

**Scrambling in Universal Grammar:
an analysis of scrambling as optional movement
in Korean and other languages**

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Abbreviation

ACC: Accusative
AGR: Agreement
A-Position: Argument-Position
GB-Theory: Government Binding Theory
CIS: Clause Internal Scrambling
CLLD: Clitic Left Dislocation
CNPC: Complex NP Constraint
COMP: Complementizer
DAT: Dative
DBP: Derivation by Phase
DIS: Long Distance Scrambling
DO: Direct Object
ECM: Exceptional Case Marking
EPP: The Extended Projection Principle
FI: Full Interpretation
ECP: Empty Category Principle
IO: Indirect Object
LCC: Linear Crossing Constraint
LF: Logical Form
MC: Minimal Configuration
MI: Minimalist Inquires
MIC: Minimal Link Condition
NIB: Negation-induced Barrier
MNSC: Minimal Negative Structure Constraint
MP: The Minimalist Program
NOM: Nominative
NP: Nominal Phrase
OS: Object Shift
PF: Phonetic Form
PMC: Principle of Minimal Compliance
PP: Prepositional Phrase
PL: Plural
PUB: Principle of Unambiguous Binding
Q: Question Mark
QR: Quantifier Raising
RM: Relativized Minimality

SVO: Subject Verb Object

T: Tense

TOP: Topic

UG: Universal Grammar

WCO-effect: Weak Crossover effect

Chapter 1: Introduction

1.1 Issues in the Study of Scrambling

Korean is a head final language which has the SU-IO-DO-V order at D-structure, as in (1). Similarly, the German *dass* clause in the middle field maintains the OV order, as in (3). In (1) and (3), arguments have a local relation with their associated predicates, maintaining adjacency between the theta assigner and assignee. However, it appears that by the movement of arguments, arguments may appear dislocated from the theta assigner, the verb. With respect to the movement operations, there are two different movement operations in the model of Universal Grammar; substitution operation and adjunction operation. Movement which takes place for the satisfaction of the morphological requirements such as Case-assignment or feature checking, i.e. the constituents move to the nonfilled-positions, belongs to the former type of movement, while movement in which the constituents move to the already filled adjoined positions belongs to the latter type of movement. In (1) and (3), morphological properties are satisfied in a way that the uninterpretable ϕ -features of the heads, T and v and the uninterpretable structural Case of the subjects and the objects can be deleted by the matching process *agree*. This indicates that movement involved in (2) and (4) is not the substitution operation, but rather adjunction operation. Then, given that adjunction is allowed to a maximal projection which is not argument, as pointed out by Chomsky (1986), it is expected that arguments in (1) and (3) can be moved to the IP and VP adjoined positions since in (1) and (3) IP and VP are the maximal projections which are not arguments. As a consequence, the examples (1) and (3), in which movement of the constituents to IP-and VP adjoined positions takes place can have the word orders, (2a-d) and (4a-b). This tells us that the movement of the constituents makes the word order variable:

(1) Korean

[_{IP} Minki-ka [_{VP} Swunhi-eke Chelswu-lul sokehessta]]

Minki-nom Swunhi-dat Chelswu-acc introduced

'Minki introduced Chelswu to Swunhi.'

(2) Korean

- a. $[_{IP} \text{Minki-ka } [_{VP} \text{Chelswu}_i \text{-lul } [_{VP} \text{Swunhi-eke } t_i \text{ sokehessta}]]]$
 Minki-nom Chelswu-acc Swunhi-dat introduced.
 'Minki introduced [Chelswu]_i to Swunhi t_i.'
- b. $[_{IP} \text{Chelswu}_i \text{-lul } [_{IP} \text{Minki-ka } [_{VP} \text{Swunhi-eke } t_i \text{ sokehessta}]]]$
 Chelswu-acc Minki-nom Swunhi-dat introduced
 '[Chelswu]_i, Minki introduced t_i to Swunhi.'
- c. $[_{IP} \text{Chelswu}_i \text{-lul } [_{IP} \text{Swunhi}_j \text{-eke } [_{IP} \text{Minki-ka } [_{VP} t_i t_j \text{ sokehessta}]]]]]$
 Chelswu-acc Swunhi-dat Minki-nom introduced
 '[Chelswu]_i [Swunhi]_j Minki introduced t_i to t_j.'
- d. $[_{IP} \text{Swunhi}_j \text{-eke } [_{IP} \text{Chelswu}_i \text{-lul } [_{IP} \text{Minki-ka } [_{VP} t_i t_j \text{ sokehessta}]]]]]$
 Swunhi-dat Chelswu-acc Minki-nom introduced
 '[Swunhi]_j [Chelswu]_i, Minki introduced t_i to t_j.'

(3) German

- ... dass $[_{IP} \text{Hans} [_{VP} \text{der Maria den Johann vorstellte}]]]$
 that Hans-nom ART Maria-dat ART Johann-acc introduced

(4) German

- a. ... dass $[_{IP} \text{Hans} [_{VP} \text{den Johann}_i [_{VP} \text{der Maria } t_i \text{ vorstellte}]]]$
that Hans-nom ART Johann-acc ART Maria-dat introduced
- b. ...dass $[_{IP} \text{den Johann}_i [_{IP} \text{Hans} [_{VP} \text{der Maria } t_i \text{ vorstellte}]]]$
 that ART Johann-acc Hans-nom ART Maria-dat introduced

This movement of constituents to IP and VP adjoined positions as in (2a-d) and (4a-b) is referred to as scrambling. Ross (1967) was the first person who observed the phenomenon of variable word order known as scrambling. Since then, various approaches have been proposed within the generative grammar. From the fact that movement involved in (2a-d) and (4a-b) has nothing to do with the morphological requirements we could assume that scrambling as in (2a-d) and (4a-b) can be counted as optional movement operation. With respect to scrambling, however, there are two different views in the current approaches towards scrambling research; a movement hypothesis (Ross 1967, Saito 1985;1992, Saito/Fukui 1998, Haider/Rosengren 1999, Grewendorf/Sabel 1997, M?ler 1994;1996, Mahajan 1994, Bailyn 2001 and many others) versus a base generation hypothesis (Bayer/Kornfilt 1994, Kiss 1994, Hale 1994, Fanselow 2001 and

Miyagawa 1997;2001), and the movement hypothesis is further divided into two different directions; optional movement versus obligatory movement (A-and-A' movement).

The main claim of this study is to provide an analysis that the free word order is derived from one underlying word order by movement of constituents rather than freely base generated, and the involved movement is not an instance of last resort view of move- α , but rather optional. In order to show that scrambling is not constrained by the economy principles, I will analyze scrambling in terms of Minimalism. Another issue in this study is that IP-adjoined Clause Internal Scrambling as well as Long Distance Scrambling in Korean exhibit mixed A and A' properties, unlike the suggestion that Long Distance Scrambling poses only A'-properties, as proposed by Saito (1989;2001) and Mahajan (1990), although their assumptions have been generally accepted in scrambling research. On the other hand, both VP-adjoined Clause Internal Scrambling and Long Distance Scrambling in Korean only pose A'-properties.

The investigation is mainly based on Korean data, comparing it with that of other scrambling languages such as Japanese, German, Hindi-Urdu and Russian, which have their own language specific properties.

It is well known that the scrambling operation crosslinguistically exhibits a variety of properties, i.e. the scrambling operation is parametrized across languages. For example, in strictly head-final OV languages, preverbal elements are scrambled to IP-and-VP adjoined positions, as in (2) and (4), repeated in (5-6). In contrast, in Hungarian, described as a VO language, scrambling is only limited to the postverbal part of the sentence, as in (8), unlike the case of OV languages in which only preverbal elements are scrambled, while in Russian, also known as a VO language, scrambling of the preverbal part is also possible, as in (7):

(5) Korean

- a. $[_{IP} \text{Minki-ka } [_{VP} \text{Chelswu}_i \text{-lul } [_{VP} \text{Swunhi-eke } t_i \text{ sokehessta}]]]$
Minki-nom Chelswu-acc Swunhi-dat introduced.
'Minki introduced [Chelswu]_i to Swunhi t_i.'
- b. $[_{IP} \text{Chelswu}_i \text{-lul } [_{IP} \text{Minki-ka } [_{VP} \text{Swunhi-eke } t_i \text{ sokehessta}]]]$
Chelswu-acc Minki-nom Swunhi-dat introduced
'[Chelswu]_i, Minki introduced t_i to Swunhi.'

- c. [_{IP} Chelswu_i -lul [_{IP} Swunhi_j -eke [_{IP} Minki-ka [_{VP} t_i t_j sokehessta]]]]
 Chelswu-acc Swunhi-dat Minki-nom introduced
 '[Chelswu]_i [Swunhi]_j Minki introduced t_i to t_j.'
- d. [_{IP} Swunhi_j -eke [_{IP} Chelswu_i -lul [_{IP} Minki-ka [_{VP} t_i t_j sokehessta]]]]
 Swunhi-dat Chelswu-acc Minki-nom introduced
 [Swunhi]_j [Chelswu]_i, Minki introduced t_i to t_j.'

(6) German

- a. ... dass [_{IP} Hans [_{VP} den Johann_i [_{VP} der Maria t_i vorstellte]]]
that Hans-nom ART Johann-acc ART Maria-dat introduced
- b. ...dass [_{IP} den Johann_i [_{IP} Hans [_{VP} der Maria t_i vorstellte]]]
 that ART Johann-acc Hans-nom ART Maria-dat introduced

(7) Russian (Bailyn 2001:651)

Bystro_i Ivan t_i citaet knigu.
 quickly Ivan reads book
 'Quickly Ivan reads book.'

(8) Hungarian (Kiss 1994:225)

Janos_i Marival beszélte meg a problemat t_i
 John-nom Mary-with discussed PREF the problem-acc
 'John discussed the problem with Mary.'

Also, the fact that scrambling in Korean, Japanese and German is considered to be IP and VP adjunction as in (9), and scrambling in Russian is described as IP VP and CP adjunction as in (10), leads us to suppose that scrambling is language-specific.

(9) Japanese (Saito/Fukui 1998:453)

- a. [_{IP} John-ga [_{VP} Bill-ni [_{CP} Mary-ga sore-o motteiru to] itta]] (koto)
 John-nom Bill-to Mary-nom it-acc have that said fact
 'John said to Bill that Mary has it.'
- b. [_{IP} Sore-o_i [John-ga [_{VP} Bill-ni [_{CP} Mary-ga t_i motteiru to] itta]]
 (koto)

(10) Russian (Zemskaja 1973 adopted from M?ler/Sternefeld 1993:467)

- a. On skazal [_{CP} cto [_{IP} noski_i [_{IP} on rad [_{CP} cto kupil t_i]]]]

he said that the-socks he is-glad that he-bought

'He said that he is glad that he bought the socks.'

- b. [CP cto [IP Petrov_i [IP stranno [CP cto [IP t_i nam pomoga]]]]]
 that Petrov-nom is-odd that us helped
 'that it is odd that Petrov helped us.'

The following examples provide another language parametrization in scrambling operation:

(11) Korean

- a. *[_{IP}[Caki_i-uy apochi]-ka Sunhi_i-lul pinanhessta]]
 self-gen father-ka Sunhi-acc criticized
 '*Self's_i father criticized Sunhi_i.'
- b. ? [_{IP}Sunhi_i-lul [_{IP}[caki_i-uy apochi]-ka t_i pinanhessta]]]
 Sunhi-acc self' -gen father-nom criticized
 'Self's_i father criticized Sunhi_i.'

(12) German (Grewendorf/Sabel 1997:58)

- a. * da_ [die Lehrer von sich_i] zweifellos [den Studenten_i] in guter
 that [the teachers of himself]nom undoubtedly [the student]acc in good
 Erinnerung behalten haben
 memory kept have
- b. *da_ [den Studenten_i]_i[die Lehrer von sich_i] zweifellos t_i in guter
 that[the student-acc]_i[the teachers of himself_i]-nom undoubtedly in good
 Erinnerung behalten haben
 memory kept have

(A) examples in (11-12) violate principle A. As (11b) shows, however, the scrambled DO can bind a possessive anaphor in the subject argument in Korean, while the scrambled DO in German cannot bind a possessive anaphor in the subject argument, as in (12b). This difference is resulted from the fact that IP-adjoined positions in Korean are narrowly L-related¹, but not in German.

These crosslinguistic variations, which are the main properties of scrambling operation and optionality, however, can be a serious problem in current linguistic theories such as Chomsky's (1993;1995;2000 and 2001)

¹ The features of a lexical item L are called L-features. A position is L-related if it is in a local relation to an L-feature and a structural position that is narrowly L-related has the basic properties of A-positions (Chomsky 1993:28).

Minimalist assumption, known as the latest development in generative grammar. For Chomsky (2000 and 2001), parametric variation is a *prima facie* imperfection due to the violation of the Uniformity Principle² which should guide the study of language. Moreover, on his account, movement, considered to be another imperfection (Chomsky 2000:119), is driven by the narrow morphological requirements³ like checking of the Extended Projection Principle (EPP)-feature on T and C for the elimination of the uninterpretable features such as ϕ -features and the structural Case of NP because at LF the survived uninterpretable features make the derivation crash. This movement operation should take place by the way of least effort for the satisfaction of economy of derivation.

Consequently, some linguists (Boskovic/Takahashi 1998, Grewendorf/Sabel 1997 Fanselow 2002 and Miyagawa 1997 and 2001) make the attempt to analyze scrambling within the framework of Minimalist assumption. However, their analyses are divided into two different directions; the one the supposition that the involved movement in scrambling is last resort view of move- α , and the other the claim that the free word order is base generated rather than derived from one underlying word order by movement of constituents. Nevertheless, their analyses rely on the identical assumption that the scrambled elements should be NPs, which have ϕ -features and the structural Case. This means that in terms of Minimalist assumption, optional scrambling of PPs and adverb should be ruled out, unlike the empirical evidence in which scrambling of PPs and adverb in Korean, Japanese and Russian is permissible, i.e. neither the scrambling as the last resort view of move- α , nor scrambling as the base generation can explain the optional scrambling of PPs and adverb.

Furthermore, given that Chomsky (2000 and 2001) revises the checking mechanism creating the term agree under the matching process of probe and goal, if the only criterion for the evaluation is a derivational cost, then the XP-adjoined variant in which movement takes place should be rejected as

² The Uniformity Principle (Chomsky 2001:2)

In the absence of compelling evidence to the contrary, assume language to be uniform, with variety restricted to easily detectable properties of utterances.

³ The Core Functional Categories (CFC) such as C (complementizer), T (tense) and v (the light verb that introduces verbal phrases) are associated with morphological properties, since all CFCs contain ϕ -features which should be deleted by either matching process of agree or dislocation (Move) (Chomsky 2000:102 and 2001:6).

uneconomical by the economy of derivation, as long as agree, in which no movement occurs, preempts Move, since "good design conditions would lead us to expect that simpler operations are preferred to more complex ones ..." (Chomsky 2000:102-102). However, the scrambled variants in scrambling languages are completely grammatical.

Considering all of the empirical evidence, therefore, in this study, where the syntactic and interpretive properties of scrambling in scrambling languages such as Korean, Japanese, German, Hindi-Urdu and Russian are investigated, I will show that scrambling operation is an optional movement, not being consistent with economy conditions.

1.2 Organization

This study is organized as follows;

Chapter 2 deals with the properties of move- α , which have been discussed within the Generative Grammar, as some background considerations.

In chapter 3, I will investigate two different views of scrambling; movement approach versus base generation approach. According to the former, free word order is derived from one underlying order by the movement of constituents, while the latter claims that free word order is freely base generated. Considering a lot of empirical evidence, I will argue that scrambling is movement operation, and the involved movement is not a last resort view of move- α , but rather optional.

Along with this assumption that scrambling is optional movement, in chapter 4, I will propose that the multiple subjects and objects in Korean can be considered to be the multiple specifiers of a single head T and v, respectively, thereby, the Case of the multiple subjects and objects are licensed by a single head T and v. From this fact that IP-adjoined positions are the positions of the multiple specifiers, I will show that close internally IP-adjoined scrambling lacks intervention effect, creating the new binding possibility and exempting Weak Crossover (WCO) effect. Although VP-adjoined positions in Korean are also argument positions like IP-adjoined positions, however, VP-adjoined Clause Internal Scrambling (CIS) does not create a new binding relation, since VP-adjoined CIS is always c-commanded by the subject, unlike IP-adjoined CIS in which

IP-adjoined CIS c-commands the subject.

Chapter 5 contains the properties of Long Distance Scrambling (LDS). For example, LDS, exhibiting crosslinguistic variation, is constrained by UG principles such as subjacency, ECP, and CNPC, etc., since scrambling is an instance of move- α . As for LDS, in the literature (Mahajan 1990 and Saito 2001) it is noted that LDS patterns with A'-movement. Contradicting this assumption, however, I will provide the analysis that LDS in Korean exhibits A-property in that the long scrambled NP can be coreferential with the monomorphemic matrix reflexive *caki* (self) in the matrix clause, because a monomorphemic reflexive can have a long distance antecedent. In addition, the properties of Long Distance Scrambling (LDS) in Russian and German will also be investigated.

In chapter 6 I will explore the properties of wh-phrase and wh-scrambling. As far as overt wh-movement is concerned, two options are available; the one is wh-movement to [Spec CP], and the other is scrambling of wh-phrase to IP and VP adjoined positions. In Korean, being a wh-situ language, wh-movement to [Spec CP] is excluded, since in Korean, wh-interrogative wh-phrase is spec-head configuration with X^{+wh} by the presence of Q-morpheme, i.e. EPP-feature on C can be checked without the movement of the wh-phrase. On the other hand, the scrambling of wh-phrase in Korean is permissible, which means that scrambling of wh-phrase in this language is optional. As for wh-scrambling, following Rizzi (2001) who indicates that the class of A'-positions split into subclasses such as operators and topic, I will show that scrambling of wh-phrase over intervener eliminates intervention effect caused by the same structural type as wh-phrase, and the addition of a wh-phrase in the position where the added wh-phrase c-commands the intervener improves the deviance.

In chapter 7 I will investigate the properties of Topicalization, Quantifier Raising (QR) and Object Shift (OS), and after that I will compare the properties of scrambling with theirs.

Finally, chapter 8 summarizes the main arguments of this study and concludes with my remarks.

Chapter 2: Some Background Considerations

As mentioned in chapter 1, the main goal of this study is to provide an analysis that scrambling operation is optional movement. If the phenomenon of free word order were the result of the movement operation which leaves a trace in the start position, forming the chain with an antecedent, then it would appear that scrambling operation should obey UG principles such as subjacency, ECP (RM), CED, CNPC and the Minimal Link Condition, which constrain the movement operation. In this chapter, I will briefly lay out the properties of move- α which have been discussed within the Generative Grammar, e.g. from subjacency to Minimal Link Condition (MLC).

2.1 The properties of move- α

2.1.1 Subjacency

Move- α leaves a trace in the start position and this trace, resulting from movement operation, forms the chain with an antecedent called an antecedent-chain, in which every trace must be a member of a chain, i.e. the intermediate trace is created by movement. This antecedent-chain is constrained by Subjacency and the Subjacency Condition (Chomsky 1986:30):

(1) Subjacency

$-\beta$ is n-subjacent to α if there are fewer than n+1 barriers¹ for β that exclude α .

(2) The Subjacency Condition

if $(\alpha_i + \alpha_{i+1})$ is a link of a chain, then α_{i+1} is Subjacent to α_i .

Under Chomsky's definition of the Subjacency Condition, Complex NP Constraint (CNPC),² wh-island and Huang's CED³ (1982) violate

¹ The set of bounding nodes or subjacency barrier are subject to parametric variation. For example, in English IP and NP are bounding nodes, while in Italian CP and NP are bounding nodes (cf. Chomsky 1986, Rizzi 1992;2000 and Baker 1988).

² Ross's formulation of CNPC (1986:76):

No element contained in a sentence dominated by a noun phrase ... may be moved out of that noun phrase.

³ Huang's (1982) definition of CED:

No category can be extracted from a category which is not lexically governed (cited from

subjacency.

Consider briefly the examples of CNPC, wh-island constraint and CED:

(3)* $[_{CP1}$ which band_i did $[_{IP1}$ you believe $[_{DP}$ the claim $[_{CP2}$ t'_i that $[_{IP2}$ we had seen t_i]] ? (Roberts 1997:194)

This example is the typical CNPC violation. In (3), *which band* firstly adjoins to Spec CP2 and secondly moves to Spec CP1. In first movement, IP2 is not theta-marked being BC, though not a barrier. CP2 which is not L-marked dominates a BC, hence it is a barrier. The second step of movement crosses DP and IP1. DP is theta-marked by *believe*, thus is not a BC. But DP dominates CP2, which is a BC, and hence DP is a barrier by inheritance. In other words, *which band* crosses two barriers, violating subjacency.

(4) * Where₂ did you see $[_{NP}$ the book₁ $[_{CP}$ which₁ $[_{IP}$ John put t₁ t₂]]

In (4), the example of wh-island constraint, *where* crosses IP, CP and NP. IP is a BC though not intrinsically a barrier. CP is not theta-marked, being a BC. CP dominates BC and IP. This indicates that CP is a barrier intrinsically. NP is L-marked, not being a BC. However, NP dominates BC and CP. Hence, NP is a barrier by inheritance. Conclusively, the movement *where* crosses two barriers, yielding the violation of subjacency.

