastic *it* cannot occupy the direct object position. Consider principle (i), quoted from [Chomsky 1981, p.37]:

(i) If  $\alpha$  subcategorizes the position  $\beta$ , then  $\alpha$   $\theta$ -marks  $\beta$ .

Consider also the following quote from [Chomsky 1981, p.35]:

Let us call such expressions “arguments,” as distinct from idiom chunks ..., non-argument *it* (as in *it is certain that John will win*), or existential *there* (as in *there are believed to be unicorns in the garden*), terms which assume no  $\theta$ -role.

The assumption that pleonastic *it* has no  $\theta$ -role, combined with (i), leads to the conclusion that pleonastics cannot occur in strictly subcategorized positions, as pointed out in [Postal and Pullum 1988]. However, [Postal and Pullum 1988] convincingly argue that pleonastic *it* in the examples in (313) indeed occupies the subcategorized direct object position, and I adopt their view here.

<sup>17</sup>Contrary to my assumption, [Cinque 1990] treats an extraposed clause as a weak island in parallel with a factive island, on the basis of the data given in (a) and (b) below:

- a. To whom<sub>i</sub> is it time [to speak t<sub>i</sub>]?
- b. \*How<sub>i</sub> is it time [to behave t<sub>i</sub>]?

Out of the extraposed clause, extraction of an argument is grammatical, as in (a), while extraction of an

Consider another example in (317), which is taken from [Lasnik and Saito 1992, 103] (the explanation is also theirs):

(317) ?\*what<sub>i</sub> did you give t<sub>j</sub> to John [a book about t<sub>i</sub>]<sub>j</sub>?

Given the principle of the strict cycle, this example is derived as follows: the D-structure object *a book about what* is first adjoined to VP, and then *what* is moved to [SPEC CP]. The second movement involves extraction out of an adjoined phrase, and hence [Ross 1974] subsumed this example under his generalization that adjunction structures are islands for movement.<sup>18</sup>

### 5.3.3 Why is there a complement/adjunct distinction?

Even though the absence of island effects in scrambling out of a scrambled clause is consistent with the adjoined argument hypothesis, a question arises concerning the contrast in islandhood between an adjoined complement clause and a non-selected adjoined clause. If islandhood is determined on purely structural grounds, and if there is no structural distinction between an adjoined and a non-adjoined position (as entailed by the adjoined argument hypothesis), we expect there to be no contrast in islandhood between a complement and an adjunct clause, either.

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adjunct is ungrammatical, as in (b), which is indicative of a weak island. However, it seems to me that in (a) and (b) the allegedly extraposed clause is not really extraposed, but it is the in-situ complement of the noun *time*. The expletive *it* is inserted to satisfy the projection principle (or the principle of predication) just like the expletive *it* in (c) below:

- c. *It* is obvious/certain/likely that John is speaking to the president.
- d. To whom<sub>i</sub> is it obvious that John is speaking t<sub>i</sub>?

There are real problematic examples for my assumption that extraposed clauses are adjuncts, however. Consider (e)–(h), which are taken from [Pullum 1987].

- e. ?\*Which commitment<sub>i</sub> has Joe quit because we cannot keep t<sub>i</sub>?
- f. ?\*Which commitment<sub>i</sub> will Joe quit if we cannot keep t<sub>i</sub>?
- g. Which commitment<sub>i</sub> would it be useful [for us to keep t<sub>i</sub>]<sub>j</sub>?
- h. Which commitment<sub>i</sub> would it be useful [if we kept t<sub>i</sub>]<sub>j</sub>?

The grammaticality of (g) and (h), which is an instance of extraction out of extraposed clauses, contrasts with the ungrammaticality of (e) and (f), which is an instance of extraction out of true adjunct clauses. At the moment I have no explanation for the grammaticality of (g) and (h).

<sup>18</sup>However, [Lasnik and Saito 1992] ascribe the ungrammaticality of the example to the crossing effect discussed by [Kuno and Robinson 1972], [Pesetsky 1982]: They argue that an A'-binder is not a barrier (i.e. island) for movement on the basis of the fact that extraction out of a topicalized phrase, as in (b), is not as bad as extraction out of a subject phrase, as in (a):

- a. ?\*Who<sub>i</sub> do you think that [pictures of t<sub>i</sub>] are on sale?
- b. ??Who<sub>i</sub> do you think that [pictures of t<sub>i</sub>]<sub>j</sub>, John wanted t<sub>j</sub>?

They attribute the marginality of (b) to [Kuno 1973a]'s internal constituent effect. However, most native speaker informants I have consulted with judge (a) and (b) equally unacceptable, and I will take (b) to be ungrammatical due to a violation of the strict cycle condition.

Given this apparent problem, I suggest that there are two factors involved in determining the barrierhood of a clause/phrase: The selectional and the structural properties of the element. Of these two, the selectional properties of the element are fundamental and cannot be parameterized, while the structural properties of an element can be parameterized. Islandhood of an element in terms of its selectional properties has been incorporated into the definition of barrier by [Cinque 1990], as stated in (318) and (319).

- (318) A (single) definition of barrier for binding/bounding:  
Every maximal projection that fails to be (directly or indirectly) selected in the canonical direction by a category nondistinct from [+V] is a barrier for binding.
- (319) A (single) definition of barrier for government:  
Every maximal projection that fails to be directly selected by a category nondistinct from [+V] is a barrier for government.

As for the structural properties of an element, in languages like English any element in an adjoined position (all adverbials and arguments adjoined via movement) is an adjunct and constitutes a barrier for movement, while in languages like Korean, the structural distinction between an argument and an adjunct is blurred, and all that matters for barrierhood are the inherent status of the category as an argument/adjunct. This explains why an adjoined complement is not an island in Korean, while it is in English.<sup>19</sup>

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<sup>19</sup>A remaining question is why a subject clause in Korean does not exhibit as severe barrierhood as a subject clause in English.

## Chapter 6

# Constraints on Scrambling

In this chapter I discuss various constraints on scrambling. They include island effects on long distance scrambling, and discourse constraints on various permuted word orders.

In section 6.1, I examine the islandhood of various clause types with respect to scrambling. It will be shown that in general islandhood of various clause types is determined by the selectional properties of the clause, as argued by [Cinque 1990] for *wh*-movement. In section 6.2.3, I examine discourse constraints on scrambling. I argue that the relevant discourse notion constraining word order is “presuppositionality” in the sense defined in [Diesing 1990], rather than “specificity” as argued by [Moltmann 1990], [Mahajan 1990], and [Enç 1991].