(5) the man who $[_{IP}$ [pictures of t] are on the table]]

(6) to whom did $[_{IP}$ they leave [before speaking t]]

In (5), the embedded subject, which is not L-marked, is a BC and a barrier. IP dominates BC, being a barrier by inheritance. As a result, movement of *who* crosses two barriers, yielding the violation of subjacency. In (6), the adjunct is not theta-governed, and is a BC and a barrier by inheritance, i. e. two barriers are crossed, thereby the sentence violates subjacency. As examples (5) and (6) show, the CED prohibits extraction from a category which is not lexically governed.

Subjacency, however, does not explain the status of the intermediate traces created by move- α . The formulation of Empty Category Principle (ECP), which indicates that traces should be properly governed, applies to these traces. The following section deals with ECP.

2.1.2 ECP

As noted by Chomsky (1981), the trace in original position must be governed due to the antecedent-trace relation. This fact tells us that the concept of government plays a crucial role in licensing empty categories in accordance with ECP, under which traces must have a proper government. Chomsky's concept of proper government under ECP is as follows (1986:17):

$-\alpha$ properly governs β iff α θ -governs or antecedent-governs β

Then, it appears that ECP constraints move- α by imposing proper government of the trace. As a consequence, an object is properly governed by its head, but a subject or adjunct can only be properly governed under the antecedent-chain relation. This fact indicates that the extraction of a θ -governed argument allows non-local steps by the binding of the trace to antecedent, i.e. in chain formation, the intermediate traces in the argument extraction can be deleted if the initial trace is theta-marked (see Chomsky 1981, Frampton 1999, Manzini 1990:1999 and Richards 2001), while the extraction of adjunct which is not directly theta-marked by a lexical head violates ECP, as Huang noted, under CED. That is, unlike the extraction of an argument, the local steps of an adjunct play a important role, in order to satisfy antecedent-government to the trace, not allowing the deletion of intermediate trace. Therefore, the extraction of an adjunct from wh-island is worse than the extraction of a complement. This phenomenon is described as argument-adjunct asymmetry.⁴ The following examples show argument-adjunct asymmetry (Chomsky 1986:35):

(7) How did John meet [_{NP} a man [_{CP} who fixed the car t]]

(8) Which book did John announce [_{NP} a plan [_{CP} that you had read t]]

⁴ Manzini (1992 13f.) assumes that subject extraction, which exhibits that-t effects, differs from both object and adjunct extraction, where that-t effects do not pose (cf. Lasnik/Saito 1992 and Haegeman 1998). With regard to argument-adjunct asymmetry, Lasnik/Saito (1984;1992) developed γ -marking. According to them, traces of argument are subject to gamma marking at S-structure, while traces of adjuncts are gamma marking at LF.

In (7), adjunct *how* is extracted from a relative clause to the matrix [Spec CP] crossing two barriers, CP and NP, thereby violating subjacency. Under the ECP, *t* must be antecedent governed by *who*. However, in (7), there are two barriers between antecedent *how* and *t*, interfering antecedent government by *how*, i.e. in (7), both subjacency and ECP are violated. In general, the extraction of an adjunct from wh-islands always yields the violation of ECP, as in (7).

On the other hand, in (8), where an argument is extracted, CP and NP are L-marked, not being a barrier. On account of Chomsky's definition of subjacency, the sentence (8) has 0-subjacency, being perfectly grammatical. If we consider (8) under ECP, the trace of an argument must be theta-governed. Accordingly, *t* is theta-governed by *read*, i.e. *t* is properly governed, satisfying ECP. This shows that in (8), subjacency as well as ECP are satisfied.

ECP is revised as Relativized Minimality by Rizzi (1990). The next section concerns Rizzi's Relativized Minimality.

2.1.3 Relativized Minimality (RM)

Minimality condition is considered to be a part of government, as Chomsky's (1986a) definition shows:

X governs Y if and only if

- (a) X is either of the category A, N, V, P, I;
or X and Y are coindexed;
- (b) X c-commands Y;
- (c) no barrier intervenes between X and Y;
- (d) minimality is respected.

According to Chomsky (1986b:42f.), minimality condition for government is that there is no Z such that Z satisfies (a), (b) and (c) and X c-commands Z. In the literature, Chomsky's formulation of minimality condition is referred to as rigid minimality (Haegeman 1998, Frampton 1999, Manzini 1999 Rizzi 1990 and many others).

Due to the rigour of Chomsky's definition, Rizzi (1990) develops an alternative framework known as Relativized Minimality (RM). In RM, Rizzi suggests that minimality condition should not be seen as absolute, but rather that minimality is relativized with respect to the type of governor, as its name implies.

Rizzi(1990:7) formulates RM as follows:

... X ... Z ... Y

Relativized Minimality:

- (a) α -governs Y only if there is no Z such that
- (a) Z is a typical potential α -governor for Y,
- (b) Z c-commands Y and does not c-commands X

Accordingly, a potential head government can block head-government, an A'-Spec considered to be a potential antecedent governor for A'-movement blocks antecedent government from an A'-position, and an A-Spec regarded as a potential antecedent governor for an A-movement will block antecedent government from an A-position. This leads us to assume that blocking effects in RM are relative to the nature of the government.

Bearing this in mind, consider the following examples, where RM effect is observed :

- (9) * How do you wonder [which problem [PRO to solve t t']]
- (10) * Jane seems that it is likely [t to win]
- (11) *Have they could t left?

In (9), t' is not antecedent governed, due to a potential governor *which problem*, causing ungrammaticality. Example (10) is the basic A-movement configuration known as superraising. Here, the embedded position of A-spec, considered to be the landing site of the trace t, is filled with *it*. This means that *it* in (10) is the potential governor for t, blocking the government relation between *John* and its trace.

(11) is the typical Head Movement Constraint. There are two different heads I and V in (11). As shown by (11), V *have* moves to C crossing I, which is regarded as a potential governor for t, thereby, moved V cannot

antecedent-govern its trace t.⁵

Considering derivational constraints, Chomsky restates RM as Minimal Link Condition (MLC) in Minimalism. The section 2.1.4 concerns MLC and locality constraint.

2.1.4 The Minimal Link Condition and Locality Constraint in Minimalism

Chomsky's Minimalist Program (MP 1993, 1995a and 1995b) and the extended version called Minimalist Inquires (MI 2000) and Derivation by Phase (DBP 2001) are described as the latest development in Generative Grammar. The main claim of Minimalism is that it seeks to discover a perfect solution to minimal design specifications for the faculty of language (FL), a component of the human brain dedicated to language. In order to keep the necessary assumptions to a minimum, therefore, Minimalism maintains only two levels, Logical Form (LF) and Phonetic Form (PF) eliminating D-structure and S-structure. Since the survived uninterpretable features render the derivation crash due to the violation of Full Interpretation (FI), which states that every element of an interface representation must provide a meaningful input to the A-P and C-I systems,

⁵ Furthermore, Rizzi (1990) notes that besides the island violations like the example of (9), (10) and (11), there are two other types of wh-islands such as Ross's inner island, created by a negation, and Obenauer's (1976 and 1984) Pseudo-Opacity island in French, created by a floating quantifier.

In RM, following Cinque, Rizzi replaces the notion of theta-government with referential index, in which a referential index is licenced under theta-role assignment. In other words, "A referential index must be licenced by a referential theta role (Rizzi 1990:86)." Accordingly, unselected adverbs, idiom chunks and unselected measure phrases are not assigned a referential θ -role. This tells us that they do not have a referential index, i.e. these elements can not be extracted from wh-islands.

With regard to a referential index, it is pointed out by Frampton (1999), Manzini (1999), Roberts (1997) and Lasnik/Saito (1992) that D-linked wh-phrases introduced by Pesetsky(1987 and 2000) have a referential index allowing the extraction of the elements from wh-islands because of the possibility of a long distance binding relation like the example (a). On the other hand, in (b) the non D-linked wh-phrase does not have a referential index, which means that the movement of non-D-linked wh-phrases from wh-island violates ECP due to the potential governor in A'-Specs as the following examples show (Manzini 1999:65):

- (a) Che macchina ti chiedi come riparare?
 which car yourself you-ask how to-repair
 'Which car do you wonder how to repair?'
 (b) *Che diavolo ti chiedi come riparare ?
 what devil yourself you-ask how to-repair
 'What the hell do you wonder how to repair?'

the uninterpretable features in derivation should be checked and deleted.

The fact that for feature checking the attractor, which has the uninterpretable ϕ -features⁶ and the attractee, which has the interpretable ϕ -features and uninterpretable structural Case, should be spec-head configuration for the elimination of the uninterpretable features, forces the movement operation, i.e. movement operation takes place for the morphological properties. Movement which is driven by the narrow requirements of feature checking, however, should occur by the way of Shortest move, Greed (last resort) and Procrastinate known as economy conditions. Since S-structure is eliminated in Minimalism, the consequence of the elimination of S-structure is that there is no longer a site available at which derivations can be evaluated for legitimacy with regard to constraints such as Subjacency, ECP and RM. These constraints are restated as Minimal Link Condition (MLC) which is incorporated into the definition of Move/Attract:

(12) Minimal Link Condition (MLC Chomsky 1995:311)

K attracts α only if there is no β , β closer to K than α , such that K attracts β .

In MLC, *close* is defined in terms of c-command and equidistance as in (13):

(13) (Chomsky 1995:299)

β is closer to HP than α if β c-commands α and is not in the minimal domain of CH (CH is the chain headed by γ , and γ is adjoined to HP).⁷

As shown by (12) and (13), movement operation in Minimalism should take place in strong locality condition.

Keeping (12-13) in mind, consider a standard wh-violation as an example of A'-movement and superraising as a A-movement in terms of MLC, in order to see whether A-movement as well as A'-movement are constrained by MLC:

⁶ ϕ -features of core functional categories (CFCs) such as C (expressing force/mood), T (tense/event structure), and v (the light verb head of transitive constructions) are uninterpretable (Chomsky 2000:102 2001:3).

⁷ See Kitahara 1999, Frampton 1997.

- (14) a. Whom₁ did John persuade t₁ [to visit whom₂]
 b. *whom₂ did John persuade whom₁ [to visit t₂]

(Chomsky 1993:14)

In (14), where the matrix C has a strong feature, wh-movement is triggered for the satisfaction of the EPP-feature on C, i.e. wh-movement is needed for feature checking on C and wh-phrase to delete uninterpretable features of C-and-wh. As given by (12), MLC forces the matrix C to attract the closest category that can enter into a checking relation with its sublabel *whom*₁ as in (14a), excluding the movement of *whom*₂ to the matrix [Spec CP] due to the violation of MLC as in (14b), because *whom*₁ is closer to the matrix C than *whom*₂. In fact, as shown by (12-13), MLC is based on shortest move. If we consider (14) in terms of shortest move, in (14b) movement of *whom*₂ to the [Spec, CP] is longer than that of *whom*₁ to this position as in (14a), violating shortest move, also known as Superiority. (14) shows that A'-movement is subject to MLC. This leads us to suppose that in A'-movement the derivation satisfying the MLC converges as in (14a), since the length of A'-chain should be local, as given by (12-13).

Next, consider superraising:

(15) (Chomsky 1995b:284):

- a. It (nfl) seems [that John is intelligent]
 b. * John [I(nfl) seems [that t is intelligent]]

In (15a), case of *John* is checked by Infl, resulting in erasure of case. However, its categorial and ϕ -features, interpretable features, are unchanged, ensuring the possibility of raising *John* to matrix [Spec IP], in order to satisfy the EPP-feature on T and matrix agreement showed in (15b). In (15b), however, case of *John* has been already checked and erased. Thus *John* in matrix [Spec IP] has no case to be checked, crashing the derivation. Putting it differently, Greed bans the movement *John* to matrix [Spec IP], since *John* has no benefit from the movement, which is needed for the case feature to be licensed. Then the insertion of expletive can be considered, either *there* or *it*, to satisfy both Greed and EPP-feature on T. But *there* lacks Case and theta-properties (Chomsky 1995), which are needed for feature-checking. Therefore, insertion of *there* is not proper for the matrix [Spec IP] considered to be Case position due to the raising of the verb *seem*.

As an alternative, we can think about the insertion of *it*, which has Case and theta-properties. Then, the sentence *It seems that John is intelligent* is grammatical, satisfying both EPP-features on T and Greed in that John's Case feature is checked by Infl, not allowing further movement, and the insertion of *it* in the matrix [Spec IP] satisfies EPP-feature on T.

As we see, in (15), MLC does not have an direct influence on (15) because in (15) another economy condition, Greed, plays a crucial role. This fact shows that in the case of A-movement the MLC does not yield a convergent derivation by the fact that MLC is only based on shortest moves.

This checking mechanism of MP, which relies on MLC and Greed, is revised by Chomsky (2001) who creates the term Agree between Merge and Move. Agree establishes a relation (agreement, case checking) between an attracting head, probe, and the features it seeks, goal, without the copying characteristic movement, weakening the strong locality constraint. Since simpler operations are preferred to more complex ones, Agree preempts Move,⁸ as in (16):

(16) (Chomsky 2000:123)

⁸ With respect to movement operation, Chomsky distinguishes overt movement from covert movement such that overt movement takes place before spell-out, raising all of the category with pied-piping for PF, while in covert movement only an attracted feature raises to the checking position after spell-out, in order that features considered to be lower in the tree must be moved into positions which are local to the attractors such as heads. Moreover, following Pollock (1989), Chomsky points out that in a language which has strong Agr, such as French, overt raising is possible, while English-type languages, which have weak Agr, cannot be raised overtly. In other words, in French, V-features of Agr check the features of the V in overt syntax by raising of V to Agr and disappear in order to avoid surviving strong features, which cause the derivation to crash at PF, i. e. delaying V-raising until LF makes the V-features of Agr survive into PF, causing the derivation to crash at PF. Thus, the strong V-features must be checked and deleted before Spell-out (cf. Lasnik 1999:2000, Pollock 1989, Groat/O'Neil 1996 Grewendorf 2002 and Marantz 1995). Because of the reasons discussed above, in French main verbs raise to Tense before spell-out in finite clauses. As a consequence, the verb is always to the left of the adverb illustrated in (1a) (Pollock 1989:367):

- (1) a. Jean embrass souvent Marie
 b. John often kisses Mary

In English, delaying V-raising until LF does not cause the derivation crash at PF, since the V-features of Agr are weak. Then the question arises why overt raising in English is barred. Chomsky answers this question with the principle of least effort, in the shape of economy conditions. This economy principle is called Procrastinate, which makes the operation delay until LF if possible (cf. Chomsky 1993:30). Accordingly, Procrastinate blocks the overt V-raising in English. Hence, the main tensed verb in English stays inside the VP before Spell-out, and thus to the right of the adverb, as example (1b) shows. From this observation, it appears that like the case of (15), the notion of MLC is not related to (1).

there [_α T-was elected an unpopular candidate]

At stage α in (16), the operations Agree and pure Merge in θ -position are sufficient. For example, by the merging of expletive *there*, satisfying the EPP-feature on T, agree can delete uninterpretable ϕ -features on T and uninterpretable structural case of *candidate* by the matching process of probe and goal. So the more complex operation move is not needed.⁹

Recall that A'-movement operation is constrained by MLC. If the procedure of checking is executed without movement as Agree does, however, then it would be expected that a licencing head, probe, could agree with its goal without the strong locality constraint. Unlike this prediction, empirical evidence¹⁰ in natural languages shows that features are checked in a strict

⁹ The simplest operation for constructing larger units from minimal projections is Merge, which takes two syntactic objects (α , β) and forms K (α , β) from them. A second operation is Agree and a third Move, combining Merge and Agree. Move is more complex than its subcomponents Merge and Agree, ..., since it involves the extra step of determining P(F) ("generalized pied-piping." (Chomsky 2000:101). Despite the fact that Merge and Agree preempts Move, choice of Move over Agree follows from the presence of EPP-features on T and C, where pure Merge in θ -position is inapplicable, known as a last resort view of move- α , in order to delete the uninterpretable ϕ -features on T and C by the feature checking for the satisfaction of Full Interpretation (FI), since the survived uninterpretable features at LF render the derivation crash. The following examples show the choice of Move over Merge and Agree:

- (1) a. *It/There seems Jane to have destroyed the evidence
 b. Jane seems to have destroyed the evidence
 (2) a. I wonder who Tom saw
 b. *I wonder Tom saw who

In (1a) the subject position of *seem* is empty since the external argument of the verb *destroy* is caseless, which means that Merge is ruled out, i.e. T is not ϕ -complete, blocking the matching process of Agree. The only possible rescue is that *Jane* should move to the subject position of the matrix clause for the satisfaction of EPP-feature on T as in (1b), eliminating uninterpretable ϕ -features of T and uninterpretable structural case of *Jane*. Similarly, (2b) where wh-phrase stays in situ, violates the WH-criterion, which requires that EPP-feature on C should be satisfied, being ungrammatical, while (2a) in which wh-phrase moves to [Spec CP], satisfies WH-criterion having EPP-feature on C, which is needed for feature checking of C and wh. In (1b) and (2a), movement operation takes place for the satisfaction of EPP-feature on T and C known as last resort, according to which operations are allowed only if there is some reason for them.

¹⁰ Considering data from Japanese, Kishimoto (2001:606) argues that constituents are case-checked in strict locality with their licencing heads.

- (1) * Taroo-ni nani-ga uta-e-mo si-na-i
 Taroo-dat anything-nom sing-can-Q do-negpres
 'Taroo cannot sing anything.'

(1) is the dative subject construction in which the dative subject and nominative object are

locality with their licencing heads, as given in (17):

(17) Korean

*Modu-ka muoss-ul sass- ni?
 everyone-nom what-acc bought Q

'What did everyone buy?'

In Korean wh-interrogative, wh-phrases in situ should move to the scope positions at LF for the satisfaction of FI. As a consequence, in (17) wh-phrase *muoss* crossing quantifier *modu* is fronted to the scope positions at LF, being ungrammatical, since in (17) quantifier *modu*, considered to be the same feature class as the wh-phrase (cf. Rizzi 2001), blocks for a head to agree with wh-feature *muoss* due to the RM effect. This indicates that the head (probe) should be strictly local with its (goal).

In order to solve this problem, Chomsky, considering an intervention effect, yielded form locality condition, revises the checking mechanisms of agree in DBP (2001). In DBP theory, the uninterpretable ϕ -features of a head, probe, ϕ -agree with the interpretable ϕ -features of a goal, in order to eliminate the uninterpretable ϕ -features of a probe and the uninterpretable structural Case of a goal by the matching process of agree. Under this checking process, an intervention effect arises if probe P matches inactive¹¹ goal₁ which is closer to than active goal₂, barring agree between probe and active goal₂. (cf. Chomsky 2001:4).

Bearing this in mind, consider (17) again, repeated in (18):

(18) Korean

a. *Modu-ka muoss-ul sass- ni?
 everyone-nom what-acc bought Q

'What did everyone buy?'

Under the terms of DBP, in (18) active goal₂ *muoss* should agree with

regarded as two specifiers of single head T. In (1) the dative subject is overtly raised to [Spec T]. Then, under Chomsky's proposal Agree, *mo* should be able to bind the nominative object. But the nominative object cannot be bound by *mo* because it moves out of the scope of *mo*, in order to be case-checked by T, yielding the violation of strict locality. From this observation, Kishimoto concludes that agree is applied in the strong locality condition.

¹¹ Goal as well as probe must be active for Agree to apply (Chomsky 2001:6).

probe, Qua.¹² However, in (18) inactive goal₁ *modu*, which is closer to the head Qua than *muoss* c-commanding active goal₂ *muoss*, blocks for head Qua (probe) to agree with active wh-phrase *muoss* (goal) known as an intervention effect. This shows that, just like the case of MLC, agree is also subject to strong locality constraint.

To summarize, A'-chain resulted from movement operation should obey locality constraints such as subjacency, ECP, RM and the MLC.

2.2 Conclusion

In this chapter I have outlined the properties of movement operation within the generative grammar. As noted above, A'-movement operation is generally constrained by UG principles such as Subjacency ECP and RM and the MLC in terms of Minimalism. Then the question may arise: does scrambling, which is caused by the movement of constituents, also obey these UG principles and economy conditions? In the following chapters I will try to answer this question.

¹² Rizzi (2002) points out that the class of A'-positions splits into subclasses such as quantificational elements, including wh-phrases and quantifiers, modifier and topic. Thus, I assume that wh-phrases and quantifiers can be counted as the multiple specifiers of a single head quantificational element, Qua. As a result, in (18), where wh-phrases and quantifier belong to the same class, *modu-ka* is located on intervener position for wh-phrase *muoss-ul* to agree with the head, Qua, since in Korean wh-interrogative wh-phrase should be located closer to the head, Qua than other operators, which belong to the same feature class (for more discussion, see chapter 6).

Chapter 3: Two different views of scrambling

As observed in chapter 1, as far as scrambling is concerned, there are two different assumptions for the treatment of scrambling in scrambling researches; the movement hypothesis (Ross 1967, Saito 1985;1992, Saito/Fukui 1998, Haider/Rosengren 1999, Grewendorf/Sabel 1997, M?ler 1994;1996, Mahajan 1994, Bailyn 2001 and many others) and the base generation hypothesis (Bayer/Kornfilt 1994, Kiss 1994, Hale 1994, Fanselow 2001 and Miyagawa 1997;2001). According to the movement hypothesis, the scrambled versions are derived from one underlying word order at D-structure by reordering constituents. This means that the free word order is the result of the movement. On the other hand, the base generation hypothesis claims that the free word order is not the result of the movement, but rather the result of free generation of constituents. In this chapter, I will investigate these two scrambling approaches, movement hypothesis and the base generation approaches separately, and after that, considering a lot of empirical evidence, I will argue that scrambling is the movement operation and the involved movement is not the last resort view of move α , but rather optional movement which has nothing to do with morphological requirements such as Case assignment or feature checking.

3.1 Scrambling as movement hypothesis

It is well known that the movement operation leaves a trace in the start position. This trace, yielded from movement operation, forms the chain with antecedent called antecedent-chain, where every trace should be a member of a chain. Accordingly, in (1b-c), (2b-c), (3b-c), (4b-c) and (5-6) in which constituents are scrambled to IP-or-VP adjoined positions, antecedent-chains such as (*Chelswu t*), (*Toshiko t*), (*den Johann t*), (*kitab t*), (*bystro t*) and (*Janos t*) are formed:

(1) Korean¹

- a. [IP Minki-ka [VP Swunhi-eke Chelswu-lul sokehessta]]
 Minki-nom Swunhi-dat Chelswu-acc introduced
 'Minki introduced Chelswu to Swunhi.'

¹ Korean (Lee 1992, Kim 1995 and Choi 1999) has the order of SU, IO and DO at D-structure.

- b. $[_{IP} \text{Minki-ka } [_{VP} \text{Chelswu}_i \text{-lul } [_{VP} \text{Swunhi-eke } t_i \text{ sokehessta}]]]$
 Minki-nom Chelswu-acc Swunhi-dat introduced.
 'Minki introduced [Chelswu]_i to Swunhi t_i.'
- c. $[_{IP} \text{Chelswu}_i \text{-lul } [_{IP} \text{Minki-ka } [_{VP} \text{Swunhi-eke } t_i \text{ sokehessta}]]]$
 Chelswu-acc Minki-nom Swunhi-dat introduced
 '[Chelswu]_i, Minki introduced t_i to Swunhi.'

(2) Japanese²

- a. $[_{IP} \text{John-ga } [_{VP} \text{Hanako-ni Toshiko-o Syokaisita}]]]$
 John-nom Hanako-dat Toshiko-acc introduced
 'John introduced Toshiko to Hanako.'
- b. $[_{IP} \text{John-ga } [_{VP} \text{Toshiko-o}_i \text{ } [_{VP} \text{Hanako-ni } t_i \text{ syookaisita}]]]$
 John-nom Toshiko-acc Hanako-dat introduced
 'John introduced [Toshiko]_i to Hanako t_i.'
- c. $[_{IP} \text{Toshiko-o}_i \text{ } [_{IP} \text{John-ga } [_{VP} \text{Hanako-ni } t_i \text{ syookaisita}]]]$
 Toshiko-acc John-nom Hanako-dat introduced
 '[Toshiko]_i, John introduced t_i to Hanako.'

(3) German³

- a. dass $[_{IP} \text{Hans}[_{VP} \text{der Maria den Johann vorstellte}]]]$
 that Hans-nom ART Maria-dat ART Johann-acc introduced
- b. dass $[_{IP} \text{Hans}[_{VP} \text{den Johann}_i \text{ } [_{VP} \text{der Maria } t_i \text{ vorstellte}]]]$
 that Hans-nom ART Johann-acc ART Maria-dat introduced
- c. dass $[_{IP} \text{den Johann}_i \text{ } [_{IP} \text{Hans } [_{VP} \text{der Maria } t_i \text{ vorstellte}]]]$
 that ART Johann-acc Hans-nom ART Maria-dat introduced

(4) Hindi-Urdu (Kidwai 2000:3)

- a. $[_{IP} \text{nur-ne } [_{VP} \text{anjum-ko kitab di}]]]$
 Noor (Su) Anjum (IO) book (DO) gave
 'Noor gave Anjum a book.'
- b. $[_{IP} \text{nur-ne } [_{VP} \text{kitab}_i \text{ } [_{VP} \text{anjum-ko } t_i \text{ di}]]]$
 Noor (Su) book (DO) Anjum (IO) gave
- c. $[_{IP} \text{kitab}_i \text{ } [_{IP} \text{nur-ne } [_{VP} \text{anjum-ko } t_i \text{ di}]]]$

² According to Saito (1985), in Japanese, the IO is base-generated and hierarchically higher than DO in the double-object construction. In contrast, Miyagawa (1997) argues that in Japanese, both orders, IO-DO and DO-IO, are base generated at D-structure.

³ For M²ler (1999), German has the order of SU, DO and IO at D-structure, whereas for Haider (1999) and Lenerz (2001), the order of IO-DO or DO-IO in German depends on the verb.

book (DO) Noor (SU) Anjum (IO) gave
 (5) Russian (Bailyn 2001:651)
 Bystro_i Ivan t_i citaet knigu.
 quickly Ivan reads book
 'Quickly Ivan reads the book.'

(6) Hungarian (Kiss 1994:225)
 Janos_i Marival beszelte meg a problemat t_i
 John-nom Mary-with discussed PREF the problem-acc
 'John discussed the problem with Mary.'

In terms of scrambling as the movement operation (Ross 1967, Saito 1985;1992;1997;2001, Fukui 1993, Grewendorf/Sabel 1997, M?ler 1996;1999, Haider/Rosengren 1999 among others), (1a), (2a), (3a) and (4a), in which arguments (DO) begin in a local relation with their associated predicates maintaining adjacency between theta assigner and assignee, are base generated at D-structure. (1b-c), (2b-c), (3b-c) and (4b-c), where adjacency between theta assigner and assignee is not maintained, are derived from (1a), (2a), (3a) and (4a) by the movement of constituents, making it possible that scrambling is responsible for flexible word order. For example, in (1b, 2b, 3b and 4b), known as VP-adjoined scrambling, the direct object moves over the indirect object, adjoining to VP, while in (1c, 2c, 3c and 4c), described as IP-adjoined scrambling, the constituents are scrambled across the subject in order to adjoin to IP.

Therefore, in the classical analysis of scrambling (Saito 1985, Grewendorf/Sternefeld 1990, Mahajan 1994, M?ler 1994 and many others), scrambling is considered to be an XP-adjunction operation.⁴ In consequence, scrambling in Korean (Lee 1992, Choi 1999 and Kang 1992), Japanese (Saito 1985;1992, Fukui 1993 and Yatsushiro 2000), German (Grewendorf/Sternefeld 1991, M?ler/Sternefeld 1993 and Haider/Rosengren 1999), and Hindi (Mahajan 1994 and Kidwai 2000) is described as adjunction to IP and VP, whereas scrambling in Russian is referred to as adjunction to IP, VP and CP (M?ler/Sternefeld 1993 and Bailyn 2001).

As (1-6) show, there are two different groups of languages in which

⁴ According to Chomsky (1986), adjunction is allowed to a maximal projection which is non-argument.

scrambling occurs; OV languages such as Korean, Japanese, Hindi and German⁵ dass clause in the middle field and VO languages such as Russian and Hungarian. In OV languages which are strictly head-final, preverbal elements are scrambled to IP or VP-adjoined position, as illustrated in (1b-c), (2b-c), (3b-c) and (4b-c). In contrast, in Hungarian, described as a VO language, scrambling is only limited to the postverbal part of the sentence, as shown in (6), unlike the case of OV languages where only preverbal elements are scrambled, while in Russian, also known as a VO language, scrambling of the preverbal part is also possible, as given in (5).

With respect to the presence of scrambling in Japanese and its absence in English, Saito/Fukui (1998) point out that this difference results from the fact that Japanese lacks subject-verb agreement, yielding the multiple subject construction, and the multiple subject construction in English is not allowed due to the presence of subject-verb agreement. As the examples (3), (5) and (6) show, however, scrambling takes place in non-multiple subject construction languages such as German,⁶ Russian and Hungarian, though these languages have subject-verb agreement like English. This fact shows that their argument is too narrow to include the examples (3), (5) and (6).

As for (1a), (2a), (3a), and (4a), which are base generated as one underlying order at D-structure, in the traditional GB-theory they are perfectly grammatical, since verbs assign an external theta role to subject, and internal theta roles to objects, satisfying Theta criterion.⁷ In other words, due to the assumption that argument positions in the (a) examples of (1-4) are theta-positions, the case-marked positions are visible. Therefore, INFL assigns nominative case to subject and verb assigns the dative and accusative case to objects, thereby, arguments in (1a), (2a), (3a), and (4a) receive Case without movement, satisfying Case Filter. In terms of DBP (Chomsky 2001), in the (a) examples in (1-4), T is ϕ -complete in a way that

⁵ German is a V2 language, i.e. the finite V_i moves to C_i giving rise to the V2 effect called V_i-to-C_i movement. In a V2 clause, scrambling does not occur, while topicalization as another option of optional movement takes place (cf. Pesetsky 1997, Grewendorf/Sabel 1996, Haegeman 1996 and Mueller 1997).

⁶ In Korean and Japanese, considered to be IP-adjunction scrambling languages, multiple subject construction is allowed. However, despite Saito/Fukui's assumption that specifier-head agreement closes off the projection, in German, which has subject-verb agreement like English IP-adjunction, scrambling, i.e. further projection, is possible.

⁷ Theta criterion (Chomsky 1986:96-7)

Each argument A appears in a chain containing a unique visible theta position P, and each theta position P is visible in a chain containing a unique argument A.

b. A position P is visible in a chain if the chain contains a case-marked position.

T has a person-and-number feature, allowing an EPP-feature, which motivates the movement operation. If EPP is satisfied by complete ϕ -set of T, then movement is ruled out because movement takes place only when T_{def} cannot have an EPP-feature, as in (7b), in which V selects T_{def} .⁸

(7) (Chomsky 2001:7)

- (a) there are likely to be awarded several prizes.
- (b) several prizes are likely to be awarded

Keeping this in mind, consider examples (1-4) again, repeated in (8-11):

(8) Korean

- a. $[_{\text{IP}} \text{Minki-ka } [_{\text{VP}} \text{Swunhi-eke Chelswu-lul sokehessta}]]$
Minki-nom Swunhi-dat Chelswu-acc introduced
'Minki introduced Chelswu to Swunhi.'
- b. $[_{\text{IP}} \text{Minki-ka } [_{\text{VP}} \text{Chelswu}_i \text{-lul } [_{\text{VP}} \text{Swunhi-eke } t_i \text{ sokehessta}]]]$
Minki-nom Chelswu-acc Swunhi-dat introduced.
'Minki introduced [Chelswu]_i to Swunhi t_i.'
- c. $[_{\text{IP}} \text{Chelswu}_i \text{-lul } [_{\text{IP}} \text{Minki-ka } [_{\text{VP}} \text{Swunhi-eke } t_i \text{ sokehessta}]]]$
Chelswu-acc Minki-nom Swunhi-dat introduced
'[Chelswu]_i, Minki introduced t_i to Swunhi.'

(9) Japanese

- a. $[_{\text{IP}} \text{John-ga } [_{\text{VP}} \text{Hanako-ni Toshiko-o Syokaisita}]]$
John-nom Hanako-dat Toshiko-acc introduced
'John introduced Toshiko to Hanako.'
- b. $[_{\text{IP}} \text{John-ga } [_{\text{VP}} \text{Toshiko-o}_i \text{ } [_{\text{VP}} \text{Hanako-ni } t_i \text{ syookaisita}]]]$
John-nom Toshiko-acc Hanako-dat introduced
'John introduced [Toshiko]_i to Hanako t_i.'
- c. $[_{\text{IP}} \text{Toshiko-o}_i \text{ } [_{\text{IP}} \text{John-ga } [_{\text{VP}} \text{Hanako-ni } t_i \text{ syookaisita}]]]$
Toshiko-acc John-nom Hanako-dat introduced
'[Toshiko]_i, John introduced t_i to Hanako.'

(10) German

- a. dass $[_{\text{IP}} \text{Hans}[_{\text{VP}} \text{der Maria den Johann vorstellte}]]$
that Hans-nom ART Maria-dat ART Johann-acc introduced

⁸ C selects T_{comp} ; V selects T_{def} (Chomsky 2001:8)

- b. dass [_{IP}Hans [_{VP} den Johann_i [_{VP}der Maria t_i vorstellte]]]
 that Hans-nom ART Johann-acc ART Maria-dat introduced
- c. dass [_{IP}den Johann_i [_{IP}Hans [_{VP} der Maria t_i vorstellte]]]
 that ART Johann-accHans-nom ART Maria-dat introduced

(11) Hindi-Urdu (Kidwai 2000:3)

- a. [_{IP}nur-ne [_{VP}∂njum-ko kitab di]]
 Noor (Su) Anjum (IO) book (DO) gave
 'Noor gave Anjum a book.'
- b. [_{IP}nur-ne [_{VP} kitab_i [_{VP} ∂njum-ko t_i di]]]
 Noor (Su) book (DO) Anjum (IO) gave
- c. [_{IP} kitab_i [_{IP} nur-ne [_{VP} ∂njum-ko t_i di]]]
 book (DO) Noor (SU) Anjum (IO) gave

In the (a) examples in (8-11), probe, head T ϕ -agrees with the goal, the subject which has the interpretable ϕ -features and the uninterpretable nominative case, and probe v ϕ -agrees with the goals, the objects which have the interpretable ϕ -features and the uninterpretable dative and accusative case, eliminating the uninterpretable ϕ -features of T and v and the uninterpretable structural nominative, dative and accusative Case of goal, in order to satisfy Full Interpretation. As we discussed, in both GB-theory and DBP-theory, the movement operation in the (a) examples in (8-11) is not required. This fact lead us to suppose that the movement involved in the (b-c) examples in (8-11) is optional, since the movement operation in (b-c) has nothing to do with EPP-feature, which motivates movement operation.

This optionality, however, raises a serious problem under the last resort view of move- α (Chomsky 1993;1995), according to which movement must be forced in order to satisfy the morphological properties such as Case-assignment or feature-checking. As we noted, however, movement of constituents in (b-c) examples in (9-12) has nothing to do with Case-assignment and feature-checking. To solve this problem, Boskovic/Takahashi (1998:348 ff.) try to analyze scrambling in terms of last resort view of move- α , required by morphological need:

- (12) a. John-ga [Mary-ga sono hon-o katta to] omotteiru.
 John-nom Mary-nom that book-acc bought that thinks

'John thinks that Mary bought that book.'

b. Sono hon-o John-ga [Mary-ga t katta to] omotteiru

(13) Numeration $\rightarrow(a) \rightarrow(c)$ (LF); $\rightarrow(b)$ (PF)

a. [_{IP} sono hon-o [_{IP} John-ga [_{CP} [_{IP} Mary-ga [_{VP} [_v katta]]]] to] omotteiru]]

that book-acc John-nom Mary-nom bought that thinks

b. sono-hon-o John-ga katta to omotteiru

c. [_{IP} John-ga [_{CP} [_{IP} Mary-ga [_{VP} sono-hon-o [_v katta]]]] to] omotteiru]

In the classical analysis of scrambling (Saito 1985), (12b) is derived from (12a) from object scrambling to IP-adjoined position without any reason, being optional. Assuming that elements are base-generated in their surface non-theta-positions and undergo LF movement to the positions to receive theta-roles as in (13), however, Boskovic/Takahashi (1998) argue that in (12b) *sono hon* is base-generated in its surface position, IP-adjoined position, by operation Merge as in (13a). After that, *sono-hon* moves to its theta position in order to receive the theta role from the verb *katta* as in (13c). With respect to this LF movement, following Lasnik/Saito (1992), who assume that movement does not have to leave a trace when no principle requires it, they suggest that LF movement in (13c) does not have to leave a trace, to avoid the violation of the Proper Binding Condition. Under this assumption, this LF movement is obligatory, since movement occurs for morphological property, satisfying the last resort view of Move- α .

In fact, Boskovic/Takahashi attempt to analyze scrambling on account of last resort principle for the satisfaction of economy of a derivation. Interestingly, however, their analysis also faces the same problem. For example, if we consider (12) in terms of MI and DBP (Chomsky 2000;2001), the operation agree is sufficient to delete the uninterpretable ϕ -features and structural Case without the copying operation characteristic of movement. More precisely, in (12) in the embedded clause by the matching process agree the uninterpretable ϕ -features of probe, T and v, and structural Case of the goal *Mary* and *sono hon* are eliminated. This fact shows that morphological requirement is satisfied without movement operation because in the embedded clause T is ϕ -complete, allowing the EPP feature which causes movement operation. In contrast, in (13) additionally, merge of argument in non-theta position is created, thereby LF movement should occur for the theta-role assignment, due to the fact that the theta-theoretic

principle⁹ bars merge of arguments in non-theta-positions. Given that as in good design conditions for human language, simpler operations are preferred to more complex ones (Chomsky 2000:101), agree preempts move. From this fact, if only criterion of a derivation were economy, (13c), in which covert movement takes place for the satisfaction of morphological need, should be blocked by (12a), where the checking process is executed by the matching process of agree, since agree is more economical than attract (covert movement of formal features). This shows that their analysis still has the same problem, as far as economy of a derivation is concerned.

Furthermore, if scrambling is morphologically motivated for the theta-role assignment, as they argue, scrambling of non-arguments such as PPs and adverb, which lack ϕ -features, should be ruled out. Nonetheless, scrambling of PPs in Korean and German, and adverb in Russian, is permitted as in (14-16):

(14) Korean

[_{PP} Kori_i -eso] Sujin-un t_i Minki-lul mannassta
 street-on Sujin-top Minki-acc met
 '[On the street]_i , Sujin met Minki t_i .'

(15) German (Mueler/Sternefeld 1993:354)

a. da_ der Fritz sich [_{NP} ein Buch von
 Henscheid] gekauft hat
 that ART Fritz REFL-dat a book-acc by Henscheid
 bought has
 b. da_ der Fritz sich [_{PP} von Henscheid]_j [_{NP} ein Buch t_j]
 gekauft hat
 that ART Fritz REFL-dat by Henscheid a
 book-acc bought has

(16) Russian (Bailyn 2001:648)

Ja bystro_i xocu, ctoby oni t_i dopisali kursovye
 I quickly want that they wrote papers
 'I want them to write their papers quickly.'

According to Chomsky (2000:102), Move takes place only for the

⁹ Pure Merge in θ -position is required of (and restricted to) arguments (Chomsky 2000:103)

satisfaction of EPP-feature on the core functional categories (CFCs) such as C, T and v which have the uninterpretable ϕ -features, in order to eliminate the uninterpretable ϕ -features on C and T and uninterpretable structural Case of N, which have also the interpretable ϕ -features. This means that uninterpretable features of CFCs and N render their relevant subparts active so that matching leads to agreement (Chomsky 2001:4). If movement operation were only motivated by EPP-feature on CFCs, then, movement in (14-16) should be blocked by the fact that PPs and adverb, lacking ϕ -features, do not belong to CFCs. This fact renders Boskovic/Takahashi's argument inapplicable, i.e. scrambling of PPs and adverb cannot be explained in terms of last resort view of move α . From this observation I suppose that scrambling of PPs and adverb in (14-16) should be optional.

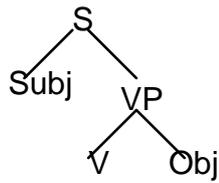
To summarize: in terms of scrambling as the movement hypothesis, two possible movement operations can be considered. The one is optional movement and the other obligatory movement (last resort view of move- α). As the empirical evidence shows, however, scrambling is not consistent with a last resort view of move- α . Rather, scrambling is optional movement as traditionally suggested. Bearing this in mind, in the next section I will consider scrambling as the base generation hypothesis.

3.2 Scrambling as the base generation hypothesis

Firstly, as proposed by Hale (1983), within the base generation hypothesis, there are two different assumptions for the treatment of the base generated structure; configurational and a non-configurational structure. According to the former, the variable D-structure represents a hierarchical (binary branching) constituent structure in which the subject and the other phrases are in an asymmetrical relation to the verb, i.e. a configurational language is associated with a VP node, since the subject c-commands the verb (Fanselow 2002, Neeleman 1994, Saito/Hoji 1983 and Bayer/Kornfilt 1994)¹⁰ as shown in (17).

(17) Configurational

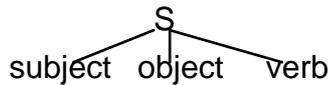
¹⁰ In Korean (Choi 1999) and Japanese (Saito 1985 and Yatsushiro 2000), VP topicalization (fronting) in which all non-subject arguments are included, is possible, while VP topicalization with subject is not allowed, supporting the fact that Korean and Japanese have VP node, i.e., under this notion Korean and Japanese are fully configurational. Similarly, to Neeleman (1994), Dutch is also configurational.