### 6.1 Island effects on scrambling

In this section I examine the islandhood of various types of clauses with regard to long distance scrambling in Korean; *wh*-complement clause, propositional complement clause, complement clause of a noun (pure complex NP), subject clause, relative clause, and adjunct clause. It will be shown that clauses which are not selected by a verb, e.g. adjunct and relative clauses, are strong islands, while those which are selected by a verb, e.g. various complement clauses, are either weak islands or not islands. Barrierhood of each category with regard to scrambling in Korean is consistent with [Cinque 1990]’s definition of a barrier, which hinges on the notion of *selection*. Even though I have only considered scrambling of arguments so far, I will consider scrambling of both arguments and adjuncts in this section. This is to compare the behavior of scrambling and *wh*-movement as closely as possible, without necessarily committing to an analysis which treats scrambling of adjuncts in the same way as scrambling of arguments.

I divide the data into two subcategories: Scrambling of definite phrases in section 6.1.1, and scrambling of *wh*-phrases<sup>1</sup> in section 6.1.2. At the end of each section, I present the results of the questionnaire survey I conducted with 10 native speaker informants.

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<sup>1</sup>Due to the lack of overt syntactic *wh*-movement in Korean, movement of a *wh*-phrase has been treated as a subcase of scrambling.

### 6.1.1 Scrambling of definite expressions

Consider (320) through (325). Examples in (a) are scrambling of a complement, in (b), scrambling of a manner adverbial, and in (c), scrambling of a reason adverbial.<sup>2</sup>

(320) Scrambling out of a propositional complement clause

- a. **ku namca<sub>i</sub>**-lul Younghee-ka [nwu-ka t<sub>i</sub> coahanta-ko] malhayss-ni  
that man-ACC Younghee-NOM who-NOM like-COMP said-Q  
'That man<sub>i</sub>, Younghee said who likes t<sub>i</sub>.'
- b. ? **ilensik-ulo<sub>i</sub>** Minho-ka [nwu-ka t<sub>i</sub> saki-lul chinta-ko] malhayss-ni  
This way Minho-NOM who-NOM cheating-ACC do-COMP said-Q  
'This way<sub>i</sub>, Minho said that who cheats t<sub>i</sub>.'
- c. ? **ikes-ttaymwuney<sub>i</sub>** Minho-ka [nwu-ka t<sub>i</sub> ipsi-ey  
this-because Minho-NOM who-NOM entrance exam-LOC  
tteleciessta-ko] malhayss-ni  
failed-COMP said-QM  
'For this reason<sub>i</sub>, Minho said that who failed in the entrance exam t<sub>i</sub>.'

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<sup>2</sup>As I mentioned in the beginning of this chapter, scrambling is constrained by discourse contexts. Therefore, scrambling without an appropriate discourse context sounds rather marginal compared to syntactic wh-movement. The same situation is observed in topicalization in English: Long distance topicalization in English without any discourse context sounds awkward even though it is a perfectly grammatical process, as illustrated in (ii).

- i. Who<sub>i</sub> does John think [that Mary likes t<sub>i</sub>]?  
ii. ??John<sub>i</sub>, Susie thinks [that Mary likes t<sub>i</sub>].



(321) Scrambling out of the complement clause of a noun

a. **ku nyesek**<sub>i</sub>-eykey na-nun [Younghee-ka t<sub>i</sub> holttak ppacie issta-nun]  
 that guy-DAT I-TOP Younghee-NOM completely is fallen in love-MOD

sasil-i an-mitecinta  
 fact-NOM not-believe

‘With that guy<sub>i</sub>, I cannot believe the fact that Younghee is fallen in love t<sub>i</sub>.’

b. **ilensik-ulo**<sub>i</sub> na-nun [Minho-ka t<sub>i</sub> na-lul kimanhayssta-nun] sasil-i  
 this way I-TOP Minho-NOM I-ACC cheated-MOD fact-NOM

an-mitecinta  
 not-believe

‘This way<sub>i</sub>, I cannot believe the fact that Minho cheated me t<sub>i</sub>.’

c. **kyewu ilen iyu-lo**<sub>i</sub> na-nun [Minho-ka t<sub>i</sub> na-lul miwuehanta-nun]  
 only this reason-with I-TOP Minho-NOM I-ACC hate-MOD

sasil-i an-mitecinta  
 fact-NOM not-believe

‘Merely for this reason<sub>i</sub>, I cannot believe the fact that Minho hates me t<sub>i</sub>.’

(322) Scrambling out of a wh-complement clause

a. **ku chayk**<sub>i</sub>-ul Minho-nun [nwu-ka t<sub>i</sub> hwuchiekass-nunci] anta  
 that book-ACC Minho-TOP who-NOM steal-whether know  
 ‘That book<sub>i</sub>, Minho knows who stole t<sub>i</sub>.’

b. **ilensik-ulo**<sub>i</sub> Minho-nun [nwu-ka t<sub>i</sub> saki-lul chi-nunci] anta  
 this way-INST Minho-TOP who-NOM cheating-ACC do-whether know  
 ‘This way<sub>i</sub>, Minho know who cheats t<sub>i</sub>.’

c. **ilen iyu-lo**<sub>i</sub> Minho-nun [nwu-ka t<sub>i</sub> haykotanghayss-nunci] anta  
 this reason-INST Cheslwu-TOP who-NOM got fired-whether know  
 ‘For this reason<sub>i</sub>, Minho knows who got fired t<sub>i</sub>.’

(323) Scrambling out of a subject clause

- a. **ku namca<sub>i</sub>**-lul Younghee-nun [[amwulato t<sub>i</sub> coahanta-nun] sasil-i  
that man-ACC Younghee-TOP anyone like-MOD fact-NOM  
nollapta-ko] malhayssta  
surprising-COMP said  
'The man<sub>i</sub>, Younghee said that [the fact that anyone likes t<sub>i</sub>] is surprising.'
- b. ? **ilen sik-ulo<sub>i</sub>** Younghee-nun [[nwukwunka-ka t<sub>i</sub> salanamulswu issessta-nun]  
this way-INST Younghee-TOP someone-NOM survive could-MOD  
sasil-i nolapta-ko] malhayssta  
fact-NOM surprising-COMP said  
'This way<sub>i</sub>, Younghee said that [the fact that someone could survive t<sub>i</sub>] is surprising.'
- c. ? **ilen iyu-lo<sub>i</sub>** Younghee-nun [[nay-ka t<sub>i</sub> caki-lul miwuehanta-nun]  
this reason-INST Younghee-TOP I-NOM self-ACC hate-MOD  
kes-i nolapta-ko] malhayssta  
fact-NOM surprising-COMP said  
'For this reason<sub>i</sub>, Younghee said that [the fact that I hate her t<sub>i</sub>] is surprising.'

(324) Scrambling out of a relative clause

- a. ?? **ku namca<sub>i</sub>**-eykey na-nun [Younghee-ka t<sub>i</sub> e<sub>j</sub> ssu-n] pyenci<sub>j</sub>-lul  
that man-DAT I-TOP Younghee-NOM write-REL letter-ACC  
mollay hwumchie-poassta  
furtively looked at  
'I furtively looked at the letter which Younghee wrote to the man.'
- b. ?\* **kulen sik-ulo<sub>i</sub>** na-nun [e<sub>j</sub> t<sub>i</sub> kwuenlyek-ey apwuha-nun] salam<sub>j</sub>-ul  
that way-INST I-TOP the power flatter-MOD person-ACC  
kyengmyelhanta  
despise  
'That way<sub>i</sub>, I despise a person who flatters the power t<sub>i</sub>.'
- c. \* **ilen myengmok-ulo<sub>i</sub>** na-nun [e<sub>j</sub> t<sub>i</sub> phoklyek-ul hayngsaha-nun] salam<sub>j</sub>-ul  
this reason-INST I-TOP violence-ACC resort to-MOD person-ACC  
kyengmyelhanta  
despise  
'For this reason<sub>i</sub>, I despise a person who resorts to violence t<sub>i</sub>.'

(325) Scrambling out of an adjunct clause

a. ?? **caki tongsayng<sub>i</sub>**-ul Minho-nun [amwulato t<sub>i</sub> ttayli-myen]  
 self's brother-NOM Minho-TOP anyone hit-if

[pro kamantwuci ankeyssta-ko] malhayssta  
 revenge-COMP said

‘Self’s brother<sub>i</sub>, Minho said that if anyone t<sub>i</sub> hits, then he would revenge.’

b. ?\* **ilen sik-ulo<sub>i</sub>** Minho-nun [pro nalmata t<sub>i</sub> kongpwuha-myen]  
 this way-INST Minho-TOP every day study-if

[pro iltung-ul halkesila-ko] malhayssta  
 rank one-ACC will do-COMP said

‘This way<sub>i</sub>, Minho said that if (I) study t<sub>i</sub> everyday, then (I) will be number one.’

c. ?\* **ilen mokcek-ulo<sub>i</sub>** Minho-nun [nay-ka t<sub>i</sub> mokumwuntong-ul ha-myen]  
 this purpose-INST Minho-TOP I-NOM fundraising-ACC do-if

[motwu-ka hyepcohalkesila-ko] malhayssta  
 everyone-NOM help-will-COMP said

‘With this purpose<sub>i</sub>, Minho said that if I did fund-raising t<sub>i</sub>,  
 then everyone would help.’

The following is the summary of the data:

- Scrambling of an object out of a propositional complement, wh-complement, subject clause, or complement clause of a noun is grammatical.
- Scrambling of a manner/reason adverbial out of a propositional complement, wh-complement clause, complement clause of a noun, or subject clause is slightly marginal, as indicated by ‘?’.
- Scrambling of an object out of a relative, or adjunct clause is pretty bad, as indicated by ‘??’.
- Scrambling of a manner/reason adverbial out of a relative, or adjunct clause is ungrammatical, as indicated by ‘?\*’ or ‘\*’.

Table 6.1 is the result of the questionnaire survey I conducted to examine island effects on scrambling.<sup>3</sup> There were a total of ten informants. The numbers on the left hand side of each column are the number of informants who accept the scrambled sentence. The

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<sup>3</sup>I thank the following informants for participating in my questionnaire survey: Hee-Rhak Chae, Daeho Chung, Jeong-Shik Lee, Sung-Ki Suh, Hae-Hak Yoon, Eun-Jung Yoo, Dong-In Cho, Chang-Bong Lee, Hyo-Kon Kim, Soo-Kyung Huh, No-Joo Kim, Myung-Kwan Park, Jin-Young Choi, Moon-Yurl Jung, Seo-Young Chae, Jong-Cheol Park, Wonchul Park, Inhye Kang, Jee-In Kim, Hyun Ahn. I am particularly grateful to Jin-Young Choi, Dong-In Cho and Hee-Rhak Chae for their help in conducting the survey. To calculate the results in Table 6.1 and Table 6.2 in the next section, I have included only the responses of the first 10 informants in the list, 8 of whom are specializing in syntax.

numbers on the righthand side of each column are the degree of goodness/badness of the scrambled sentence (1: good, 2: marginal, 3: bad, 4: ungrammatical). The judgments of the informants are consistent with the summary given above: Clauses which are not selected by a verb, e.g. adjunct and relative clauses, are strong islands, while various types of complement clauses are either not islands or very weak islands.

	<i>wh-comp</i>		<i>prop-comp</i>		<i>subject</i>		<i>relative</i>		<i>adjunct</i>	
<i>object</i>	10	1.4	10	2.2	10	2.2	6	3.3	7	3.1
<i>manner</i>	8	2.8	7	2.8	5	3.2	4	3.5	2	3.6
<i>reason</i>	5	3.2	8	2.7	6	3.2	3	3.5	3	3.7

Table 6.1: Degree of acceptability w.r.t. scrambling of definite expressions

### 6.1.2 Scrambling of *wh*-expressions

(a) examples illustrate scrambling of a complement, (b), of a manner adverbial, and (c), of a reason adverbial.

(326) Scrambling out of a propositional complement clause

- a. **nwukwu**<sub>i</sub>-lul Younghee-nun [Minho-ka t<sub>i</sub> michitolok salanghanta-ko]  
 who-ACC Younghee-TOP Minho-NOM madly love-COMP  
 malhayss-ni  
 said-QM  
 ‘Who<sub>i</sub> did Younghee say that Minho loves t<sub>i</sub> madly?’
- b. ? **ettehkey**<sub>i</sub> Minho-nun [nay-ka t<sub>i</sub> sayngkey-lul yucihaykanta-ko]  
 how Minho-TOP I-NOM living-ACC maintain-COMP  
 malhayss-ni  
 said-QM  
 ‘How<sub>i</sub> did Minho say that I make a living t<sub>i</sub>?’
- c. ? **way**<sub>i</sub> Minho-nun [nay-ka t<sub>i</sub> hayko-lul tanghayssta-ko] malhayss-ni  
 why Minho-TOP I-NOM fire-ACC affected-COMP said-QM  
 ‘Why<sub>i</sub> did Minho say that I got fired t<sub>i</sub>?’