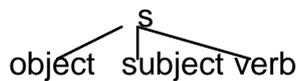
On the other hand, the non-configurational approach suggests that the variable D-structure representation is associated with a flat phrase structure, in which the subject and object are not separated by a VP-boundary, making it possible that all phrases in a sentence are in a symmetrical relation to the verb, i.e. there is no c-command relation between the subject and the verb. Thus, there is no VP node in non-configurational languages (Hale 1980;1994, Miyagawa 1997;2001 and Kiss 1994). As a consequence, verb-final (OV) languages such as Korean and Japanese in which the word order is flexible, known as scrambling, look like (18a-b):

(18) Non-configurational

a.



b.



First consider the configurational structure:

(19) Japanese

- a. Jonh-ga Misa-ni Bob-o syookaisita
 John-nom Misa-dat Bob-acc introduced
 'John introduced Bob to Misa.'
- b. John-ga Bob-o Misa-ni syookaisita
 John-nom Bob-acc Misa-dat introduced
 'John introduced Bob to Misa.'

(20) German

- a. dass Maria wahrscheinlich das Buch gefunden hat
 that Maria probably that book found has

- b. dass Maria das Buch wahrscheinlich gefunden hat
 that Maria that book probably found has
- c. dass das Buch Maria wahrscheinlich gefunden hat
 that that book Maria probably found has

(21) German (Fanselow 2002:6)

- a. dass wohl der Mann dem Kind das Buch zeigte
 that ptc. the-nom man the-dat child the-acc book showed
 'that the man presumably showed the book to the child.'
- b. dass wohl der Mann das Buch dem Kind zeigte
 that ptc. the-nom man the-acc book the-dat child showed
- c. dass das Buch wohl der Mann dem Kind zeigte
 that the-acc book ptc. the-nom man the-dat child showed

(22) Dutch (Neeleman 1994:387)

- a. Dat Jan op zondag het boek leest
 that Jan on sunday the book reads
- b. Dat jan het boek op zondag leest
- c. *Dat jan op zondag leest het boek

The base generation hypothesis states that constituent orders in (19a-b), (20a-c), (21a-c) and (22a-b) are base generated at D-structure. This shows that the free word order is a result of free generation of phrases in an arbitrary order. On this account, theta assignment and Case assignment do not universally presuppose adjacency between assigner and assignee as in (19b), (20b-c), and (21b-c) and (22b), since in the base generation approach, theta-marking and Case marking across an intervening element should be possible due to the notion that an intervening adjunct will be in the verb's governing domain. As a consequence, in (19b), (20b-c) and (21b-c) and (22b), in which IO, adjunct or subject and adjunct intervene, maintaining OV-order, the object can receive a theta role from a verb, being grammatical, whereas (22c), where OV-order is not obeyed, is ungrammatical.

As we observed above, in the GB-theory, both the scrambled XP and the unscrambled XP are generated at the level of D-structure, in which arguments receive θ -roles without the movement of constituents. Thus, XPs in (19b), (20b-c), (21b-c) and (22b) are located in theta-positions. In a minimalist account, likewise, XPs can be directly merged to the

theta-positions where D-feature enters the checking relation with head, making the assumption possible that different orders of constituents can be generated by merge (cf. Boskovic/Takahashi 1997 and Fanselow 2002), as long as XPs are arguments.

Accordingly, assuming that DPs are directly merged to their θ -positions, Fanselow points out that the order applied by merge is free, i.e. DPs can be freely basegenerated by merge as in (23):

(23) German (Fanselow 2002:5)

- a. dass der Mann dem Kind das Buch zeigte
 that the-nom man the-dat child the-acc book showed
 'that the man showed the book to the child.'
- b. dass das Buch dem Kind der Mann zeigte
- c. dass dem Kind der Mann das Buch zeigte
- d. dass das Buch der Mann dem Kind zeigte

Here, let us consider feature checking. In DBP (2001), Chomsky indicates that the uninterpretable ϕ -features of probe ϕ -agree with the uninterpretable ϕ -features of goal, in order to eliminate the uninterpretable ϕ -features of probe and the uninterpretable structural Case of goal by the matching process of agree. Since locality conditions yields an intervention effect, agree should be applied by the way of strong locality conditions. For instance, an intervention effect arises if probe P matches inactive goal₁ which is closer to than active goal², barring agree between probe and active goal². This leads us to suppose that DPs cannot be freely merged unlike Fanselow's notion. Moreover, since only DPs are directly merged to their θ -positions as indicated by Fanselow, scrambling of PPs and adverb, which have no ϕ -features, cannot be explained on Fanselow's account.

So far we have discussed configurational structure under the assumption of scrambling as the base generation analysis. Next, I will consider nonconfigurational structure under the notion of scrambling as the base generation approach:

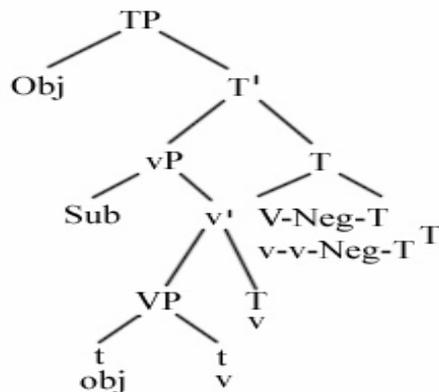
(24) Japanese (Miyagawa 2001:297):

- a. S O V
 Taroo-ga piza-o tabeta
 Taroo-nom pizza-acc ate

- 'Taroo ate pizza.'
- b. O S V
- piza-oⁱ Taroo-ga tⁱ tabeta
- pizza-accⁱ Taroo-nom tⁱ ate

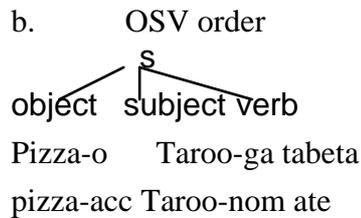
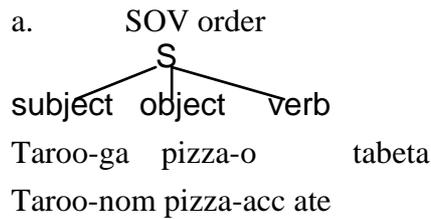
In the traditional analysis (Saito 1985 Fukui 1993 and Saito/Fukui 1998), (24b) is derived from (24a) by the scrambling of the object to IP-adjoined position, being considered to be an optional movement. Contradicting this analysis, however, assuming that A-scrambling is triggered by a feature on T (1997) and the A-movement scrambling environment has a nonconfigurational form, but instantiated within a configurational structure, Miyagawa (2001) argues that in Japanese both SOV and OSV order are base generated. In order to justify his argument, he points out that Japanese has V-to-T movement as in (25). This V-to-T movement makes the subject and the object equidistant from T.

(25) V-to-T movement (Miyagawa 2001:300)



As we see in (25), in which V to T-movement takes place, the subject and the object are equidistant from T. As a result, in the SOV word order the subject DP can raise to [Spec TP] and in the OSV word order the object moves to [Spec TP] to check the EPP-feature on T. On his account, this type of scrambling is not optional, but rather obligatory. From this fact he concludes that Japanese has a flat phrasal structure as proposed by Hale (1983) who assumes that the subject and object may be base generated in either order, SO or OS without the structural relation with the verb. Then SO and OS order can be illustrated, as in (26), in which no trace is present:

(26) SO and OS order in nonconfigurational structure



Miyagawa's (1997 and 2001) claim that in Japanese both word orders, SO and OS, are base generated, can only be acceptable under the precondition that Japanese has V-to-T movement, which makes the subject and the object equidistant from T. The fact that the subject and the object equidistant from T contributes to the result that either the subject or the object can be attracted by T for the checking of the EPP-feature on T. If Japanese lacks V-to-T movement, thus, we would assume that the object is not equidistant from T. From the fact that in Japanese the verbal inflectional morphology is poorer than that of English I will show that the occurrence of V-to-T movement in Japanese is problematic.

As for V-to-T movement, it is well known (Holmberg/Platzack 1995, Vikner 1994, Collins/Thrainsson 1996 and Chomsky 2001) that the verb moves to I (T) if the languages have rich verbal inflectional morphology like the case of Scandinavian languages, as in (27-29):

(27) the verbal inflectional morphology in Icelandic

throw, infinitive and present indicative:		
Icelandic		
	Inf	kaste
Sg.	1	eg kasta
	2	pu kastar
	3	hana kastar
Pl.	1	við k?tum
	2	pið kasti

3 per kasta
(Vikner 1995:119)

(28) Icelandic (Holmberg/Platzack 1995:141)

Jon þekkir hana ekki
John knows her not

(29) Danish (Vikner 1994:499)

Hvorfor læste studenterne den ikke
why read students-the it not

In Scandinavian languages such as Icelandic and Danish the object moves to VP-adjoined position if the verb has left V₀, as in (28-29), known as Object Shift.

With this in mind, consider the verbal inflectional morphology in English, Japanese and Korean:

(30) the verbal inflectional morphology in English, Japanese and Korean

throw, infinitive and present indicative

	infinitive	English	Korean	Japanese
Sg	1	throw	tonchinta	nageru
	2	throw	tonchinta	nageru
	3	throws	tonchinta	nageru
Pl	1	throw	tonchinta	nageru
	2	throw	tonchinta	nageru
	3	throw	tonchinta	nageru

As we see, the verbal inflectional morphology in English is poorer than that of Scandinavian languages, not allowing V-to-T-movement. If V-to-T

movement is lacking, the subject and the object are not equidistant from T. This means that only the subject which is the closest phrase to T can raise to [Spec TP] for the checking of EPP-feature on T, and the object cannot.

In connection with this difference between Scandinavian languages and English, Chomsky (2001:27-28), points out that in Scandinavian languages, in which V-to-T movement occurs, terms of the minimal domain of H are equidistant from probe T, while in English, lacking V-to-T-movement, the phonological edge of HP is accessible to probe P. That is, "the parameter might be related to richness of T, a richer T allowing a deeper search of the category including the goal" (Chomsky 2001:30). Consequently, in Scandinavian languages in which T (I) is rich, the subject and the object as goal can ϕ -agree with T, while in English, only the subject as a goal can be attracted by T.

If richness of T (I) plays a crucial role for V-to-T-movement, as indicated in the literature, then Miyagawa's argument that in Japanese V-to-T movement takes place faces a serious problem, since as we see in (30), Japanese has no verbal inflectional morphology as in Korean, due to the absence of AgrS, i.e. T (I) in Japanese is poorer than that of English. This leads us to assume that the possibility of V-to-T movement in Japanese should be excluded. When in Japanese V-to-T movement does not occur, as I argue, then only the subject can ϕ -agree with T, and the object which is not equidistant from T cannot.

Moreover, there is a evidence that Japanese is a configurational language which is associated with a VP-node (cf. Saito 1985 and Hoji 1985):

(31) Japanese (Yatzushiro 2000:21)

- a. Tsutomu-ga [Kai-ni ai-sae] sita
 Tsutomu-nom Kai-dat meet-even did
 'Tsutomu did even meet Kai.
- b. *[Ai-sae] Tsutomu-ga Kai-ni sita
 meet-even Tsutomu-ga Kai-dat did
- c. [Kai-ni ai-sae] Tsutomu-ga sita
 Kai-dat meet-even Tsutomu-nom did
 'Even meet Kai, Tsutomu did.'

According to Yatzushiro, (31b) in which the verb alone is preposed, leaving a remnant in situ, is ungrammatical, whereas (31c), where the verb with

dative object is topicalized, is not ruled out. If Japanese has a flat phrasal structure which has no VP-node, as argued by Miyagawa (2001), the ungrammaticality in (31b) and the grammaticality in (31c) cannot be explained, since under Miyagawa's assumption in which the VP-node is lacking, (31b) should be also grammatical, as in the case of (31c). As we see, however, the dative object in the case of the transitive construction cannot be left as a remnant of the fronted VP. The presence of a VP-node in Japanese contributes to this result.

Here, one might argue that in a language which has a VP node both orders, the SOV and OSV order can be base generated. Despite the presence of VP node in Japanese, however, if in Japanese V-to-T movement does not take place due to the poorness of the verbal inflectional morphology, as I argue, then, the OSV order cannot be base generated, since the object is not equidistant from T.

From all of these observations, I assume that in Japanese the only SOV order is base generated, and the OSV order derives from moving the object to IP-adjoined position.

To summarize, as shown by the empirical evidence, according to which PPs and adverb can be scrambled, the claim that free word order is applied by merge is problematic, since PPs and adverb lack ϕ -features.

3.3 Conclusion

In this chapter, I have investigated two different views of scrambling. The one is the movement approach and the other the base generated hypothesis. If scrambling is the movement operation, then the question arises what kind of movement is involved; optional movement or obligatory movement (A-or-A' movement). In connection with this question, contradicting the analysis of Boskovic/Takahashi, according to which scrambling takes place for the satisfaction of theta-role assignment, being obligatory, I have argued that scrambling is not obligatory, but rather optional.

As for scrambling as the base generated analysis, which is based on the notion that only arguments which have ϕ -features can be base generated or merged, I have provided the analysis that scrambling as the base generated approach raises a serious problem, since in scrambling languages such as Korean, Japanese and Russian scrambling of nonarguments such as adverb

and PPs is allowed despite the fact that PPs and adverb have no ϕ -features. From this observation, conclusively, I assume that the free word order is not the result of free generation of constituents, but rather the result of the movement operation, considered to be optional. With this assumption, considering a lot of empirical evidence in scrambling languages such as Korean, Japanese, German, Russian and Hindi-Urdu, in chapters 4, 5, and 6 I will explore the properties of clause internal scrambling, long distance scrambling and wh-scrambling separately.

Chapter 4: Clause Internal Scrambling (CIS)

In chapter 3, considering empirical results, I have argued that scrambling is an optional movement operation. Bearing this in mind, in chapter 4, I will examine the properties of CIS trying to show that IP-adjoined CIS in Korean exhibits mixed A and A' properties, while VP-adjoined CIS in Korean always poses A'-properties. In general, the permutation of constituents within the same minimal domain is referred to as CIS, as noted by Ross (1967). Given that scrambling in Korean is described as IP and VP-adjunction, it appears that the notion that IP and VP adjoined positions in Korean are argument positions plays a crucial role in scrambling research, since IP-adjoined CIS lacks RM (intervention) effect, creates a new binding possibility and exempts WCO effect.

In order to show that IP and VP adjoined positions in Korean are argument positions, I will explore the multiple subject and object construction in Korean, according to which the multiple subjects and objects can be described as multiple specifiers of a single head, T and v, respectively. This fact contributes to scrambling of the subject and object across another subject and object without an intervention effect. This tells us that multiple specifiers of a single head, T and v are located in narrowly L-related positions, argument positions, and thereby, IP-adjoined CIS creates a new binding relation, if the anaphoric element is embedded within a bigger DP. However, IP-adjoined CIS does not create a new binding possibility if the reflexive is locally c-commanded by the trace of its antecedent due to the Chain Formation effect. This fact indicates that IP-adjoined CIS in Korean exhibits mixed A and A'-properties. Despite the fact that VP adjoined positions in Korean are argument positions, however, VP adjoined CIS in Korean does not create a new binding relation, i.e. VP-adjoined CIS in Korean poses only A'-properties, since the elements which are scrambled to VP-adjoined positions are always c-commanded by the subject in which the reflexive is involved, unlike IP-adjoined CIS, where the elements which are scrambled IP-adjoined positions, c-command the subject.

This chapter is organized in three parts. In sections 4.1 and 4.2, the multiple subject construction and the properties of IP-adjoined CIS will be discussed and after that in section 4.3 I will investigate the multiple object construction and the properties of VP-adjoined CIS in Korean.

- (1) a. Sunhi-ka son-(i/*ul) kuta
 Sunhi-nom hand-(nom/*acc) is big
 'Sunhi's hand is big.'
- b. Sunhi-ka tongseng-(i/*ul) yengrihata
 Sunhi-nom younger brother-(nom/*acc) is clever
 'Sunhi's younger brother is clever.'
- c. Sunhi-ka apochi-(ka/*lul) puchaisita
 Sunhi-nom father-(nom/*acc) is rich
 'Sunhi's father is rich.'
- (2) Sunhi-ka chinku-ka pilyohata
 Sunhi-nom a friend-nom need
 'Sunhi needs a friend.'
- (3) a. Sunhi-ka kohyang-(/*i/ul) tonassta
 Sunhi-nom hometown-(/*nom/acc) left
 'Sunhi left home town.'
- b. *Sunhi-ka apochi-ka talinta
 Sunhi-nom father-nom run
 'Sunhi's father runs.'

In (1a-c) and (2), where a predicate is an adjective or a psych-verb, the multiple subject construction is permitted, whereas in (3a-b), in which the predicate is neither an adjective nor a psych-verb, but an action-verb, the multiple subject construction is excluded. The above data shows that the multiple subject construction in Korean is only possible if the predicate is an adjective or psych-verb. In the literature (Lee 1992, Shin 1993 and Choi 1995), this phenomenon is analyzed under Baker's nominal incorporation, according to which in the multiple subject construction in Korean, X -category of an adjective allows abstract nominal incorporation but X -category of action-verb does not. As a consequence, in (1a-c), Tense licenses nominative Case to the first NP, *Sunhi*, and the second NP, *Son*, *Tongseng* and *apochi* receive the nominative Case from the adjective, since abstract N-to-A-incorporation of the second NP, *Son*, *tongseng* and *apochi*, takes place.

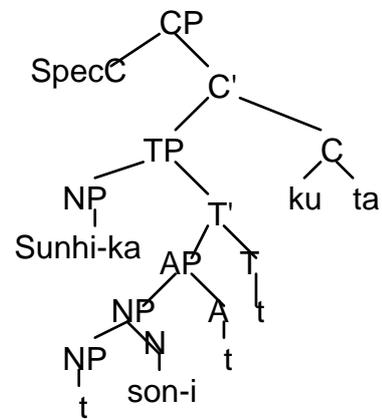
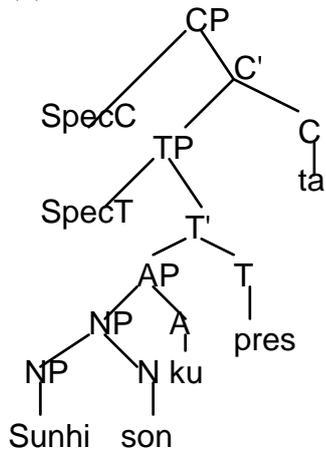
In order to see the process, discussed above, of abstract N-to-A-incorporation of the multiple subject construction in Korean, look at

the example (1) repeated in (4) more precisely:

- (4) a. Sunhi-ka son-i kuta
 Sunhi-nom hand-nom is big
 'Sunhi's hand is big.'
- b. Sunhi-uy son-i kuta
 Sunhi-gen hand-nom is big
 'Sunhi's hand is big.'

According to Baker's (1988:46) 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. As a consequence, since in (4) the first nominative NP has a certain thematic relation with the second NP, i.e. *son* is a part of *Sunhi*, (4a) and (4b) have identical D structure. Then the D-structure and S-Structure of (4a-b) would be (5-6), respectively:

(5) D-structure



(6) S-structure

In (4a), the first nominative NP is basegenerated in the specifier position of the second nominative NP, i. e. genitive position, as shown in (5). As illustrated in (6), predicates in Korean² is successively incorporated at S-structure in a similar way to A-T-C head movement. After A-T-C incorporation, the second NP *son* can be incorporated into the raised adjective *ku* without the violation of ECP,³ because the barrierhood of intervening maximal projections such as TP and AP is avoided by the first A-T-C incorporation and by the second N-to-A incorporation as in (6), making it possible that trace is antecedent-governed. Therefore, the second NP *son* receives the nominative Case from A. However, since the incorporation of the second NP, which is the head of NP, into A, the first NP cannot receive the Case, the first NP is raised into the position of SpecT, known as possessor-raising, in order to receive the nominative Case from T.

This possessor-raising can be illustrated as in (7b):

- (7) a. [Sunhi-uy son-i] kuta
 Sunhi-gen hand-nom is big
 'Sunhi's hand is big.'
- b. Sunhi_i -ka [t_i son-i] kuta
 Sunhi-nom hand-nom is big
 'Sunhi's hand is big.'

In (7a) *Sunhi* is a possessor of *son* in that *son* is a part of *Sunhi*. If the first nominative NP is the possessor of the second nominative NP, having a certain thematic relation with the second NP, the first nominative NP, possessor, can be altered to a genitive form like *Sunhi-uy*, as in (7a), and the possessor of the second NP can be raised as in (7b).

As the first NP can be changed into a genitive form, if the first NP is the possessor of the second NP, the first NP in the multiple subject construction can be also realized such as the loc or topic accordance with the context as in (8b) and (9b):

² For Korean morphology, see Sells 1995:277ff.

³ Baker (1988:5 ff.) points out that incorporation is regarded as X movement, which means that the trace from the process of incorporation is subject to ECP. More precisely, the trace must be antecedent-governed, since traces of X can never be lexically governed (see Baker/Hale 1990).

- (8) a. Seoul-i chadongcha-ka manta
 Seoul-nom cars-nom is lots of
 'There are lots of cars in Seoul.'
- b. Seoul-e chadongcha-ka manta
 Seoul-in (loc) cars-nom is lots of
 'There are lots of cars in Seoul.'
- (9) a. Mulihak-i kongpu-ka himtulta
 physics-nom studying-nom is difficult.
 'It is difficult to study physics.'
- b. Mulihk-un kongpu-ka himtulta
 physics-top studying-nom is difficult
 'As for physics, it is difficult to study.'