(327) Scrambling out of a pure complex NP complement clause

- a. ??**nwukwu**<sub>i</sub>-lul ne-nun [Minho-ka t<sub>i</sub> coahanta-nun] sasil-ey nollass-ni  
 who-DAT you-TOP Minho-NOM likes-MOD fact-at surprised at-QM  
 ‘who<sub>i</sub> are you surprised by the fact that Minho loves t<sub>i</sub>?’
- b. ?\* **ettehkey**<sub>i</sub> ne-nun [Minho-ka ton-ul pelessta-nun] sasil-ey nollass-ni  
 how you-TOP Minho-NOM money-ACC earned-MOD fact-at surprised at-QM  
 ‘How<sub>i</sub> are you surprised by the fact that Minho made money t<sub>i</sub>?’
- c. \* **way**<sub>i</sub> ne-nun [Younghee-ka t<sub>i</sub> tayhakerssi-lul phokihayssta-nun]  
 why you-TOP Younghee-NOM college exam-ACC gave up-MOD  
 sasil-ey nollass-ni  
 fact-LOC surprised  
 ‘Why<sub>i</sub> are you surprised by the fact that Younghee decided not to take the college  
 entrance exam t<sub>i</sub>?’

(328) Scrambling out of a wh-complement clause

- a. **mwues**<sub>i</sub>-ul Younghee-nun [nwu-ka t<sub>i</sub> hwumchiekass-nunci] a-ni  
 what-ACC Younghee-TOP who-NOM stole-whether know-QM  
 ‘What does Younghee know who stole?’
- b. **ettehkey**<sub>i</sub> Minho-nun [Younghee-ka t<sub>i</sub> sayngkye-lul yuciha-nunci] a-ni  
 how Minho-TOP Younghee-NOM living-ACC maintain-whether know-QM  
 ‘How<sub>i</sub> does Minho know whether Younghee makes a living t<sub>i</sub>?’
- c. **way**<sub>i</sub> Minho-nun [Younghee-ka t<sub>i</sub> mikwuk-ulo ttenass-nunci] a-ni  
 why Minho-TOP Younghee-NOM America-DIR left-whether know-QM  
 ‘Why<sub>i</sub> does Minho know whether Mary left for the U.S. t<sub>i</sub>?’

(329) Scrambling out of a subject clause

- a. ? nwukwu<sub>i</sub>-ul Minho-nun [[Younghee-ka t<sub>i</sub> seltukhaynay-n] kes-i  
what-ACC Minho-TOP Younghee-NOM persuaded-MOD that-NOM  
taytanhata-ko] malhayss-ni  
remarkable-COMP said-QM  
'Who<sub>i</sub> did Minho say that the fact that Younghee persuaded t<sub>i</sub> is remarkable?'
- b. ?? ettehkey<sub>i</sub> sensayngnim-kkeysen [[pro t<sub>i</sub> younge hoihoa-lul yensupha-nun]  
how teacher-TOP spoken English-ACC practice-MOD  
kes-i] kacang hoykoacekila-ko malssumhasiess-ni  
that-NOM most efficient-COMP said-QM  
'How<sub>i</sub> did the teacher say that [practicing spoken English t<sub>i</sub>] is most efficient?'
- c. \* Minho-nun [[Younghee-ka way mokumwuntong-ul ha-nun] kes-i  
Minho-TOP Younghee-NOM why fund-raising-ACC do-MOD that-NOM  
elisekta-ko] malhayss-ni  
be stupid-COMP said-QM  
'Did Minho say that [*why* Younghee does fund-raising] was stupid?'

(330) Scrambling out of a relative clause

- a. ?? **nwukwu**<sub>i</sub>-eykey ne-nun [Younghee-ka t<sub>i</sub> ssu-n] pyenci-lul  
who-DAT you-TOP Younghee-NOM write-REL letter-ACC  
mollay hwumchiepoass-ni  
furtively looked at-QM  
'To whom<sub>i</sub> did you look at the letter [which Younghee wrote t<sub>i</sub>]?'
- b. \* **ettehkey**<sub>i</sub> Younghee-nun [e<sub>j</sub> t<sub>i</sub> nam-ul tooacwu-nun] salam<sub>j</sub>-ul  
how Younghee-TOP others-ACC help-REL person-ACC  
conkyengha-ni  
respect-QM  
'How<sub>i</sub> does Younghee respect a person [who helps others t<sub>i</sub>]?'
- c. ?\* ne-nun [e<sub>j</sub> Minho-lul way ttayli-n] salam<sub>j</sub>-eykey hanguyhayss-ni  
you-TOP Minho-ACC why hit-REL person-to argued with-QM  
'Did you argue with the person who hit Minho why?'

(331) Scrambling out of an adjunct clause

- a. ? **nwukwu**<sub>i</sub>-eykey ne-nun [Younghee-ka t<sub>i</sub> mal-ul pwutil-ttaymata]  
who-DAT you-TOP Younghee-NOM speak to-whenever  
yak-i olu-ni  
get upset-QM  
'To whom<sub>i</sub> do you get upset whenever Younghee speaks t<sub>i</sub>?'
- b. ?? **ettehkey**<sub>i</sub> Minho-nun [pro nalmata t<sub>i</sub> kongpwuha-myen]  
how Minho-TOP every day study-if  
[pro iltung-ul ha-lkesila-ko] malhayss-ni  
rank one-ACC do-will-COMP said-QM  
'How<sub>i</sub> did Minho say that if (I) study t<sub>i</sub> everyday, then (I) will be number one.'
- c. ?\* Minho-nun [nay-ka **way** mokumwuntong-ul ha-myen]  
Minho-TOP I-NOM why fund-raising-ACC do-if  
[motwu-ka hyepcoha-lkesila-ko] malhayss-ni  
everyone-NOM help-will-COMP said-QM  
'Did Minho say that if I did fund-raising *why*, then everyone would help?'

The following is the summary of the data:

- Scrambling of an object out of a propositional complement, wh-complement, or subject clause is grammatical. Scrambling of a manner/reason adverbial out of a wh-complement clause is also grammatical.
- Scrambling of an object out of a subject clause and an adjunct clause is slightly marginal, as indicated by '?'. Scrambling of a manner/reason adverbial out of a propositional complement clause is also slightly marginal.
- Scrambling of an object out of the complement clause of a noun, or out of a relative clause is pretty bad, as indicated by '??'. Scrambling of a manner adverbial out of a subject clause is pretty bad.
- Scrambling of a manner/reason adverbial out of a complement clause of a noun (i.e. factive island) is ungrammatical, as indicated by '?\*' or '\*'.
- The reason adverb *way* 'why' within a subject, relative, or adjunct clause is ungrammatical, even without scrambling.

Table 6.2 is the result of the questionnaire survey. The method of arranging the table is the same as that in table 6.1. 'Ns' at the bottom of a column for 'subject,' 'relative,' and 'adjunct' mean that an occurrence of the reason wh-phrase *way* in these clause types is non-sensical. This must be due to the fact that the three clause types are islands for LF wh-movement: A wh-phrase occurring in these clause types has to move to COMP of the matrix clause, searching for a question morpheme, cf. section 3.2 in Ch. 3.

	<i>wh-comp</i>		<i>prop-comp</i>		<i>subject</i>		<i>relative</i>		<i>adjunct</i>	
<i>object</i>	10	2.0	10	1.8	9	1.9	6	3.3	9	2.4
<i>manner</i>	7	2.7	6	2.6	4	3.4	2	3.8	6	3.0
<i>reason</i>	4	3.3	3	3.5	ns		ns		ns	

Table 6.2: Scrambling of *wh*-expressions

### 6.1.3 Summary

The following observation can be made on the basis of the data in section 6.1.1 and section 6.1.2.

- Scrambling of a complement is worse than scrambling of a manner/reason adverbial out of the same clause type, cf. the adjunct/argument asymmetry in *wh*-movement, [Rizzi 1990], [Cinque 1990].
- There is a clear contrast in islandhood between a subcategorized (e.g. complement) and a non-subcategorized (e.g. adjunct and relative) clause: The former does not constitute an island, while the latter constitutes a strong island. Islandhood of subject clauses is somewhere between the two.
- There is a subtle difference in island effects between scrambling of a definite and a *wh*-expression. At the moment, it is not clear to me what causes such a difference.
- One clear difference between islands for *wh*-movement in English and those for scrambling in Korean is that a *wh*-complement clause is not an island for the latter while it is a weak island (in the sense of [Cinque 1990]) for the former.

## 6.2 Discourse constraints on scrambling

In this section I discuss discourse constraints on scrambling. I examine the behavior of scrambling in terms of three discourse notions, namely, referentiality, specificity and presuppositionality. I argue that the notion which adequately characterizes the elements undergoing scrambling is “presuppositionality” (cf. [Diesing 1990]), rather than specificity as argued by [Moltmann 1990], [Enç 1991], and [Mahajan 1990]. In this section, a scrambled order only refers to a non-canonical order.

### 6.2.1 Referentiality and scrambling

The notion of referentiality has been the topic of much recent discussion in relation to long *wh*-movement, cf. [Pesetsky 1987], [Rizzi 1990], [Cinque 1990], [Kroch 1989]. Referentiality is closely related to d(iscourse)-linking in the sense of [Pesetsky 1987].<sup>4</sup> As Ellen Prince (p.c.) points out, in its broadest sense, the term ‘referential’ is taken as evoking ‘any’ entity

<sup>4</sup>For a discussion of the differences between “reference” and “discourse reference,” refer to [Heim 1983, 164–166].



Phrase at issue	specificity & others	referentiality
John is looking for <b>a Norwegian</b> (but she didn't show up).	specific	referential new filecard
John is looking for <b>a Norwegian</b> (but he'll never find one).	nonspecific	referential new filecard
I wish I were <b>a Norwegian</b> . (i.e. had the [+Norwegian] property)	?predicative	nonreferential no filecard
<b>A Norwegian</b> can swim well. (i.e. norwegians in general)	?nonspec, generic	referential ?new filecard
<b>The first Norwegian to come in</b> will win the prize.	attributive	referential new filecard
<b>The first Norwegian to come in</b> looks just like my husband.	referential	referential old filecard

Table 6.3: Indefiniteness and Referentiality

(cf. [Prince 1981]), including a class entity. Referentiality is distinct from the notion of specificity or definiteness. For instance, in (332), the indefinite NP *a Norwegian* is non-specific but referential, since it must evoke a discourse entity and is subsequently referred to by the pronoun *she*.

(332) John is looking for **a Norwegian**, and **she** has to be very tall.

Table 6.3 is due to Ellen Prince (p.c.) and gives an idea about the relation between referentiality and other notions.

[Rizzi 1990, 80] argues, following [Chomsky 1981], that lexically selected adverbials ((333)), measure phrases ((334)), and nominal parts of idioms ((335)) receive non-referential  $\theta$ -roles, and are therefore non-referential.

(333) Mary dresses *well*.

(334) John weighs *200 lbs*.

(335) I made *headway* on this project.

[Cinque 1990] adds quantificational phrases such as *every museum* and *no museum* to non-referential expressions, since quantificational expressions are non-referential in nature.

Examining the behavior of scrambling with regard to referentiality, we find the following pattern: (a) scrambling of lexically selected adverbials and measure phrases is ungrammatical, (b) scrambling of predicative expressions, which are another type of non-referential expressions, is ungrammatical, (c) scrambling of nominal parts of idioms is in general marginal, but can be improved by providing an appropriate discourse context, and (d) scrambling of quantificational expressions is fine. I will discuss each case below.

### Measure phrases

Verbs such as *nemta* ‘to be beyond’ and *nakata* ‘to weigh’ subcategorize for amount complements, and scrambling of amount complements is impossible, as shown in (336) and (337).

- (336) a. *i chayk-i chen wen-i/ul/to nemnunta*  
this book-NOM 1000 wen-NOM/ACC/EVEN is more than  
‘This book costs more than 1000 wen (unit of Korean currency).’  
b. \**chen wen<sub>i</sub>-i/ul/to i chay-i t<sub>i</sub> nemnunta.*
- (337) a. *Minho-ka 200 pound-na nakanta*  
Minho-NOM 200 pound-as much as weigh  
‘Minho weighs as much as 200 pounds.’  
b. \**200 pound-na<sub>i</sub> Minho-ka t<sub>i</sub> nakanta.*

### Lexically selected adverbials

Scrambling of lexically selected adverbials does not lead to obvious syntactic ungrammaticality, but changes the truth-conditional semantics of the base-order sentence. This indicates that lexically selected adverbials in principle cannot be scrambled.

- (338) a. *Kim-i os-ul mesisskey ipnunta*  
Kim-NOM clothes-ACC well wears  
‘Kim dresses well.’  
b. \**mesisskey<sub>i</sub> Kim-i os-ul t<sub>i</sub> ipnunta.*

The lexically selected adverbial *mesisskey* is interpreted in a particular way, as shown in the translation. Scrambling of the adverbial, as in (338)b, changes the meaning of the sentence, which I indicate by ‘\*’. The predicate in the canonical order sentence (338)a is interpreted generically, but that in the scrambled order sentence (338)b is interpreted as an instantaneous action modified by the scrambled adverbial.

### Predicative NPs

Predicates such as *toyta* ‘to become’ and *pwulkoahata* ‘to be nothing but’ subcategorize for predicative complements. Scrambling of the predicative complements is pretty marginal.