In comparison with the NPs in (7), NPs in (8-9) have no close semantic relation. This means that in (8-9) possessor-raising can not be applied. Then, it is not difficult to assume that the multiple subject construction in Korean is permitted, either the NPs have close semantic relation as in (7) or the NPs have no close semantic relation as in (8-9).

Returning to (4) again, repeated as in (10). We have seen that each nominative Case in the multiple subject construction in Korean is licensed by the different heads, T and A. For instance, the nominative Case of *Sunhi* in (10) is licensed by T, and the nominative Case of *son* in (10) by A.

- (10) Sunhi-ka son-i kuta
 Sunhi-nom hand-nom is big
 'Sunhi's hand is big.'

Accordingly, Case rules of Korean look like (11):

- (11) Case rules of Korean (Lee 1992 and Choi 1995):
- a. T licenses Nominative to SpecT
 - b. V licenses accusative Case and A licenses nominative Case
 (V and A belong to V-categories)
 - c. N licenses Genitive to SpecN.

In Korean, however, a clause can have three or four nominative subjects as in (12-13):

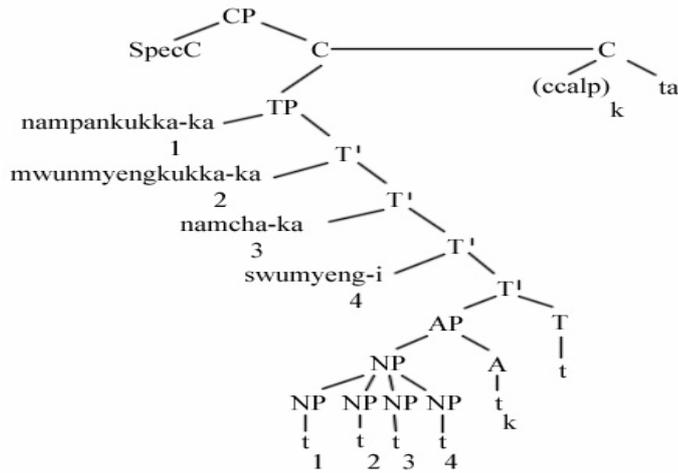
(12) *midopa-ka sangpum-i chil-i chota*
 Midopa-nom goods-nom quality-nom is good
 'As for Midopa, the quality of goods is good.'

(13) *nampanku-ka mwungmengkwukka-ka namcha-ka*
 southern hemisphere-nom civilized countries-nom men-nom
swumyeng-i ccalpta (adopted from Shin 1992:99)
 life.span-nom is short
 'It is the southern hemisphere that civilized countries such that men
 are such that their life-span is short'

In (12), three nominative Cases and in (13), four nominative Cases are licensed. If each nominative Case were licensed by an independent head, as traditionally suggested, then, in (12) and (13), where three or four nominative Cases are licensed, three or four independent heads as the nominative Case assigners should be needed. As illustrated by (11), however, there are only two independent heads as the nominative Case assigners in the Case rules in Korean. Then the traditional assumption that T and A are the nominative Case assigners in Korean faces a serious problem, since on this traditional account, only the double nominative Case-assignment is possible.

Since the traditional analyses cannot explain the examples (12) and (13) which have more than two nominative subjects, following Chomsky (1995:432), who indicates that the bare phrase structure theory allows multiple Specs in the positions such as subject and object in multiple subject and object-languages, I suppose that *midopa*, *sangpum* and *chil* in (12) and *nampanku*, *mwunmengkukka*, *namcha* and *swumyeng* in (13) are the multiple specifiers of a single head T. Consequently, each nominative Case of *midopa*, *sangpum* and *chil* in (12) and *nampanku*, *mwunmengkukka*, *namcha* and *swumyeng* in (13) is licensed by a single head, T. In terms of DBP (Chomsky 2001), the multiple specifiers can be considered to be the multiple goals. So, Case assigning a single head T in (12) has three goals, and in (13) four goals.

Then the structure of (13) looks like (14):



(14) the structure of (13)

As illustrated in (14), the NP_i , NP_2 , NP_3 and NP_4 are merged in the base positions. One might think that four NPs cannot be base-generated as an independent constituent. However, the fact that the application of Merge in the base positions is not obeyed by any grammatical principle, as long as the elements are merged in the base positions (Chomsky 2000;2001 Fanselow 2002, Kitahara 1999 and many others), contributes to Merge of four NPs in the base positions without any grammatical problem as in (14). As far as semantic of NPs is concerned, the southern hemisphere includes civilized countries and in civilized countries live men, whose life span is short. This semantic relation of NPs introduced by Merge can be illustrated as follows:

nampanku (the southern hemisphere) > *mwunmengkuka* (civilized countries) > *namcha* (men) > *swumyeng* (life span)

So, I assume that the order of NPs applied by Merge is not free, but rather fixed due to the semantic reasons.

These NPs base-generated by Merge, however, are not the external arguments, i.e. this Merge is not pure Merge. According to Chomsky (2000:103), non pure Merge is associated with Move, which has to do with Case/agreement and the EPP. Therefore, they should move to SpecT, where the nominative Case is licensed by a single head, T, in order to satisfy the EPP-feature on T without the violation of RM due to the assumption that $Spec_1$, $Spec_2$, $Spec_3$ and $Spec_4$ are equidistant targets for movement from the base positions (cf. Chomsky 1995, 2001:103 and Richards 2000). This

means that Spec_1 , Spec_2 , Spec_3 and Spec_4 can be counted as the multiple specifiers of a single head, T.

Thus, Case rules of Korean can be revised as in (15):

(15) Revised Case rules of Korean:

T licenses Nominative to SpecT

V licenses Accusative

N licenses Genitive to SpecN

If we consider feature checking of these multiple specifiers, in the literature (Chomsky 1995, Ura 2000, Boskovic 1999 and Richards 1999), it is indicated that the same Case of multiple specifiers is checked by a single head repeatedly, since according to the theory of multiple feature checking, a head, H, enters into more than one feature-checking relation. Accordingly, given that four goals ;*nampanku*, *mwunmengkukka*, *namcha* and *swumyeng* are equidistant targets from the base positions, probe T which has the uninterpretable ϕ -features can ϕ -agree with four goals, NPs, which have a complete set of ϕ -features and the uninterpretable nominative Case without an intervention effect for the elimination of the uninterpretable ϕ -features of a head, T, and the uninterpretable nominative Case of four goals, since if α ϕ -agrees with β , and β ϕ -agrees γ , then α ϕ -agrees with γ because of the transitivity of ϕ -agreement as proposed by Frampton et. al. (2001). This can be called multiple agree.

So far we have discussed the multiple subject construction which has a adjective as the predicate. Now let us consider the multiple subject construction in which the predicate is a psych-verb as in (2), repeated in (16):

(16) Sunhi-ka chinku-ka pilyohata

Sunhi-nom a friend-nom need

'Sunhi needs a friend.'

As we discussed above, the nominative Cases of the multiple subjects in Korean are licensed by the single head, T. So, in (16) the single head, T, licenses the nominative Case to the multiple subjects. Here, it is interesting to know that the first nominative subject in (16) can be altered to the dative known as the dative subject construction as in (17):

(17) The dative subject construction

Sunhi-eke chinku-ka pilyohata

Sunhi-dat friend-nom need

'Sunhi needs a friend.'

(16) and (17) differ in that (16) is the nominative subject construction, while (17) is the dative subject construction. As for the dative subject construction, Ura (2000) points out that the dative subject in the dative subject construction in Korean can be regarded as a subject in syntactic respects, thereby, not the nominative subject *chinku*, but only the dative subject *Sunhi* enters into a ϕ -feature checking relation with T. In order to support his claim, he considers the example in which the dative subject binds a subject-oriented anaphor as in (18):

(18) Korean (O'gray 1991 hereafter Ura 2000:99)

John eke_i Harry-ka_k [[casin-uy_{i/*k} senkong]-ul]-whiheso pilohata

John-dat Harry-nom self-gen success-acc -for need

'John_i needs Harry_k for self's_{i/*k} success.'

(19) John_i hurt himself_i

In (18) the dative subject can bind a subject oriented anaphor as the nominative subject in English does, as in (19). According to Ura, despite the c-command relation between *Harry* and *casin* (self), however, *Harry* cannot be coreferential with a subject oriented anaphor, which means that *Harry* is not subject. From this observation, Ura concludes that for the dative subject construction in Korean only the dative subject has the subject function.

However, it is indicated in the literature that the monomorphemic reflexive *caki* in Korean can be interpreted as a coreferential with any third person NP (Kim 2000, Cole/Sung 1994 and Huang 2000) as in (20):

(20) [_{IP} Minki_i -ka Sujin_j -eke caki_{i,j} -uy sachin-ul poya chuessta]

Minki-nom Sujin-dat self -gen photo-acc show gave

'Minki_i showed Sujin_j self_{i,j}'s photo.'

In (20) both *Minki* and *Sujin* can bind the monomorphemic anaphor *caki*. Then, it is not difficult to assume that in (18) *Harry* can act also as a binder

as *John* can. This means that *Harry* as well as *John* in (18) can be counted as subjects in syntactic respects. Thus, if we consider the example (17) under the binding relation, then, it looks like (21):

- (21) Sunhi_i -eke chinku_k -ka [[casin-uy_{i/k} mirae]-rul]-whiheso pilohata
 Sunhi-dat friend-nom self-gen future-acc -for need
 'Sunhi_i needs a friend_k for self_{i/k}'s future.'

The fact that in (21) *Sunhi* and *chinku* can bind the monomorphemic anaphor *caki* leads us to suppose that in the dative subject construction in Korean both the dative subject and the nominative subject enter the checking relation with T unlike Ura's notion.

To summarize, in the traditional analyses the nominative Cases of the multiple subjects in Korean are licensed by the different heads, T and A. Contradicting this analyses, I have proposed that the Cases of multiple subjects are not licensed by the different heads, but rather by a single head, T, since the multiple subjects can be regarded as the multiple specifiers of a single head, T. Unlike the traditional analyses, which are not sufficient to explain the examples in which three or four nominative Cases are licensed, my approach is sufficient to include such examples. As for the feature checking, due to the fact that the multiple subjects are equidistant targets from the base positions, a head T can ϕ -agree with the multiple goals (specifiers) without an intervention effect. With this notion that IP-adjoined positions are the positions of the multiple specifiers of a single head, T, i.e. IP-adjoined positions in Korean are argument positions, in the following section I will explore scrambling of the multiple subjects.

4.1.2 Scrambling of the multiple subjects in Korean

As we noted above, the multiple subjects in Korean can be counted as the multiple specifiers of a single head T. This means that IP-adjoined positions in Korean are argument positions. As a result, the multiple specifiers can be freely scrambled without an intervention effect by the fact that they are equidistant targets from the base positions. This prediction is borne out as in (22):

- (22) a. Seoul-i chatongcha-ka manta
 Seoul-nom cars-nom is a lot of,
 'There are a lot of cars in Seoul.'
- b. Seoul-e chantongcha-ka manta
 Seoul-loc cars-nom is a lot of
- c. Chantongcha_i-ka Seoul-i t_i manta
 cars-nom Seoul-nom is a lot of
- (23) a. Saengson-i ochingo-ka mas-i chota
 fish-nom a cuttle fish-nom taste-nom is good
 'As far as fish is concerned, a cuttle fish is tasty.'
- b. Saengson-un ochingo-ka mas-i chota
 fish -top a cuttle fish-nom taste-nom is good
- c. Ochingo_i-ka saengson-i t_i mas-i chota
 a cuttle fish-nom fish-nom taste-nom is good
- d. Mas_i-i ochingo_j-ka saengson-i t_j t_i chota
 taste-nom a cuttle fish-nom fish-nom is good
- e. Ochingo_j-ka mas_i-i saengson-i t_j t_i chota
 cuttle fish-nom taste-nom fish-nom is good
-

In (22), double nominative Case and in (24), triple nominative Case are licensed by a single head T, and the first NP in multiple subject construction in Korean is alternated to *e* (loc) in (22) and *un* (Top) in (23b) in accordance with their semantic interpretation. As predicted, scrambling of the multiple specifiers to IP-adjoined positions is allowed, as in (22-23). In (22c), and (23c), the second NP and in (11d-e), two NPs are scrambled, crossing another NP without the violation of RM or an intervention effect, although (23d), in which their basic ordering is preserved, is distinguished from (23e), which maintains their basic ordering. This fact indicates that the paths can be crossed in (23e), or nested in (23d), as long as the NPs are equidistant targets from the base positions, unlike Richards (1997;2001) argument, according to which, with respect to multiple movements of constituents, the paths must be crossed for the purpose of satisfaction of Shortest Move as the

multiple wh-movement in Bulgarian does.⁴

In his account, XPs cannot be equidistant from the base positions, due to the precondition that XPs should satisfy Shortest move. Given that the multiple subjects in Korean are equidistant targets from the base positions, it, therefore, appears that scrambling of the multiple subjects in Korean is not subject to Shortest Move, in terms of DBP intervention effect, since the notion of equidistance makes the multiple specifiers (goals) have transitivity of ϕ -agreement with a probe. As a consequence, in (22a) and (23a), where T is ϕ -complete, allowing EPP-feature, the movement of NPs is not required, i.e. the operation agree can be applied without the movement operation in a way that in the (a) examples in (22-23), multiple goals ϕ -agree with a T, in order to eliminate the uninterpretable ϕ -features of the head T and the uninterpretable nominative Case of multiple goals known as multiple agree. The above data show that scrambling of the multiple subjects in Korean is optional, not obeying economy principles such as last resort view of move α and Shortest Move.

As another example consider (13) which has four subjects, repeated as in (24):

- (24) a. nampanku-ka mwungmengkwukka-ka namcha-ka
 southern hemisphere-nom civilized countries-nom men-nom
 swumyeng-i ccalpta (adopted from Shin 1992:99)
 life.span-nom is short
 'It is the southern hemisphere that civilized countries such that men
 are such that their life-span is short
- b. mwungmengkwukkaⁱ -ka nampanku-ka tⁱ namcha-ka swumyeng-i
 ccalta
- c. namcha^j -ka nampanku-ka mwungmengkwukka-ka t^j
 swumyeng-i ccalta
- d. mwungmengkwukkaⁱ -ka namcha^j -ka nampanku-ka tⁱ t^j
 swumyeng-i ccalta
- e. namcha^j -ka mwungmengkwukkaⁱ -kanampanku-ka tⁱ t^j
 swumyeng-i ccalta

Like the cases of (22-23), also in (24) the multiple subjects can be freely

⁴ See section 6.1.2

scrambled to IP-adjoined positions, not being constrained by Shortest Move. The fact that the multiple subjects are equidistant targets from the base positions contributes to this result. The movement involved in (22b-d) is optional in that the movement in (22b-d) has nothing to do with the morphological properties such as Case-assignment or feature checking. The above data clearly show that the free word order is not base generated, but rather derived from the one underlying word order by the movement of constituents.

So far we have discussed scrambling of the multiple subjects in which they have no Inalienable Relation. Now, let us consider the example where the multiple subjects have Inalienable Relation:

- (25) a. Sunhi-ka oelkul-i changpaekhata
 Sunhi-nom face-nom is pale
 'Sunhi's face is pale.'
- b. Sunhi-uy oekul-i chanpaekhata
 Sunhi-gen face-nom is pale
- c.* Oelkuli-i Sunhi-ka ti changpaekhata
 face-nom Sunhi-nom is pale

(25) differs from (22-24) in that there is an Inalienable Relation between two NPs in (25), while there lacks an Inalienable Relation among NPs in (22-24). In general, scrambling of the second NP over the first NP is ruled out, if there is an Inalienable Relation between two NPs. Accordingly, despite the fact that two NPs are equidistant targets from the base positions, (25c) is excluded due to the semantic reason such a way that oelkul (face) cannot be the possessor of Sunhi, though syntactically, scrambling of the second NP, crossing the first NP, is permitted, as long as two NPs are multiple specifiers of a single head T.

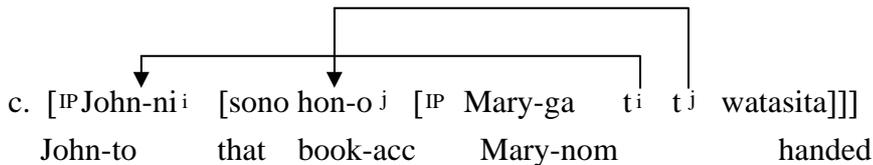
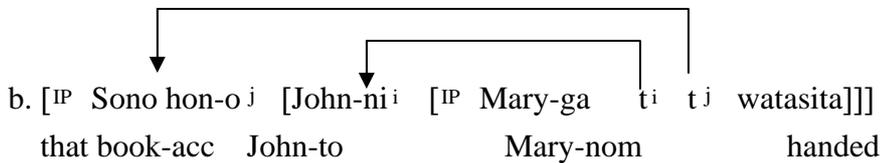
To summarize, since the multiple specifiers are equidistant targets from the base positions, the multiple specifiers can be freely scrambled without an intervention effect, as long as they have no Inalienable Relation. Bearing this fact that the multiple subjects can be freely scrambled to IP-adjoined positions without an intervention effect, in mind, the next section contains the properties of IP-adjoined Clause Internal Scrambling (CIS).

as in (26c), i.e. IP-adjoined CIS in Korean is not the subject to Shortest Move. Consequently, two arguments can be scrambled over the subject in either order as in (26b-c).

Just like the case of Korean, an intervention effect in IP-adjoined CIS in Japanese⁵, also regarded as a multiple subject language, is absent, as in (27b):

(27) Japanese (Saito/Fukui 1998:443)

- a. [^{IP} Mary-ga John-ni sono hon-o watasita].
 Mary-nom John-to that book-acc handed
 'Mary handed that book to John.'



Given that IP-adjoined positions in Japanese are argument positions, it appears that the path can be crossed as in (27c) or nested as in (27b). This means that IP-adjoined multiple scrambling in Japanese is not constrained by Shortest Move.

⁵ In Japanese, the multiple subject construction also exists:

- a. Boston-ga susi-ga umai (Saito/Fukui 1998:448)
 Boston-nom sushi-nom tasty
 'It is Boston where sushi is good.'
- b. Taro-ga musume-ga isya-ni natta. (Miyagawa 1998:15)
 Taro-nom daughter-nom doctor-dat became
 'Taro, his daughter became a doctor.'
- c. John-ga Mary-ga shimpai-da (Ura 2000:106)
 John-nom Mary-nom anxious-cop
 'John is anxious about Mary.'

As we see, in Japanese, the multiple subject construction is possible only if the predicate is adjective or psych-verbs. With respect to the multiple subject construction in Japanese, there are several proposals for the treatment of the assignment of multiple nominative Case. For example, to Saito and Fukui (1998:448 and 1993), the nominative Case in Japanese is licensed contextually for any argument phrase immediately dominated by a projection I, whereas to Kuroda (1998), Miyagawa (1998) and Ura (2000), the nominative Case in Japanese, is licensed by a single head, T which has the multiple specifiers.

To summarize, since IP-adjoined positions in Korean and Japanese, considered to be the multiple subject languages, are the positions of the multiple specifiers of a single head, T, i.e. these positions are argument positions, IP-adjoined CIS in these languages does not generate any intervention effect. The fact that IP-adjoined positions are argument positions contributes to the anaphor binding of IP-adjoined CIS. The following section deals with the anaphor binding of IP-adjoined CIS.

4.2.2 The anaphor binding of IP-adjoined CIS

In the literature it has been indicated that the scrambled DO in Korean (Park 2001), Japanese (Saito 1992 and Yastushiro 1998), and Hindi (Mahajan 1994 and Kidwai 2000) can bind an anaphor, as shown in the (b) examples of (28-29), while the scrambled DO in German cannot act as an A-binder for an anaphor (Grewendorf/Sabel 1997 and Grewendorf 2002), as given in (32b):

(28) Korean

- a. *[IP [Soloⁱ-uy chinku]-ka kutulⁱ-ul sokehessta]]
 each other-gen friends-nom they-acc introduced
 '*Each otherⁱ's friends introduced themⁱ
- b. ?[IP Kutulⁱ-ul [IP [soloⁱ-uy chinku]-ka ti sokehessta]]]
 they-acc each other-gen friends-nom introduced
 'Each otherⁱ's friends introduced themⁱ.'

(29) Korean

- a. *[IP [Cakiⁱ-uy apochi]-ka Sunhiⁱ-lul pinanhessta]]
 self-gen father-ka Sunhi-acc criticized
 '*Self^{s_i} father criticized Sunhiⁱ.'
- b. ?[IP Sunhiⁱ-lul [IP [cakiⁱ-uy apochi]-ka ti pinanhessta]]]
 Sunhi-acc self' -gen father-nom criticized
 'Self^{s_i} father criticized Sunhiⁱ.'

(30) Japanese (adopted from Grewendorf/Sabel 1997:58)

- a.. ?* [[Otagai-noⁱ sensei]-ga [karera-oⁱ hihansita]] (koto)
 each other-gen teacher-nom they-acc criticized fact
 'Each other's teacher criticized them.'