- (339) a. *Minho-ka ilkay pise-ey pwulkoahata*  
Minho-NOM one(derog) secretary-LOC is nothing but  
‘Minho is nothing but a secretary.’  
b. \**ilkay pise-ey<sub>i</sub> Minho-ka t<sub>i</sub> pwulkoahata*
- (340) a. *Minho-ka taythonglyeng-ulo toyessta*  
Youngswu-NOM president-DIR became  
‘Minho became the president.’  
b. ?\**taythonglyeng<sub>i</sub>-ulo Minho-ka t<sub>i</sub> toyessta.*

The same restriction holds for predicative nominals in small clauses, as in (341).

- (341) a. *nay-ka* [*Inho-lul* **chinkwu-lo**] *mantulessta/samassta*  
 I-NOM Inho-ACC friend-DIR made/took  
 ‘I made Inho a friend/I took Inho as a friend.’  
 b. \**nay-ka chinkwu-lo*; *Inho-lul*  $t_i$  *mantulessta/samassta*  
 c. \***chinkwu-lo**; *nay-ka* *Inho-lul*  $t_i$  *mantulessta/samassta*

### Idiom chunks

Complement NPs in idioms such as *miyekkwuk-ul mekta* ‘fail in exam,’ and *nwuntok-ul tulita* ‘keep one’s eyes on’ cannot be scrambled, as illustrated in (342) and (343).

- (342) a. *Minho-ka* *ipsi-eyse* **miyekkwuk-ul mekessta**  
 Minho-NOM entrance exam failed  
 ‘Minho failed an entrance exam.’  
 b. ??\***miyekkwuk**<sub>i</sub>-ul *Minho-ka* *ipsi-eyse*  $t_i$  **mekessta**.
- (343) a. *Minho-ka* *Younghee-eykey* **nwuntok-ul tuliessa**  
 Minho-NOM Younghee-DAT kept his eyes on  
 ‘Minho kept his eyes on Younghee.’  
 b. ?? **nwuntok**<sub>i</sub>-ul *Minho-ka* *Younghee-eykey*  $t_i$  **tuliessta**

Even though scrambling of the nominal part of an idiom in general yields an ungrammatical sentence, when it is preceded by a context which enables us to anticipate the use of the idiom the acceptability of the scrambled sentence improves significantly. This is illustrated by the contrast between (344)b and (345)b.

- (344) a. *Minho-ka* **kimchikwuk-pwute masinta**  
 Minho-ka kimchi soup-from drink  
 ‘Minho thinks of getting things in advance.’  
 b. ??**kimchikwuk-pwute**<sub>i</sub>; *Minho-ka*  $t_i$  **masinta**

The idiomatic reading in the base order sentence (344)a disappears in the scrambled order sentence (344)b.<sup>5</sup> However, if the scrambled sentence is preceded by a proper discourse context, then the idiomatic reading is still available, as in (345)b.

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<sup>5</sup>The unacceptability of (344)b merely indicates that the idiomatic reading in the base order is not available in the scrambled order. Sentence (344)b is perfectly acceptable under the literal reading ‘Minho drinks kimchi soup first.’

- (345) a. [<sub>Rel</sub> ttek cwu-l] salam-un sayngkalcito an-nuntey,  
 rice cake give-REL person-TOP think neg-do  
 Minho-ka **kimchikwuk-pwute masinta**  
 Minho-NOM think of getting things in advance  
 ‘Before the person who can offer things decides, Minho thought about getting it.’
- b. [<sub>Rel</sub> ttek cwu-l] salam-un sayngkalcito an-nuntey,  
**kimchikwuk-pwute**<sub>i</sub> Minho-ka t<sub>i</sub> masinta.

In (345), the expression *ttek cwu-l salam-un sayngkalcito an-nuntey* precedes the sentence containing the idiom, which is typically used in combination with the idiom. The sentence containing the idiom has only the idiomatic reading in this case. Scrambling of the nominal part of the idiom, as in (345)b, does not affect the idiomatic reading of the sentence.

### Quantificational expressions

Most quantificational expressions undergo both local and long-distance scrambling, as illustrated in (346) and (347).

- (346) **enu haksayng-ina**<sub>i</sub> Kim kyoswu-ka t<sub>i</sub> colepsayng hoansonghoi-ey  
 every student-UQ Prof. Kim-NOM graduating student farewell party-to  
 chotayhayssta  
 invited  
 ‘Prof. Kim invited every student to the farewell party for graduating students.’
- (347) **enu haksayng-ina**<sub>i</sub> Minho-nun [Kim kyoswu-ka t<sub>i</sub> colepsayng  
 every student-UQ Minho-TOP Prof. Kim-NOM graduating student  
 hoansonghoi-ey chotayhayssta-ko]mallhayssta  
 farewell party-to invited-COMP said  
 ‘Minho said that Prof. Kim invited every student to the farewell party for graduating students.’

(346) and (347) are examples of local and long distance scrambling of the universally quantified expressions *enu haksayng-ina*, respectively.

To summarize this section, some non-referential expressions cannot be scrambled, e.g. lexically selected adverbials, measure phrases, and predicative NPs, while others can, e.g. quantificational expressions. Nominal parts of idioms can be scrambled, provided that there is a proper discourse context preceding the scrambled sentence. In addition, non-nominal clausal complements which are not referential can be scrambled. From this, I conclude that referentiality is the right notion characterizing the nature of scrambled elements.

### 6.2.2 Specificity and scrambling

A number of authors including [Moltmann 1990], [Enç 1991], [Mahajan 1990] have argued that only specific elements can be scrambled. In this section, however, I will argue that this claim cannot be maintained. I follow [Moltmann 1990] and define specificity as in (348).

- (348) A **specific** NP refers to an entity which the speaker assumes to be familiar to the addressee in the context of communication. A **non-specific** NP refers to an entity which is relevant in the universe of discourse.

### Scrambling of Indefinites

Most arguments in support of the claim that only specific elements can be scrambled involve scrambling of indefinites.

[Enç 1991] argues that the accusative case particle in Turkish marks the specificity of the entity. Therefore, the object in (349), which is marked accusative is specific, while the bare object in (350) is non-specific.<sup>6</sup>

- (349) Ali bir kitab-**i** aldı  
 Ali one book-ACC bought  
 ‘A book is such that Ali bought it.’

- (350) Ali bir kitap aldı  
 Ali one book bought  
 ‘Ali bought some book or other.’

Scrambling of the specific object in (349) is acceptable, as in (351), while scrambling of the non-specific object in (350) is unacceptable, as in (352).

- (351) **Bir kitab**<sub>i</sub>-i Ali t<sub>i</sub> aldı

- (352) \***Bir kitab**<sub>i</sub> Ali t<sub>i</sub> aldı

[Moltmann 1990] also argues for German that only specific elements can be scrambled. For instance, the complement of a verb that imposes definiteness effects cannot be scrambled in German, as illustrated in (353) and (354), which are (89) and (90) of [Moltmann 1990], respectively.