- b. ? [Karera-oⁱ [[otagai-noⁱ sensei]-ga [tⁱ hihansita]]] (koto)
 they-acc each other-gen teacher-nom criticized fact
 'Themⁱ, each other'sⁱ teachers criticized.'

(31) Hindi (Mahajan 1994:307)

- a. *apneⁱ maalike-ne ek naukariⁱnaukari se nikaal diyaa
 self's boss-ERG a servant service from dismissed
 'Self's boss dismissed a servant.'
- b. ?ek naukariⁱ apneⁱ maalike-ne naukari se nikaal diyaa
 a servant self's boss-ERG service from dismissed

(32) German (Grewendorf/Sabel 1997:58)

- a. * da [die Lehrer von sichⁱ] zweifellos [den Studentenⁱ] in guter
 that [the teachers of himself]nom undoubtedly [the student]acc in good
 Erinnerung behalten haben
 memory kept have
- b. *da [den Studentenⁱ]_i[die Lehrer von sichⁱ] zweifellos tⁱ in guter
 that[the student-acc]_i[the teachers of himselfⁱ]-nom undoubtedly in good
 Erinnerung behalten haben
 memory kept have

(A) examples in (28-32) violate principle A. As the (b) examples in (28-31) show, however, scrambled DOs can bind a possessive anaphor in the subject argument, constituting the evidence for the A-movement analysis of scrambling, because a binding position would be identified as an argument position. As (32b) shows, however, the scrambled DO in German cannot bind a possessive anaphor in the subject argument.

Regarding this distinction between Korean, Japanese and Hindi and German, it is assumed that scrambled DOs in (28b and 29b), (30b) and (31b) are located in narrowly L-related positions (see Chomsky 1993:28-29 and 2000), where they can bind an anaphor, while the scrambled DO in (32b) is located in broadly L-related positions. In answer to this phenomenon, we can consider the fact that the positions of IP-adjunction scrambling in Korean and Japanese are argument positions because they are the multiple subject languages as we observed above. As for Hindi, Hindi does not allow the multiple subject construction. Nevertheless, the scrambled DO can bind an anaphor, unlike the German example as illustrated in (31b), since according

to Mahajan (1990), the scrambled DO in (31b) is not undergoing adjunction scrambling, but it does undergo overt object shift, making it possible that the scrambled DO in (31b) can bind an anaphor within the subject (cf. Boskovic/Takahashi 1998 and Kidwai 2000). That is, the fact that IP-adjoined positions are argument positions creates the new binding possibility of the scrambled DO to the IP-adjoined positions.

On the other hand, German has no multiple subject construction. This means that the only possible position of the scrambled DO in (32b) is A'-position, where it cannot bind an anaphor within a subject, as noted by Grewendorf/Sabel (1997).

As we noted, shortly scrambled DOs to IP-adjoined positions in Korean, Japanese and Hindi can bind a possessive anaphor in the subject argument, and this fact is described as the evidence for the A-movement analysis of scrambling (cf. Grewendorf/Sabel 1997, Mahajan 1994 and Fanselow 1991). Since there is empirical evidence, in which shortly scrambled DOs to IP-adjoined positions cannot be coindexed with an anaphor, as shown in (33-35), however, this claim faces a serious problem:

(33) Korean

- a. *Cakiⁱ-ka Sunhiⁱ-lul pinanhessta
 self-nom Sunhi-acc criticized
 'Self criticized Sunhi.'
- b. *Sunhiⁱ-lul cakiⁱ-ka ti pinanhessta
 Sunhi-acc self-nom criticized
 'Self criticized Sunhi.'
- c. *Soloⁱ-ka [Chelsu wya Insu]ⁱ-lul taeroysessta
 each other-nom Chelsu and Insu-acc hit
 'Each other hit Chelsu and Insu.'
- d. *[Chelsu wya Insu]ⁱ-lul soloⁱ-ka ti taereoysssta
 Chelsu and Insu-acc each other-nom hit
 'Each other hit Chelsu and Insu.'

(34) Japanese (Yastushiro 1998:10)

- a. *Otagaiⁱ- ga [John to Bob]-oⁱ naguta
 each other-nom Joan and Bob-acc hit

- b. *[John to Bob]-oi otagai-ga ti naguta
 John and Bob-acc each other-nom hit

(35) Hindi-Urdu (Kidwai 2000:31-32)

- a. *epnei-ne moheni-ko mara
 self (SU) Mohan (DO) hit
 'Self hit Mohan.'
- b. *moheni-ko epnei-ne ti mara
 Mohan (DO) self(SU) hit
 'Self hit Mohan.'
- c. *ek dusrei-ne [mohen or sita]i-ko mara
 each other(SU) Mohan and Sita (DO) hit
 'Each other hit Mohan and Sita'
- d. *[mohen or sita]i-ko ek dusrei-ne ti mara
 Mohan and Sita (DO) each other (SU) hit
 'Each other hit Mohan and Sita.'

Scrambled DOs in (33b,d), (34b) and (35b,d) are located in narrowly L-related positions in such a way that the positions of the scrambled DOs in (33b,d) and (34b) can be counted as the positions of the multiple specifiers of a single head, and the scrambled DOs in (35b,d) should be [Spec AGRO]. Nonetheless, scrambled DOs in (33b,d), (34b) and (35b,d) cannot bind an anaphor subject. Given that IP-adjoined positions in Korean, Japanese and Hindi are argument positions, if the (b) examples in (28-31) were sufficient evidence for A-movement analysis of scrambling, then (33-35), where DOs are scrambled into IP-adjoined positions like the (b) examples of (28-31), should be also grammatical. As we see, however, (33-35) are ruled out. This leads us to suppose that the fact that IP-adjoined positions are argument positions, creating a new binding possibility, is not sufficient to exclude (33b,d), (34b) and (35b,d), because scrambled DOs in (33b, d), (34b) and (35b,d), located in narrowly L-related positions (argument-position), does not create a new binding possibility.

In order to solve this problem, consider Rizzi's (2000:126) Chain Formation:

(36) Chain Formation:

$C = (a_i, \dots, a_n)$ is a chain iff, for $1 < i < n$, a_i is the local binder of a_{i+1}

(α is a binder of β iff, for α , β =any category, α , and β are co-indexed, and α c-commands β ; α is the local binder of β iff α is a binder of β and there is no γ such that γ is a binder binder of β , and γ is not a binder of α)

(37) Italian (Rizzi 2000:130)

*Giannij [^{VP}siⁱ e stato affidato e'ⁱ e''ⁱ]

Gianni to-himself was entrusted

(38) NPⁱ ... [α siⁱ ... eⁱ ...]

Following Kayne (1975), Rizzi points out that a clitic reflexive in Italian is not compatible with the passive construction, as in (37). This ungrammaticality would yield either a Chain Formation or θ -Criterion violation. For example, in (37) the possible chains which satisfy θ -Theory would be (Gianni e') and (si e') in which the two θ -roles are assigned to the direct and indirect objects. Chain Formation, however, blocks the formation of this chain structure, since as shown by (36) intervening binders cannot be skipped, ruling out (Gianni e') as a possible chain for (37), i.e. in (Gianni e') the intervening binder si is skipped. In contrast, the possible chain which does not violate Chain Formation should be (Gianni, si e'ⁱ (e''ⁱ)). This chain structure, obeying Chain Formation, however, is excluded by the violation of the θ -Criterion, in that two theta-roles are assigned to a chain. From this observation, Rizzi concludes that the incompatibility with anaphoric cliticization holds, if a structure would have the form as in (38) in which the appropriate chain structure would be inevitably blocked by the intervening binder si.

Bearing this in mind, consider the (b) examples in (33-35), repeated in (39-41):

(39) Korean

*Sunhiⁱ-lul cakiⁱ-ka ti pinanhessta

Sunhi-acc self-nom criticized

'Self criticized Sunhi.'

(40) Japanese (Yastushiro 1998:10)

*[John to Bob]-oi otagaiⁱ-ga ti naguta

John and Bob-acc each other-nom hit

(41) Hindi-Urdu ((Kidwai 2000:31-32)

*mohenⁱ-ko epneⁱ-ne tⁱ mara
 Mohan (DO) self(SU) hit
 'Self hit Mohan.'

(42) NPⁱ ... [anaphorⁱ ... eⁱ ...]

If we compare the examples in (39-41) with (37), the anaphors in (39-41) c-command the traces of the coreferential objects, which means that the anaphors are located in intervening position as in (42), like the case of (38). In order to satisfy Chain Formation, therefore, the wrong chain structures such as (Sunhi, Caki, t) and (John-to Bob, otagai,t), and (mohen, epne, t) should be formed since anaphors in (39-41) are located in intervening position as in (42), blocking the appropriate chain structures such as (Sunhi, t) and (John to Bob, t), and (mohen, t) which satisfy θ -Criterion. The chain structures such as (Sunhi, Caki, t) and (John-to Bob, otagai,t), and (mohen, epne, t), however, violate θ -Criterion by the assignment of two θ -roles to a chain. In other words, (39-41) are ungrammatical due to the Chain Formation, i. e. for the satisfaction of Chain Formation θ -Criterion should be violated. This data tell us that CIS in Korean, Japanese and Hindi-Urdu also shows A'-property.

On the other hand, if anaphors are embedded within a bigger DP, they do not c-command the traces of the coreferential objects, not blocking the formation of the appropriate chain structures, like the (b) examples in (28-31), repeated in (43-45):

(43) Korean

? Sunhiⁱ-lul cakiⁱ-uy apochi-ka tⁱ pinanhessta
 Sunhi-acc self' -gen father-nom criticized
 'Self'sⁱ father criticized Sunhiⁱ.'

(44) Japanese

? [Karera-oⁱ [[otagai-noⁱ sensei]-ga [tⁱ hihansita]]] (koto)
 they-acc each other-gen teacher-nom criticized fact
 'Themⁱ, each other'sⁱ teachers criticized.'

(45) Hindi-Urdu

?ek naukarⁱ apneⁱ maalike-ne naukari se nikaal diyaa
 a servant self's boss-ERG service from dismissed

(46) NPⁱ ... [...anaphor...]^{NPj} ... eⁱ

In (43-45) the anaphors which are embedded within a bigger DP do not c-command the traces of the coreferential objects as in (46). This indicates that in (43-45), Chain Formation does not play any role, since the anaphors are not located in intervening positions. Therefore, not the wrong chain structures such as (Sunhi, Caki, t), (karera, otagai, t) and (eknaukar, apne, t), in which θ -Criterion is violated, but the appropriate chain structures such as (Sunhi, t), (karera, t) and (eknaukar, t) can be formed, and these chain structures satisfy θ -Criterion. Consequently, (43-45) are acceptable.

To summarize, IP-adjoined CIS in Korean, Japanese and Hindi exhibits the mixed A and A' properties in a way that an anaphoric element which is embedded within a bigger DP is not located in intervening position, creating a new binding possibility, whereas an anaphoric element which is locally c-commanded by the trace of its antecedent is located in intervening position, ruling out a new binding possibility.

The exemption of WCO effect is described as another A-property of IP-adjoined CIS. In the next section I will explore this property.

4.2.3 The Exemption of WCO-Effects in IP-adjoined CIS

Like the case of a new binding possibility of IP-adjoined CIS, anti-WCO effect in IP-adjoined CIS is also considered to be A-property. Before the WCO effect is discussed, it would be reasonable to note Chomsky's (1981, and 1976) definition of variable and the Leftness Condition (LC), which can be regarded as an expression of WCO effect:

(47) α is a variable if α is the trace of movement from an A-position to an A'-position.

Since the class of A'-position splits into subclasses such as quantificational elements (operator), modifier and topic as proposed by Rizzi (2002), however, (47) can be revised, as in (47'):

(47') α is a variable if α is the trace of movement from an A-position to an only operator position excluding modifier and topic position

(48) The Leftness Condition (LC)

A variable cannot be an antecedent for a pronoun to its left

Considering Vata along with Chomsky's assumption of variable and LC, Koopman/Sportiche (1993:143) revise the definition of variable as illustrated in (49), and they develop "The Bijection Principle" (P.146), which handles WCO violation in general, as given in (50):

(49) α is a variable at LF if α is empty or a pronoun and
 α is locally A'-bound and
 α is an A-position

(50a) The Bijection Principle

There is a bijective correspondence between variables and A'-positions, i.e. every variable is locally bound by one and only one A'-position, and every A'-position locally binds one and only one A-position.

Given (47'), we can revise The Bijection Principle as follows:

(50b) The revised Bijection Principle

There is a bijective correspondence between variables and operator position, i.e. every variable is locally bound by one and only one operator position, ruling out modifier and topic-position, and every operator position locally binds one and only one A-position.

Accordingly, as shown by (50b), WCO Filter looks like (51):

(51) WCO Filter

*[... Operator_i [[... Pronoun_i...] ... Variable_i...]]

With this in mind, consider (52):

(52) *Who_i does his_i mother love t_i

In general, operator-movement triggers WCO effect. For instance, in (52), his_i and t_i are variables in that his_i is a pronoun and t_i , accusative, is the trace of operator-movement. But, they are locally A'-bound by an operator who at the same time, ruled out by WCO Filter.⁶

On the other hand, A-movement exempts WCO effect as in (53):

(53) no one_i seems to his_i mother [_i t_i to be ugly] (Hornstein 1999:56)

In (53), no one moves from the Caseless position to the Case position, i.e. (53) is A-movement. Therefore, no one can bind the indicated pronoun, since t is the residue of A-movement. This leads us to assume that (53) is not subject to WCO Filter due to the notion that no one is A-position and t is not a variable.

With respect to WCO effect, in the literature it has been suggested that IP-adjoined CIS in Korean (Lee/Santorini 1994), Japanese (Saito 1992), and Hindi (Mahajan 1994 and Kidwai 2000) rescinds WCO effect, as in the (b) examples in (54-56), making the assumption possible that IP-adjoined CIS in these languages exhibits A-property. The fact that IP-adjoined positions in these languages are argument positions contributes to this exemption of WCO effect in the (b) examples of (54-56). As for (57b), however, though IP-adjoined positions in German are A'-positions noted by Grewendorf/Sabel (1997), IP-adjoined CIS in German does not generate WCO effect:

(54) Korean

- a. *ku-uy chinku-ka nwukuna-lul kuriwohanta
 he-gen friend-nom everyone-acc missed
 'Everyone is missed by his friend.'
- b. nwukuna_i-lul ku_i-uy chinku-ka t_i kuriwohanta
 everyone-acc he-gen friend-nom miss

⁶ Consider:

a. *Who_i does he_i see t_i ?

In (a), the trace is variable since it is A-position and has the accusative Case. As is well known, variable is subject to principle C of binding theory. In (a), however, variable t_i is A-bound by he_i , violating principle C of binding theory. In the literature, this phenomenon is usually described as Strong Crossover (SCO).

'Everyone is missed by his friend.'

(55) Japanese (adopted from Richards 2001:15)

- a. *? Soituⁱ-no hahaoya-ga dareⁱ-o asiteiru no
 guy-gen mother-nom who-acc loves Q
 'Who does his mother love?'
 b. ? Dareⁱ-o soituⁱ-no hahaoya-ga tⁱ aisiteiru no
 who-acc guy-gen mother-nom loves Q

(56) Hindi (Mahajan 1994:305)

- a. ???uskeⁱ maalik-ne sab kitaabeNⁱ pheNk dii
 its author-ERG all books threw away
 ???'Itsⁱ owner threw away all the booksⁱ.'
 b. sab kitaabeNⁱ uskeⁱ maalik-ne t pheNk dii
 all books its author-ERG threw away
 ???'Itsⁱ owner threw away all the booksⁱ.'

(57) German (Santorini/Lee 1994:260-261)

- a. *da seine Kinder jeden liebhaben
 that his-nom children-nom everyone-acc dear-have
 'that everyone is loved by his children.'
 b. da jedenⁱ seineⁱ Kinder tⁱ liebhaben
 that everyone-acc his-nom children-nom dear-have
 'that everyone is loved by his children.'

Generally, operator moves to scopal positions for the satisfaction of Full Interpretation (FI) at LF. Then, at LF (a) examples in (54-57) look like (58):

- (58) a. nukunnaⁱ-lul [kuⁱ-uy chinku-ka xⁱkuriwohanta] (Korean)
 b. dareⁱ-o [soituⁱ-no hahaoya-ga xⁱ aisiteiru no] (Japanese)
 c. sab kitaabeNⁱ [uskeⁱ maalike-ne xⁱ pheNk dii] (Hindi)
 d. jedenⁱ [seineⁱ Kinder xⁱ liebhaben] (German)

The xⁱ in (58) are all variables because they are the traces of movement from A-positions to an A'-positions. At LF, as we see, operators c-command pronouns and variables from operator A'-position simultaneously. Hence, WCO Filter excludes (58a-d).

As we observed above, anti-WCO effect in (b) examples in (54-56) is

yielded from the fact that the IP-adjoined positions in CIS in these languages are argument positions.

Interestingly, however, scrambling of the direct object to the IP-adjoined position in German shows also anti-WCO effect, though the scrambled NP in (57b), repeated in (60b), is located in A'-position by the fact that NP, which is scrambled to IP-adjoined position, cannot be coreferential with an anaphor, as noted by Grewendorf/Sabel (1997) as in (59):

(59) German

* da [den Studenten]_i[die Lehrer von sich_i] zweifellos _{ti} in guter
 that[the student-acc]_i[the teachers of himself_i]-nom undoubtedly in good
 Erinnerung behalten haben
 memory kept have

(60) German

a *da seine Kinder jeden liebhaben
 that his-nom children-nom everyone-acc dear-have
 'that everyone is loved by his children.'
 b. da jeden_i seine_i Kinder _{ti} liebhaben
 that everyone-acc his-nom children-nom dear-have
 'that everyone is loved by his children.'

(61) German

Den Studentin_i hat seine_i Freundin verloren
 ART-acc student have refl-gen friend lost

As illustrated by in (51), WCO effect is triggered, if operators c-command pronouns and variables from A'-position simultaneously as in (60a). Despite the fact that IP-adjoined positions in German are A'-positions, however, (60b), where the NP is scrambled to IP-adjoined positions, i.e. in (60b) WCO effect should be generated, obviates WCO effect. This can be explained using Rizzi's assumption, according to which the class of A'-positions splits into subclasses, such as quantificational elements (including operator), modifier and topic. Consequently, it would be expected that the position of the scrambled NP in (60b) is not the positions of operators, but rather modifiers or topics. This is the reason why in (60b) WCO effect is absent. Similarly, topicalization in German does not trigger WCO effect as in (61), since topics are separated from operators within the

C-system.

To summarize, since IP-adjoined positions in Korean, Japanese and Hindi are argument positions, IP-adjoined CIS in these languages exempts WCO effect. Although IP-adjoined position in German is A'-position, however, IP-adjoined CIS in German also exempts WCO effect.

As observed above, scrambling in Korean is referred to as IP and VP adjunction. Considering the multiple subject construction in Korean, the properties of IP-adjoined CIS were discussed. In order to investigate the properties of VP-adjoined CIS, the following section concerns the multiple object construction in Korean.

4.3 The multiple object construction and scrambling of the multiple objects in Korean

As in the multiple subject construction in Korean, multiple subjects are described as multiple specifiers of a single head, T, multiple objects would be also regarded as the multiple specifiers of a single head, v. Thus, given that multiple specifiers of a single head, T, can be scrambled without an intervention effect, it appears that scrambling of multiple objects are also permitted, not generating an intervention effect. The following sections contain these properties.

4.3.1 The multiple object construction in Korean

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Just like the case of the multiple subject construction in Korean, the multiple object construction in Korean is also allowed:

(62) Korean

- a. Minki-ka [sonamu-uy kachi-lul] chalassta
 Minki-nom pine tree-gen branch-acc cut (past)
 'Minki cut the branch of the pine tree.
- b. Minki-ka sonamuⁱ-lul [tⁱ kachi-lul] chalassta
 Minki-nom pine-acc branch-acc cut (past)
- c. Minki-ka sonamuⁱ-lul v [proⁱ kachi-lul] chalassta
 Minki-nom pine-acc branch-acc cut (past)

(63) Korean

- a. Minki-ka suhak-ul kongpu-lul hanta
 Minki-nom math-acc studying-acc do
 'Minki studies math.'
- b. * Minki-ka suhak-uy kongpu-lul hanta
 Minki-nom math-gen studying-acc do
- c. * Minki-ka suhaki-ul ν [proⁱ kongpu-lul] hanta
 Minki-nom math-acc studying-acc do

(64) Korean

- a. Minki-ka Sunhi-eke chek-ul twukwon-ul chuessta
 Minki-nom Sunhi-dat book-acc two-acc gave
 'Minki gave Sunhi two pieces of books.'
- b. Minki-ka Sunhi-lul⁷ chek-ul twukwon-ul chuessta
 Minki-nom Sunhi-acc book-acc two-acc gave
 'Minki gave Sunhi two pieces of books.'
- c. * Minki-ka Sunhi-uy chek-uy twukwon-ul chuessta
 Minki-nom Sunhi-gen book-gen two-acc gave
- d. * Minki-ka Sunhiⁱ-lul ν [proⁱ chek^j-ul [pro^j kongpu-lul]]
 'Minki gave Sunhi two pieces of books.'

As in (62b), in which there is an 'Inalienable Relation' between two NPs, possessor-raising is possible by the fact that the second NP is a part of the first NP.

Then it is predictable that the raised first NP may be formulated into null element pro,⁸ which is found in the governed positions such as the subject and object position, as in (65) and (66):

(65) Korean

- a. pro tali-n-ta
 run-pres-decl
 '(pro runs).'
- b. Sunhi-ka kui-eke [proⁱ wae sulpun-chi]-lul mul-ess-ta
 Sunhi-nom he-dat why sad -C -acc ask-past-decl

⁷ In double-object-constructions with the dative NP, the dative NP can be alternated to the accusative NP (cf. Kang 1986 and Choi 1995).

⁸ As is well known, Korean is a pro-drop language like Chinese, Italian and Spanish. Korean and Chinese are distinguished from Italian and Spanish in that the former languages lack AGR and the latter languages have rich agreement. This tells us that pro is possible either in languages with rich agreement or no agreement at all (Huang 1984).

'(Sunhi asked to him why (he) was sad.)'

(66) Korean

- a. Sunhi-ka pro pangmunhe-ss -ta
 Sunhi-nom visit -past-decl
 '(Sunhi visited pro.)'
- b. Sunhiⁱ-ka [Chelsu-ka proⁱ choaha-nun] sasil-ul palkyenhe-ss-ta
 Sunhi-nom Chelsu-nom like -C thing-acc find
 -past-decl
 '(Sunhi found out that Chelsu likes (her).)'

The subject and object *pro* is governed by *T* and *v*, respectively as in (65a-b) and (66a-b). With respect to the null object, there are two different arguments to treat it; variable and *pro* (see Huang 2000). As illustrated in (66b), the null object can be coindexed with *sunhi*, satisfying principle B of binding theory, i.e. the null object in (66b) should be *pro*. If the null object were variable, then the null object should be free everywhere. As shown by (66b), however, the null object can be coindexed with *Sunhi*. From this fact, I assume that the null object in Korean is not variable, but *pro*⁹, having the feature combination of [-Anaphor, +Pronominal]. This means that *pro* in Korean is subject to principle B of binding theory.

Returning to (62-64) again, in (62c), in which NPs have an 'Inalienable Relation' to each other, *proⁱ* in square brackets, which is GC, is coindexed with *sonamuⁱ* which is outside of GC without the violation of principle B of binding theory as in (62c).

On the other hand, (63a) and (64a), in which NPs have no 'Inalienable Relation' among NPs, can be alternated to neither genitive form nor *pro*, as in (63b-c) and (64c-d).

The above data show that the multiple object construction in Korean is permitted either the cases, in which NPs have close semantic relation to each other, e.g. Inalienable Relation, or the cases where close semantic relation among NPs is not observed as in (63a) and (64a-b).

Now, let us consider the syntactic properties of the multiple objects. Like the case of the multiple subject, I suppose that *sonamu* and *kachi* in (62b),

⁹ For more discussion about *pro*, see Rizzi (1986), Huang (1989:2000), Jaeggi and Safir's (1989) and Speas (1994).

(70) structure of (69)

NP Minki merged in the base position moves to SpecT for the satisfaction of the EPP-feature on T. Following Chomsky (2000;101 and 2001), I assume that three multiple objects can be directly merged in the positions of the multiple specifiers of a head v since these positions are ϕ -positions and three NP_a are arguments. This merge is called pure merge, which is not part of Move unlike merge of the subject Minki, which is part of Move. So, just like the case of the multiple specs of T, goal¹ Swunhi, goal² chek in (70), are not interveners for probe (v) to ϕ -agree with goal³ twokewon due to the transitivity of ϕ -agreement in goals. Consequently, the uninterpretable ϕ -feature of v and the uninterpretable accusative cases are eliminated by the matching process of agree without an intervention effect (cf. Chomsky 2000;2001, Uriagereka 2002, Miyagawa 2001 and Frampton et. al. 2000). This fact that the multiple objects in Korean can be counted as the multiple specifiers of a single head, v , leads us to assume that VP-adjoined positions in Korean are argument positions.

To summarize, the multiple objects in Korean can be considered to be the multiple specifiers of a single head, v . The transitivity of ϕ -agreement in goals makes probe, v , ϕ -agree with the multiple goals without an intervention effect in order to eliminate the uninterpretable features of probe and goals. Keeping the fact, that VP-adjoined positions in Korean are the positions of the multiple specifiers of a single head, v , in mind, the next section concerns scrambling of the multiple objects to VP-adjoined positions.

4.3.2 Scrambling of the multiple objects to VP-adjoined positions

If an 'Inalienable Relation' between the multiple specifiers is absent, scrambling of the multiple specifier across another multiple specifier is permitted as in (71):

(71) Korean

- a. Minki-ka suhak-ul kongpu-lul ha-n-ta
 Minki-nom math-acc studying-acc do-pres-decl
 'Minki studies math.'

- b. [IP Minki-ka [VP kongpu-lul_i [VP suhak-ul ti-ha-n-ta]]]
 Minki-nom studying-acc math-acc do-pres-decl
- c. [IP Kongpu-lul_i [IP Minki-ka [VP suhak-ul ti-ha-n-ta]]]
 studying-acc Minki-nom math-acc do-pres-decl

As given in (71b-c), the multiple specifiers, which have no 'Inalienable Relation' to each other, can be scrambled to IP-and-VP adjoined positions. If the single head, *v*, has more than two multiple specifiers, scrambling of the multiple specifiers of a single head, *v*, over other multiple specifiers is not ruled out, as in (72b-c):

(72) Korean¹¹

- a. [IP Minki-ka [VP Sunhi_i -lul chek_j -ul twukwon_k -ul chuessta]]
 Minki-nom Sunhi-acc book-acc two-acc gave
 'Minki gave Sunhi two pieces of books.'

- b. [IP Minki-ka [VP chek_j -ul [VP twukwon_k -ul [VP Sunhi_i -lul t_j t_k chuessta]]]]
 Minki-nom book-acc two piece-acc Sunhi-acc
 gave
-

- c. [IP Minki-ka [VP twukwon_k -ul [VP chek_j -ul [VP Sunhi_i -lul t_j t_k chuessta]]]]
 Minki-nom two piece-acc book-acc Sunhi-acc
 gave
-

As we see, the paths can be crossed, as in (72b), satisfying shortest move, or nested, as in (72c), not obeying shortest move. This result tells us that the scrambled NPs into VP-adjoined positions do not pose RM effect or an intervention effect, since VP-adjoined positions in Korean are the positions of the multiple specifiers of a single head, *v*.

Now, let us consider scrambling of the multiple objects which have an 'Inalienable Relation' to each other as in (67), repeated in (73):

¹¹ Of course, scrambling of the multiple objects to IP-adjoined positions is also allowed.

(73) Korean

a. Minki-ka sonamu-lul kachi-lul chala-ss-ta

Minki-nom pine tree-acc branch-acc cut-past-decl

'Minki cut the branch of the pine tree.'

b. * [IP Minki-ka [VP kachi-luli [VP sonamu-lul ti chala-ss-ta]]]

Minki-nom branch-acc pine tree-acc cut-past-decl

c. * [IP Kachi-luli [IP Minki-ka [VP sonamu-lul ti chala-ss-ta]]]

branch-acc Minki-nom pine tree-acc cut-past-decl

In (73a) sonamu (pine tree) is the possessor of kachi (branch). This means that there is an Inalienable Relation between two NPs in (73), i.e. two NPs have close semantic relation. This close semantic relation between two NPs makes scrambling of the second NP across the first NP impossible as in (73b-c), though syntactically scrambling of the second NP crossing the first NP is not ruled out due to the fact that VP-adjoined positions in Korean are argument positions.

Bearing the fact that VP-adjoined positions in Korean are argument positions in mind, next, consider the following example to compare the binding relation in VP-adjoined CIS with that of IP-adjoined CIS:

(74) Korean

a. * [IP [Cakiⁱ-uy apochi]-ka chinku-eke Sunhiⁱ-lul pinanhessta]]

self-gen father-nom friend-dat Sunhi-acc criticized

'*Self^{s_i} father criticized Sunhiⁱ to his friend.'b. * [IP [cakiⁱ -uy apochi]-ka [VP Sunhiⁱ -lul [VP chinku-eke t_i pinanhessta]]]

self-gen father-nom Sunhi-acc friend-dat

criticized

(75) Korean

a. * [IP [Cakiⁱ-uy apochi]-ka Sunhiⁱ-lul pinanhessta]]

self-gen father-ka Sunhi-acc criticized

'*Self^{s_i} father criticized Sunhiⁱ.'b. ? [IP Sunhiⁱ-lul [IP [cakiⁱ-uy apochi]-ka t_i pinanhessta]]]

Sunhi-acc self'-gen father-nom criticized

'Self^{s_i} father criticized Sunhiⁱ.'

In (74b) Sunhi-lul is scrambled to VP-adjoined position, argument position. If we compare (74b) with the example (23b), in which Sunhi-lul is scrambled to IP-adjoined position, argument position, repeated in (75b), in (74b) the new binding possibility is not observed, whereas in (75) the scrambled NP can bind the anaphoric subject, although Sunhi-lul in (74b) is scrambled to VP-adjoined argument positions. This ungrammaticality in (74b) is yielded from the fact that in (74b) the full subject still c-commands Sunhi-lul, scrambled to VP-adjoined position, like (74a), violating principle A. This result indicates that VP-adjoined CIS in Korean does not create a new binding relation, unlike IP-adjoined CIS, i.e. VP-adjoined CIS exhibits only A'-property.

To summarize, if a clause has more than two objects known as the multiple object construction, scrambling of the object across another object in Korean is permitted, as long as there is no 'Inalienable Relation' between two NPs. Despite the fact that VP-adjoined positions in Korean are argument positions, however, VP-adjoined CIS does not create a new binding possibility, since NPs, scrambled to VP-adjoined positions, are always c-commanded by the anaphoric subject.

4.4 Conclusion

Contradicting the traditional approach, according to which the Case of the multiple subject and object is licensed by different heads, I have argued that the Case of the multiple subject and object is licensed not by different heads, but rather by a single head, e.g. T and v, since the multiple subjects and objects can be considered to be the multiple specifiers of a single head T and v, respectively. From this observation, assuming that multiple specifiers are equidistant targets from the base positions, I have shown that scrambling of the multiple subject and object across another multiple subject and object can occur without an intervention effect, as long as there is no Inalienable Relation between the multiple specifiers. This fact that the multiple specifiers can be scrambled with each other without an intervention effect indicates that IP and VP adjoined CIS in Korean is not constrained by shortest move.

Bearing the notion that IP-adjoined positions in Korean, Japanese and Hindi are narrowly L-related positions in mind, I have discussed the mixed A and

A' properties of IP-adjoined CIS, arguing that CIS is not A-movement, as some linguists claim. For example, IP-adjoined CIS in these languages creates a new binding effect and exempts WCO like the case of A-movement. However, IP-adjoined CIS in Korean, Japanese and Hindi also exhibits A'-property, in that IP-adjoined CIS obtains Chain Formation effect, if the scrambled NP c-commands the trace of the antecedent. In contrast, VP-adjoined CIS in Korean shows only A'-properties, due to the fact that NPs, which are scrambled to VP-adjoined positions, are always c-commanded by the full subject. This means that IP-adjoined CIS in Korean, Japanese and Hindi shows the mixed A and A' properties and VP-adjoined CIS in Korean only A'-properties.

As we observed, scrambling of the multiple subjects and objects has nothing to do with the morphological requirements, and the empirical evidence is based on Binding Condition, Chain Formation, shortest move and WCO, which stem from antecedent chain condition. As we know, movement operation leaves a trace in the start position, and this trace yielded from movement operation forms the chain with antecedent called antecedent chain. Conclusively, then, this empirical evidence supports the assumption that scrambling is the movement operation, as I argue.

Chapter 5: Long Distance Scrambling (LDS)

Keeping the assumption that scrambling is an optional movement operation in mind, in chapter 4, I have explored the fact that CIS poses mixed A-and-A' properties. In this chapter, I will argue that IP-adjoined LDS also exhibits mixed A-and-A' properties, while VP-adjoined LDS shows only A'-properties. In general, LDS in scrambling languages such as Korean, Japanese, and Russian is permitted, just like the case of CIS. However, LDS in these languages is distinguished by the fact that in Russian LDS the intermediate CP-adjunction is available, as observed by Müller/Sternefeld (1993), whereas in Korean and Japanese LDS this option is not. Instead, the intermediate trace of LDS-chain in Korean and Japanese can be deleted, if the initial trace is theta-marked. This fact indicates that scrambling in Korean, Japanese and Russian takes place in successive-cyclic fashion. Accordingly, scrambling operation in these languages is constrained by UG principles such as subjacency and ECP.

With respect to LDS, it is indicated in the literature (Saito 1989 and Mahajan 1990) that LDS exhibits only A'-properties since the long scrambled NP cannot act as a binder with an anaphor in the matrix clause. Considering the facts that the monomorphemic anaphor *caki* in Korean can be bound long distantly, whereas the polymorphemic anaphor *caki-casin* should be bound within the minimal domain, and the IP-adjoined positions in the embedded and matrix clause in Korean are argument positions, however, I will show that the NP, which is scrambled long distantly to IP-adjoined positions, can act as a binder with a monomorphemic anaphor *caki* in the matrix clause, while the long scrambled NP cannot act as a binder with a polymorphemic anaphor in the matrix clause. This leads us to assume that IP-adjoined LDS in Korean poses mixed A and A' properties. On the other hand, NP which are scrambled long distantly to VP-adjoined positions cannot act as a binder, regardless of the involvement of a monomorphemic anaphor or polymorphemic anaphor, due to the violation of Principle A, i.e. VP-adjoined LDS exhibits only A'-properties.

If we compare LDS in German, in which IP and VP adjunction scrambling within the clause is possible, with that of Korean, Japanese and Russian, LDS in German has no option, neither the intermediate CP-adjunction nor the deletion of the intermediate trace, i.e. in German, successive-cyclic

adjunction is not allowed, ruling out LDS in German. Nonetheless, a special class of verbs such as *versuchen* (try), *beginnen* (begin) and *hoffen* (hope) allows scrambling out of their infinitival complement by the way of the abstract incorporation between the embedded and matrix verb.

All of these properties of LDS will be investigated in this chapter.

5.1 LDS in Korean and Japanese

Given that scrambling in Korean and Japanese is described as IP and VP adjunction, in sections 5.1.1 and 5.1.2 I will review IP and VP adjoined LDS separately.

5.1.1 The properties of IP-adjoined LDS

As we observed in the previous chapters, a lot of the empirical evidence shows that scrambling is a movement operation. Then it appears that LDS-chain can be constrained by UG principles. In section 5.1.1.1, I will show that LDS-chain is subject to UG principles such as subjacency, ECP, CNPC and CED. Given that Korean is a multiple subject language as observed in chapter 4, which means that IP-adjoined positions are argument positions, in section 5.1.1.2, I will consider the lack of intervention effect in IP adjoined LDS. From the fact that the long scrambled NP can be coreferential with a monomorphemic reflexive in the matrix clause, while the long scrambled NP cannot bind a polymorphemic reflexive in the matrix clause, in section 5.1.1.3, I will provide an analysis that LDS in Korean exhibits the mixed A and A' properties.

5.1.1.1 LDS as subject to principles of UG

As we know, $\text{move-}\alpha$ leaves a trace in the start position, and this trace forms a chain with an antecedent called antecedent-trace relation. Since the trace in its original position in antecedent-chain should be governed, as observed by Chomsky (1981), the concept of government plays a crucial role in licensing empty categories. This means that the antecedent-trace chain yielded from movement operation should obey principles of UG such as subjacency, ECP, CNPC and CED. Accordingly, scrambling, described as an instance of $\text{move-}\alpha$, is constrained by principles of UG, as in (1-2):

(1) Korean

- a. [^{IP}Minki-ka [^{CP}Swunhi-ka korieso chinku-lul manassta ko] malhessta]]
 Minki-nom Swunhi-nom on the street friend-acc met that said
 Minki said that Swunhi met a friend on the street.'
- b. *[[^{IP}Swunhiⁱ -ka[[^{IP}Minki-ka[[^{CP}tⁱ korieso chinku-lul manassta ko]
 Swunhi-nom Minki-nom on the street friend-acc met that
 malhessta]]]]
 said
 'Swunhiⁱ , Minki said that tⁱ met a friend on the street.'
- c. [^{IP}Chinkuⁱ -lul [^{IP}Minki-ka[[^{CP}Swunhi-ka korieso tⁱ manassta ko]
 friend-acc Minki-nom Swunhi-nom on the street met that
 malhessta]]]]
 said
 'A friendⁱ , Minki said that Swunhi met tⁱ on the street.'

(2) Japanese

- a. [^{IP} John-ga [^{CP} Mary-ga sono hon-o katta to] omote iru]] (koto)
 John-nom Mary-nom that book-acc bought COMP think fact
- b. *[[^{IP}Mary-ga^j [^{IP} John-ga [^{CP} t^j sono hon-o katta to omote iru]]koto)
 Mary-nom John-nom that- book-acc bought COMP think fact
- c. [^{IP} sono hon-oⁱ [^{IP} John-ga [^{CP} Mary-ga tⁱ katta to]
 that book-acc John-nom Mary-nom bought COMP
 omote iru]] (koto)
 think fact

In the literature (Chomsky 1981, Frampton 1999, Mazini 1990:1999 and Roberts (1997), it is indicated that an object is properly theta-governed by its head, the verb, but a subject and adjunct can only be properly governed under the antecedent-chain relation. As a consequence, the extraction of θ -governed argument allows non-local steps by the binding of the trace to the antecedent, i.e. in a chain formation intermediate traces in the argument extraction can be deleted if the initial trace is theta-marked. On the other hand, unlike the extraction of argument, local steps of the extraction of non-arguments which are not directly theta-marked by a lexical head play an important role for the satisfaction of antecedent-government¹ to trace, not

¹ α antecedent-governs β if

- a. α binds β , and
 b. there is no γ (γ an NP or S') such that α c-commands γ and γ dominates β , unless β is the head of γ

allowing deletion of the intermediate trace.

Accordingly, (1b) and (2b), in which the subject is scrambled from the embedded CP to the matrix IP-adjoined position, are ungrammatical, since (1b) and (2b) violate ECP or CED in the sense of Huang, who assumes that the extraction from categories which are not lexically governed is prohibited due to the violation of subjacency. Recall that in a chain formation intermediate traces in argument extraction can be deleted, if the initial trace is theta-marked. As a consequence, (1c) and (2c), in which the object is extracted out of the embedded CP to the matrix IP-adjoined position, are grammatical, satisfying ECP. This means that the trace deletion in scrambling chains in Korean and Japanese is permissible, if the initial trace is theta-marked (cf. Lasnik/Saito 1986 and M?ler/Sternefeld 1993).

As another example in which ECP² in terms of Ross CNPC violates, consider (3-4):

(3) Korean

- a. Minki-ka [^{DP} [^{IP}Swunhi-ka korieso chinku-lul manan] sashil]-ul
 Minki-nom Swunhi-nom on the street friend-acc met fact-acc
 alassta
 knew
 'Minki knew the fact that Swunhi met a friend on the street.'
- b. *Chinkuⁱ -lul Minki-ka [^{DP} [^{IP}Swunhi-ka tⁱ korieso manan] sashil]- ul
 friend-acc Minki-nom Swunhi-nom on the street met fact -acc
 alassta
 knew
 'A friendⁱ , Minki knew the fact that Swunhi met tⁱ on the street.'
- c. *Koriesoⁱ Minki-ka [^{DP}[^{IP}Swunhi-ka chingu-lul tⁱ manan] sashil]- ul
 on the street Minki-nom Swunhi-nom friend met fact-acc
 alassta

(Lasnik/Saito 1992:24)

² According to Lasnik (1999), the intermediate traces in non-uniform chain can be deleted as in (1), since the legitimate LF objects are uniform chains:

- (1) ??who do you wonder [_{CP} whether [_{IP} John said [_{CP} t' e [_{IP} t solved the problem]]]] (Lasnik 1999:189)

Despite the fact that t' is too distant from its nearest antecedent to be properly governed, i.e. the intermediate trace t' is not properly governed, (1) is not fully ungrammatical, but rather marginal. This marginality of (1) follows from the fact that the deletion of the intermediate trace t' in non-uniform chain (*who, t', t*) is allowed, voiding the violation of ECP.

knew

'On the streetⁱ , Minki knew the fact that Swunhi met a friend tⁱ

(4) Japanese (Saito/Fukui 1998:463)³

?? Nani-oⁱ [John-ga [NP[IP e^j tⁱ katta] hito^j]-o sagasiteru no.
 what-acc John-nom bought person-acc looking for Q
 'Whatⁱ , John is looking for [the person that bought tⁱ]'

CNPC (Ross 1986) rules out the extraction of element contained in a sentence dominated by a noun phrase because of the violation of subjacency, according to which " β is n-subjacency to α if there are fewer than n+1 barriers for β that exclude α " (Chomsky 1986:30). Accordingly, CNPC yields the ungrammaticality of (3b-c) and the degradedness of (4).