- (353) a. weil Hans wohl **ein Freund von Bill** ist  
 because Hans presumably a friend of Bill is  
 ‘because Hans is presumably a friend of Bill’  
 b. \*weil Hans **ein Freund von Bill**<sub>i</sub> wohl t<sub>i</sub> ist

- (354) a. weil Maria wohl **eine Schwester** hat  
 because Maria presumably a sister has  
 ‘because Maria presumably has a sister’  
 b. \*weil Maria **eine Schwester**<sub>i</sub> wohl t<sub>i</sub> hat

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<sup>6</sup>[Diesing 1990, 136-140], convincingly argues that Enç’s notion of “specificity” is better characterized as “presuppositionality,” which will be discussed in the next section.

Specificity apparently affects scrambling in Korean, also. In (355), the in-situ indefinite object *yumyeng violinist* is ambiguous between specific and non-specific.<sup>7</sup> After scrambling of the indefinite object, however, only the specific reading remains, as shown in (356)a,b.<sup>8</sup>

- (355) Minho-ka [pro lotte hotel-eyse **yumyeng violinist**-lul poassta-ko] calanghayssta  
 Minho-NOM lotte hotel-LOC famous violist-ACC saw-COMP said proudly  
 ‘Minho said proudly that he saw a famous violinist at Hotel Lotte.’
- (356) a. Minho-ka **yumyeng violinist**<sub>i</sub>-lul lotte hotel-eyse t<sub>i</sub> poassta-ko calanghayssta.  
 b. **yumyeng violinist**<sub>i</sub>-lul Minho-ka lotte hotel-eyse t<sub>i</sub> poassta-ko calanghayssta.  
 ‘Minho said proudly that he saw a (specific) violist at Hotel Lotte.’

Likewise, in (357), the indefinite object is either specific or non-specific, and only the non-specific reading remains after scrambling, as in (358)a,b.

- (357) Minho-ka cantipat-eyse **chayk**-ul ilkessta  
 Minho-NOM grass-LOC book-ACC read  
 ‘Minho read a (specific or non-specific) book on the grass.’
- (358) a. Minho-ka **chayk**<sub>i</sub>-ul cantipat-eyse t<sub>i</sub> ilkessta.  
 b. **chayk**<sub>i</sub>-ul Minho-ka cantipat-eyse t<sub>i</sub> ilkessta.  
 ‘Minho read a (specific) book on the grass.’

In summary, examples like (355)b and (356)b seem to indicate that specificity is the relevant discourse notion constraining scrambling.

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<sup>7</sup>In Korean, the (in)definiteness of an NP is not morphologically marked in general, unlike English. Therefore, calling the object NP *yumyeng violinist* in (355) an indefinite is, strictly speaking, misleading. Rather the crucial aspect of the phrase for the present discussion, is that it can be either specific or non-specific in the base order, but can only be specific after scrambling, just like indefinites in other scrambling languages.

<sup>8</sup>The difference in the number of possible readings of an NP before and after scrambling might be taken as evidence for scrambling being movement, in addition to the scope reconstruction discussed in Ch. 3. [Lenerz 1977], discussing scrambling in German, argues that the base order of a sentence is felicitous in every context (i.e. default word order), while a scrambled order is felicitous only in particular discourse contexts. According to Lenerz’s diagnostic, (355) is the base word order, and (356) is its scrambled counterpart. Discussing the canonical position of locatives in existential sentences in Japanese, as in (a) and (b), [Kuno 1972] also gives a similar argument for identifying the base order of a sentence in terms of the number of readings available for a topic-marked NP: When a subject NP is followed by the topic particle *wa*, if it is either generic or anaphoric, both the thematic and the contrastive interpretation result. On the other hand, if a non-subject NP is followed by *wa*, ordinarily only the contrastive interpretation results. Based on this, Kuno argues that if a topic-marked NP in sentence initial position has only the contrastive reading, then it is derived by scrambling movement.

- a. Teiburu-no ue-ni koppu-ka aru  
 table-GEN top-LOC cup-NOM exist  
 ‘There are cups on the table.’
- b. koppu-ka teiburu-no ue-ni aru  
 cup-NOM table-GEN top-LOC exist

## Counter-examples

However, there are a number of examples in Korean which run counter to the claim that only specific elements can be scrambled.

[Lee 1991a] notes that the indefinite quantifier *nwukwuinka* ‘someone’ can only be non-specific. Nevertheless, it freely undergoes scrambling, as in (359).

- (359) *nwukwun-ci-nun molu-ciman, nwukwuinka<sub>i</sub>-lul Minho-ka t<sub>i</sub> salanghako issta*  
 who-NMZ-TOP don’t know-but someone-ACC Minho-NOM love  
 ‘I don’t know who he is, but someone, Minho loves.’

More examples which involve scrambling of non-specific arguments are given below.

- (360) [***caki chinkwutul-cwung-uy myech-myeng***]<sub>i</sub>-ul Minho-ka t<sub>i</sub>  
 self friends-among-GEN some-CL-ACC Minho-NOM  
*nay sayngil pathi-ey chotayhal kesita*  
 my birthday party-LOC will invite  
 ‘Some of his friends, Minho will invite to my birthday party.’

- (361) *hako manh-un mwulken-cwung-eyse, yangmal han kyelley<sub>i</sub>-lul Minho-ka*  
 numerous-MOD thing-among-LOC a pair of socks-ACC Minho-NOM  
*na-eykey t<sub>i</sub> senmwul-lo cwuessta*  
 I-DAT present-as gave  
 ‘Of all the things he could have gotten, a pair of socks Minho gave to me as a present.’

The scrambled phrase in (360) can be only interpreted as non-specific, which is due to the inherently non-specific expression *myech myeng* ‘some number (of people).’ Nevertheless, the sentence is perfectly acceptable. Likewise, the scrambled phrase *yangmal han kyelley* ‘a pair of socks’ in (361) is non-specific.

- (362) [***ttokkat-un sasil***]<sub>i</sub>-lul na-wa Minho-ka t<sub>i</sub> talukey kiswulhayssta  
 same-MOD fact-ACC I-and Minho-NOM differently described  
 ‘The same fact, Minho and I described differently.’

In (362) which is due to Ellen Prince (p.c.), the scrambled phrase *tookkat-nun sasil* is ambiguous between being specific and non-specific: In the specific reading, the hearer knows what the fact is, and in the non-specific reading, the hearer doesn’t know what the fact is. Generic expressions can also be scrambled even though they are not specific, as in (363) and (364).

- (363) ***sakoa<sub>i</sub>-lul Minho-ka t<sub>i</sub> coahanta***  
 apples-ACC Minho-NOM like  
 ‘Apples, Minho likes.’

- (364) ***inkan<sub>i</sub>-ul sikincong-i t<sub>i</sub> meknunta***  
 human being-ACC cannibals-NOM eat  
 ‘Human beings, cannibals eat.’

In summary, examples such as (359)—(364) suggest that the claim that only specific expressions can be scrambled cannot be maintained: In (359)—(361), scrambled expressions are non-specific. In (362) the scrambled expression can be both specific and non-specific. In (363)—(364), generic expressions are scrambled.

### 6.2.3 Presuppositionality and scrambling

I will argue that the discourse notion which correctly characterizes the property of elements undergoing scrambling is ‘presuppositionality,’ as defined in [Diesing 1990].

#### Presuppositionality

I summarize the notion of ‘presuppositionality’ discussed in [Diesing 1990]. Citing [Milsark 1974], Diesing distinguishes two types of determiners, namely, *strong* and *weak*. Weak determiners can appear with a subject NP in there-insertion contexts, while strong determiners cannot, as shown in (365).

- (365) a. There is/are **a/some/a few/many/57** fly (flies) in my soup.  
b. \*There is/are **the/every/all/most** fly (flies) in my soup.

Another difference between strong and weak determiners is that strong determiners presuppose the existence of the entities they are applied to. Weak determiners are ambiguous between a presuppositional reading and a non-presuppositional reading in which they merely assert the existence of whatever entities they are applied to. The ambiguity of weak quantifiers is illustrated below:

- (366) a. There are **some** ghosts in my house.  
(unstressed *some*, asserts existence of ghosts)  
b. **Some** ghosts are in the pantry, the others are in the attic.  
(presupposes the existence of ghosts)

In (366)a the non-presuppositional, or cardinal reading of the determiner *some* is shown. If there are ghosts, the sentence is true. If ghosts turn out not to exist, the sentence will be false. In (366)b the determiner is stressed and the presuppositional reading is most salient. This sentence presupposes the existence of ghosts. This presuppositional reading, unlike the cardinal reading, can be paraphrased as a partitive – “three of the ghosts.”

Strong determiners, on the other hand, are unambiguous. They have only the presuppositional reading. The cardinal reading is not possible for the sentences in (367):<sup>9</sup>

- (367) a. **Every** ghost roasted marshmallows.  
b. **Most** ghosts sleep late.

#### Explaining the data

I reexamine the data discussed in the previous sections in relation to referentiality and specificity, and argue that all the data can be accommodated if we hypothesize that only presupposed elements can be scrambled.

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<sup>9</sup>Diesing assumes that if there is no entity referred to by a strong quantifier, then the truth value of the sentence is undefined, along the tradition of Fregean logic. Therefore, the absence of ghosts in (366)b and (367)a,b leaves the truth value of the sentences undefined. However, according to the Russellian view of presupposition, a failure to satisfy the presupposition of an expression or assertion simply leads to the falsity of the sentence, cf. [Levinson 1983, 170-171].



Let us first consider the data discussed in section 6.2.1. Five types of expressions are considered, namely, lexically selected adverbials, measure phrases, predicative nominals, nominal parts of idioms, and quantificational phrases. Among these, quantificational phrases can be presuppositional as discussed above, while lexically selected adverbials, measure phrases and predicative nominals are attributive and cannot be presupposed. Therefore, the non-scramblability of the latter three types of phrases, and the scramblability of quantificational phrases are easily explained under the hypothesis that only presupposed elements can be scrambled. For the scramblability of nominal parts of idioms, we can give the following explanation: In general nominal parts of idioms are not presupposed and therefore cannot be scrambled, cf. (342)b and (343)b. However, when the sentence containing an idiom is preceded by a context which typically co-occurs with the idiom, the occurrence of the idiom is presupposed, and therefore scrambling of the nominal part of the idiom is felicitous, cf. (344)b.

Turning to the examples which involve scrambling of non-specific elements, they can also be explained by hypothesizing that presuppositionality is the necessary condition for scrambling. The scrambled phrase *nwukwuinka* in (359) is always presuppositional as well as non-specific. Furthermore, the preceding sentence gives a clear indication of the presupposition of the entity referred to by the scrambled phrase. The scrambled phrase *caki chinkwutul-cwung-uy myech-myeng* ‘some of his friends’ in (360) is partitive, and partitives are always presuppositional. The scrambled phrase *yangmal han kyelley* ‘a pair of socks’ in (361) is also partitive, and the preceding sentence accommodates the presuppositional reading of the scrambled phrase. The scrambled phrase *ttokkat-un sasil* ‘the same fact’ in (362) is definite, which presupposes the existence of the entity referred to. Note that specific elements are necessarily presupposed under the definition of specificity given in (348), and therefore constitute a subset of presupposed elements.

In conclusion, the relevant discourse notion characterizing the elements which can be scrambling is presuppositionality. That is, the sentence presupposes the existence of the element which undergoes scrambling. Before I close this section, I would like to mention another fact which might at first glance seem problematic for the proposal that only presupposed elements can be scrambled. This is scrambling of a propositional complement, as illustrated in (368)b.

- (368) a. Kim kyoswu-ka [Minho-ka chencay-la-ko] mitnunta  
 Kim prof.-NOM Minho-NOM genius-COP-COMP believe  
 ‘Prof. Kim believes that Minho is a genius.’  
 b. [Minho-ka chencay-la-ko]<sub>i</sub> Kim kyoswu-ka t<sub>i</sub> mitnunta.

In (368)b, the propositional complement is scrambled. The question is if the scrambled propositional complement is presupposed as I have been arguing. If so, what would be the nature of the presupposition? I argue that the scrambled clause is indeed presupposed. What the sentence presupposes in this case is the existence of Prof. Kim’s belief. When the sentence is in the base order, as in (368)a, the sentence is ambiguous between presupposing the existence of Prof. Kim’s belief and not having such a presupposition. When the sentence is scrambled, as in (368)b, only the presuppositional reading survives. We observe a similar fact in topicalization of a propositional complement in English illustrated below.<sup>10</sup>

<sup>10</sup>I am grateful to Eric Fosler for providing his intuition on this matter.

- (369) a. Sue believes that the sky is green.  
b. [That the sky is green]<sub>i</sub> Sue believes t<sub>i</sub>.

The base order sentence (369)a is ambiguous in the same way as (368)a. Namely, the sentence either presupposes the truth of Sue's belief, or it doesn't. The topicalized sentence (369)b, however, has only the presupposed reading. More specifically, the belief that the sky is green contrasts with other propositions which are the candidates for Sue's belief.

In short, scramblability of a propositional complement does not constitute a counterexample to the claim that only presupposed elements can be scrambled.

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