As we noted above, CED and CNPC violate subjacency based on barrier. Thus, if the embedded clause is not a argument clause, but adjunct clause, considered to be a barrier, scrambling of the constituents from the embedded adjunct clause is excluded entirely, though argument is extracted to the matrix IP-adjoined positions as in (5):

(5) Korean

*[IP chekⁱ -lul [IP Sujin-i[CP Minki-ka tⁱ ilopori-myoon] hawa-lul naenta]]
 book-acc Sujin-nom Minki-nom lose -if be angry

³ a. *Isode John-ga [Mary-ga --- sono heya-o soojishita to] itta
 quickly John-nom Mary-nom that room-acc cleaned that said
 'John said that Mary quickly cleaned the room.'

b. Sono-heya-o John-ga [Mary-ga --- soojishita to] itta
 that room-acc John-nom Mary-nom cleaned that said
 'That room, John said that Mary cleaned.'

c. Isode sono heya-o John-ga [Mary-ga --- --- soojishita to] itta
 quickly that room-acc John-nom Mary-nom cleaned that said
 'That room, quickly, John said that Mary cleaned.'

(Sohn 1994, Boeckx and Sugiski 2000 adopted from Richards 2001:198)

Considering LDS in Japanese, Richards indicates that (c) is better than (a), since the presence of a dependency that satisfies a constraint can allow the computational system to ignore another dependency which would be illformed in isolation as in (a). This is known as Principle of Minimal Compliance (PMC), according to which a well-formed dependency must exist, before an ill-formed dependency can be created with impunity. That is, in order to satisfy PMC, the extraction of *sono heya-o* must be precede the extraction of *isode* as in (c), crossing the paths, i.e. in (c) Shortest Move is satisfied.

'A book_i , if Minki loses t_i , Sujin is angry.'

In (5) an argument is scrambled from the embedded adjunct clause to the matrix IP-adjoined position. Nevertheless, (5) is ruled out due to the violation of ECP in the sense that the embedded adjunct-clause is located in broadly L-related position (A'-position), making the embedded clause barrier.

So far we have observed that the scrambling chain in Korean is a subject to ECP. Interestingly, however, the empirical evidence shows that the extraction of PP from the embedded argument clause is allowed, as in (7), despite the fact that non-argument PP should be subject to an antecedent-government, which indicates that (7) should violate ECP:

(6) ??how do you wonder [^{CP} whether [^{IP} John said [^{CP} t' e [^{IP} Mary solved the problem t]]]] (Lasnik 1999:190)

(7) Korean

- a. [^{IP} Korieso_i [^{IP} Minki-ka [^{CP} Swunhi-ka chinku-lul t_i manassta ko] on the street Minki-nom Swunhi-nom friend-acc met -that malhessta]]
said
[On the street]_i , Minki said that Swunhi met a friend. t_i '
- b. Korieso_i Minki-ka [^{CP} t' e [^{IP} Swunhi-ka chinku-lul t_i manassta] ko]]
on the street Minki-nom Swunhi-nom friend-acc met that malhessta]]]

With respect to an antecedent-chain, assuming that the legitimate LF objects are uniform chains and operator-variables, Lasnik points out that in (6), where the movement in this instance is uniformly an A'-chain, economy prevents the deletion of the intermediate trace t', violating the ECP. Similarly, in (7b) the involved chain is uniform A'-chain (korieso, t', t). Then economy should block the deletion of the intermediate trace t', violating the ECP.

However, unlike the prediction, (7) is acceptable.⁴

⁴ PP scrambling in Japanese is also allowed:

[_{TP} Sooru-ni_i [_{Taroo-ga} [_{Hanako-ga} t_i iru to] omoteiru]] (koto) (Saito 2001:292)
Seoul -in T.-nom H.-nom be that think fact
'In Seoul, Taroo thinks that Hanako lives t_i .'

Just like the scrambling of constituents, the entire argument embedded clause can be scrambled to the matrix IP-adjoined position, as in (8) and (10) in Korean and Japanese. On the other hand, the adjunct CP scrambling is excluded, as in (9):

(8) Korean

[^{IP}[^{CP} Swunhi-ka chinku-lul korieso manassta ko]ⁱ [Minki-ka tⁱ
Swunhi-nom friend-acc on the street met that Minki-nom
malhessta]]

said

'[That Swunhi met a friend on the street]ⁱ , Minki said tⁱ .'

(9) Korean

*[^{IP}[^{CP} Minki-ka chek-ul ilopori-myoon]ⁱ , [Sujin-i tⁱ hawa-lul naenta]]
Minki-nom book-acc lose if Sujin-nom anger-acc be
[If Minki loses a book]ⁱ , Sujin is angry tⁱ .'

(10) Japanese (Saito 2001:293)

[^{TP} [Hanako-ga Sooru-ni iru to]ⁱ [Taroo-ga tⁱ omotteiru]] (koto)
H-nom Seoul-in be that T.-nom think fact

'[That Hanako lives in Seoul]ⁱ , Taroo thinks tⁱ .'

Similarly, multiple scrambling in Korean and Japanese is also allowed, i.e. both argument CP scrambling and multiple scrambling are possible, as long as the scrambled elements c-command their trace, as in (11b-c) and (12b-c):

(11) Korean

a. Swunhi-ka[Minki-ka chinku-eke chek-ul chuossta-ko] malhessta
Swunhi-nom Minki-nom friend-dat book-acc gave -that said -decl
Swunhi said that Minki gave a book to friend.'

b. [Minki-ka chinku-eke chek-ul chuossta-ko]^j Swunhi-ka t^j malhessta
Minki-nom friend-dat book-acc gave-that Swunhi-nom said -decl

c. Chinkuⁱ -eke chek^j -ul Swunhi-ka [Minki-ka tⁱ t^j chuossta-ko]
friend-dat book-acc Swunhi-nom Minki-nom gave that
malhessta
said

d. *[Minki-ka chinku-eke tⁱ chuossta-ko]^j [chekⁱ -ul] Swunhi-ka t^j
Minki-nom friend-dat gave -that book-acc Swunhi-nom

malhess-ta
said -decl

(12) Japanese (Saito 2001:292)

- a. [TP Taroo-ga [Hanako-ga Sooru-ni iru to] omotteiru](koto)
T-nom H.-nom Seoul-in be that think fact
'Taroo thinks that Hanako in Seoul.'
- b. [TP [Hanako-ga Sooru-ni iru to]^j [Taroo-ga t^j omotteiru]](koto)
H.-nom Seoul-in be that T.-nom think fact
- c. [TP Sooru-niⁱ [Taroo-ga [Hanako-ga tⁱ iru to] omotteiru]]
Seoul-in T.-nom Hanako-nom be that think
'In Seoulⁱ, Taroo thinks that Hanako lives tⁱ.'
- d. *[TP [Hanako-ga tⁱ iru to]^j [Sooru-niⁱ [Taroo-ga t^j omotteiru]]](koto)
H-nom be that Seoul-in T-nom think
'[That Hanako is tⁱ]^j, in Seoulⁱ, [Taroo thinks t^j].'

Since the scrambled CP in (11b) and (12b), DPs in (11c) and PP in (12c) c-command their trace, binding trace t^j and tⁱ, scrambling of CP, DP and PP from the embedded argument clause to the matrix IP (TP)-adjoined positions is permitted. Though CP and multiple scrambling are not ruled out in Korean and Japanese as shown in (11b), (12b) and (11c), however, (11d) and (12d), in which *chek-ul* (book-acc) and *Sooru-ni* (in Seoul) move out of the embedded CP and the remnant of embedded CP moves even further, i.e. CP and multiple scrambling take place, are not allowed due to the violation of the proper binding condition. More precisely, *chek-ul* (book-acc) in (11d) and *Sooru-ni* (in Seoul) in (12d) do not c-command their trace tⁱ, not being bound by their antecedents, even though the trace t^j c-commanded by their antecedents satisfies the proper binding condition.

Given that move- α specifies S-structure and LF, as noted by Lasnik/Saito (1992), however, if we consider (11d) and (12d) under the assumption that move- α applies at LF, in which the trace does not exist, then, (11d) and (12d) would be acceptable, since the absence of trace renders the proper binding condition inapplicable.

So far I have shown that scrambling chains yielded from the movement operation are constrained by UG principles. These UG principles are based on chain formation at S-structure. As is well known, however, in

Minimalism S-structure is eliminated to keep the necessary assumption to a minimum. This means that there is no longer a site available at which derivations can be evaluated for legitimacy with respect to constraints such as Subjacency and ECP. Thus, the constraints such as Subjacency, ECP and RM are restated as MLC in Minimalism. MLC, known as one of the economy principles, however, only relies on shortest move. Consequently, MLC is not sufficient to explain all the examples in this section. Another economy principle, constraining movement operation, in Minimalism is greed, which constitutes to last resort view of move α . As we observed, movement involved in the examples in this section is not morphologically motivated, i.e. it has nothing to do with Case consideration or any kind of feature checking, although movement in Minimalism should take place for the satisfaction of the morphological requirements. Given that movement operation in Minimalism should be constrained by economy principles, if a derivation does not obey economy principles or cannot be explained under the economy principles, then, it should crash in terms of Minimalism. As we saw, nevertheless, scrambling operation which does not obey economy principles is completely grammatical. This leads us to suppose that scrambling is not consistent with economy principles in Minimalism.

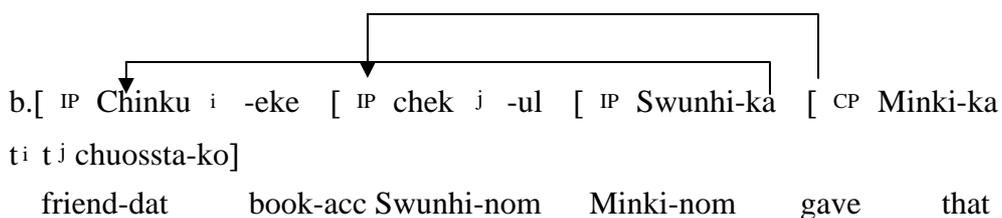
To summarize, the empirical evidence in scrambling languages shows that scrambling, described as movement operation, obeys UG principles such as subjacency, ECP and proper binding condition.

5.1.1.2 The lack of an intervention effect in IP-adjoined LDS

As we observed above, multiple long distance scrambling to IP-adjoined positions is allowed as in (11c), repeated here in (13b-c):

(13) Korean

- a. Swunhi-ka [Minki-ka chinku-eke chek-ul chuossta-ko] malhessta
 Swunhi-nom Minki-nom friend-dat book-acc gave -that said
 Swunhi said that Minki gave a book to friend.'



malhessta]]

said

'[To friend]_i [a book]_j, Swunhi said that Minki gave t_i t_j.'

c. [IP_{chek_j} -ul [IP_{chinku_i} -eke [IP_{Swunhi-ka} [CP_{Minki-ka} t_i t_j chuossta-ko]]
 book-acc friend-dat Swunhi-nom Minki-nom gave that
 malhessta]]
 said

'[A book]_j [to friend]_i, Swunhi said that Minki gave t_i t_j.'

The fact that the intermediate trace in scrambling chain in Korean can be deleted, if the initial trace is theta marked, contributes to the extraction of arguments from the embedded clause to the IP-adjoined positions as in (13b-c). Accordingly, arguments are scrambled as in (13b-c). However, (13b) differs from (13c) in that in (13b) the scrambled elements are maintaining the IO-DO order, while in (13c) the IO and DO order is not preserved. Then, the notion that the intermediate trace in scrambling chain in Korean can be deleted, if the initial trace is theta-marked, is not sufficient to explain the acceptability of (13c), where arguments, not keeping the IO-DO order, are scrambled without an intervention effect.

The fact that Korean is a multiple subject language results in this since IP-adjoined positions are the positions of the multiple specifiers of a single head, T. On this account, IO is not located on intervening position for the movement of DO, not generating an intervention effect. Thus, the paths can be crossed, as in (13b) or nested as in (13c), i.e. scrambling is not subject to shortest move. From this observation I assume that matrix IP-adjoined positions in Korean are argument positions, like the case of the embedded IP-adjoined positions.⁵

- ⁵a. [IP_{Swunhi-ka} [CP [IP_{chingu_i} -eke [IP_{chek_j} -ul [IP_{Minki-ka} t_i t_j chuossta-ko]]]
 Swunhi-nom friend-dat book-acc Minki-nom gave that
 malhessta]
 said
 'Swunhi said that Minki gave a book to friend.'
- b. [IP_{Swunhi-ka} [CP [IP_{chek_j} -ul [IP_{chingu_i} -eke [IP_{Minki-ka} t_i t_j chuossta-ko]]]
 Swunhi-nom book-acc friend-dat Minki-nom gave that
 malhessta]
 said

As predicted, IO-DO and DO-IO scrambling to the embedded IP-adjoined positions are

Similarly, in Japanese IP-adjoined LDS, the RM effect in the sense of Saito/Fukui is absent as in (14b):

(14) Japanese (Saito/Fukui 1998:443)

- a. [^{IP} Bill-ga [^{CP} [^{IP} Mary-ga John-ni sono hong-o watasita]to]itta] (koto)
 Bill-nom Mary-nom John-to that book-acc handed that said fact
- b. [^{IP} Sono hon-o_i [John-ni_j [Bill-ga [^{CP} [^{IP} Mary-ga t_i t_j watasita]
 that-book-acc John-to Bill-nom Mary-nom handed
 to] itta] (koto)
 that said fact

Bearing the notion that matrix IP-adjoined positions in Korean are argument positions in mind, next I will consider the reflexive binding in IP-adjoined LDS.

5.1.1.3 The reflexive binding in IP-adjoined LDS

Generally, with respect to LDS in Japanese, it is indicated in the literature (Saito 1992,2001 and Tada 1993) that LDS in Japanese has A'-properties, since a long scrambled NP out of CP cannot bind the anaphor in the matrix clause as in (16b):

(15) Japanese

- a. *otagai-no sensei-ga karera-o hihansita (koto)
 each other-gen teacher-nom they-acc criticized fact
 'Each other's teachers criticized them.'
- b. ?Karera-o_i otagi -no sensei-ga t_i hihansita (koto)
 they-acc each other-gen teacher-nom criticized fact
 'Them_i , each other's teachers criticized t_i .'

(16) Japanese

- a. *otagai-no_i sensei-ga [Hanako-ga karera-o_i hinhansita to] itta (koto)
 each other-gen teacher-nom Hanako-nom they-acc criticized C said fact
- b. *karera-o_i otagai-no_i sensei-ga [Hanako-ga t_i hinhansita to] itta
 (koto)
 they-acc each other-gen teacher-nom Hanako-nom criticized C said fact

allowed without an intervention effect as in (a-b).

Principle A excludes (a) examples of (15-16). Although in (15b) and (16b) the scrambled NP c-commands the anaphor, the scrambled phrase can bind the anaphor in (15b), i.e. the position of the scrambled NP is A-position, while this binding relation in (16b) cannot be accomplished, which means that the scrambled NP is located in an A'-position, failing to qualify as an appropriate antecedent for the anaphor.

In order to explain this puzzling character, following Chomsky's copy and deletion theory, Saito (2001) suggests that scrambled elements can be reconstructed in their initial positions, as in (17):

(17) Japanese (Saito 2001:299)

[^{TP} Sono hon-oⁱ [Yamada-ga tⁱ yonda]] (koto)
 that book-acc Y.-nom read fact
 'That bookⁱ , Yamada read tⁱ .'

a. [^{TP} Sono hon-o [... sono hon-o ...]]
 (P, D)⁶ (P, D)

b. [^{TP} Sono hon-o [... sono hon-o ...]]
 (P) (D)

According to Saito, scrambling copies all features of the moved element at the targeting site as in (17a), and by the process of the deletion, the P-features are retained at the head of the chain, i.e. only the phonetic features appear at the scrambled position,⁷ and D-feature appears at the position in which it is selected by the verb, as in (17b).

However, the fact that the scrambled phrase in CIS can bind a lexical anaphor as in (18),⁸ contradicts this account, because not P-feature in the head of chain, but D-feature licenses the lexical anaphor, unlike (17b), in which the P-feature in the head of chain should be associated with the licence of the lexical anaphor:

⁶ An overt NP has phonetic feature (P-feature) and D-feature, which makes it possible for the NP to have a reference and to take part in binding relation.

⁷ Similarly, Pesetsky (2001) points out that overt movement affects the phonology in a way that the moved element is pronounced in its new position, unpronouncing in its trace position.

⁸ For more discussion, see chapter 3.

Principle of Unambiguous Binding (PUB)¹³ in the sense of M?ler/Sternefeld (1993) in that in (26) the same types of A'-movement are involved, Saito's assumption that NP moves from the position of the embedded [Spec CP] to the TP-adjoined position, as in (24), violates the Principle of Unambiguous Binding (PUB), since movement in (24) is associated with one type of A'-position to another type of A'-position.

(26) (Saito 2001:298)

[^{CP} who [^C do [^{TP} you think [^{CP} who [^{TP} John saw who]]]]]

As another problem, consider example (27):

(27) Japanese (Saito/Fukui 1998:443)

- a. [^{IP} Bill-ga [^{CP} [^{IP} Mary-ga John-ni sono hong-o watasita] to] itta] (koto)
 Bill-nom Mary-nom John-to that book-acc handed that said fact
- b. [^{IP} Sono hon-o j [John-ni i [Bill-ga [^{CP} [^{IP} Mary-ga t i t j watasita]
 that-book-acc John-to Bill-nom Mary-nom handed
 to] itta] (koto)
 that said fact

In (27b) *sono-hon* (that book) and *John-ni* (John-to) are extracted from the embedded clause to the matrix IP-adjoined positions without RM effect. If the matrix IP-adjoined positions were A'-position, as Saito points out, then (27) should exhibit RM effect. However, this prediction is not borne out as in (27). In my view, the only possible explanation of the absence of RM effect in (27) would be that IP (TP)-adjoined positions in Japanese, known as the multiple subject language, can be considered to be the positions of the multiple specifier of a single head, T. Accordingly, arguments can be scrambled without RM effect as in (27) since multiple specifiers are equidistant targets from the base positions.

Keeping this in mind, next I will consider the counterpart example in Korean from another aspect. Before analysing this Korean counterpart example, it appears to be reasonable to discuss long-distance reflexivization in natural languages, since long distance reflexivization plays a crucial role in my analysis.

¹³ Principle of Unambiguous Binding (Pub) (M?ler/Sternefeld 1993:461)

A variable that is α -bound must be β -free in the domain of the head of its chain (where α and β refer to different types of positions)

It is well known that reflexives in English should have local antecedents, as in (28):

- (28) a. Johnⁱ thinks [^{CP} that [^{IP} Tom^j hurt himself^j]]
 b. *Johnⁱ thinks [^{CP} that [^{IP} Tom^j hurt himselfⁱ]]

However, the locality restrictions on reflexives vary widely from language to language. For example, monomorphemic reflexives in Korean, (Kim 1993, Kang 1985, Yoon 1989 and Kim 2000) Chinese (Huang 2000, Haegeman 1998 and Cole/Sung 1994), Hindi-Urdu (Kidwai 2000), Italian, Danish, Russian and Malay can be bound outside their local domain, unlike (28b), i.e. reflexives in these languages can have long distance antecedents as in (29-35):

(29) Korean

Minkiⁱ -nun[Chelsu^j -ka Sujin^k -eke caki^{i > j > k} ¹⁴-uy cachin-ul poye
 Minki-top Chelsu-nom Sujin-dat self -gen
 photo-acc show
 chuossta-ko] malhessta
 gave -that said
 'Minkiⁱ said that Chelsu^j showed Sujin^k self^{i > j > k}'s photo.'

(30) Chinese (Huang 2000:94)

Xiaoming¹ xiwei Xiaohua² zhidao Xiaolin³ xihuan ziji¹⁾³⁾²¹⁵
 Xiaoming think Xiaohua know Xiaolin likes self
 'Xiaoming thinks that Xiaohua knows that Xiaolin likes self.'

(31) Hindi-Urdu (Kidwai 2000:83-84)

Sitaⁱ -ne ram^j -ko [PRO^j epni^{i / j} kitabe perne] di
 Sita Ram self's books to read

¹⁴ According to Kim (2000), *caki* can be interpreted as a coreferential with any third person NP that it does not precede in the prominence hierarchy.

Prominence hierarchy (Kim 2000:318 ff.):

Topic>subject>object of verb>object of postposition>genitive NP>object of comparative

¹⁵ Possible antecedents of a long distance reflexive can in principle be the subject of any matrix clause, but the root clause subject tends to be preferred to any intermediate clause subject (Huang 2000:94).

gave

'Sitaⁱ allowed Ram^j to read self^{i/j}'s books.'

(32) Italian (Giorgi 1984, adopted from Cole/Sung 1994:360)

Gianniⁱ ha ricondotto Maria^j alla propria^{i/j} famiglia.

Gianni has returned back Maria to the self family

'Gianni brought back Maria to her own/his own family.'

(33) Danish (Pica 1986 adopted from Huang 2000:92)

Larsen¹ betragter Jorgen some farlig for sig¹

Larsen considers Jorgen as dangerous for self

'Larsen considers Jorgen dangerous for self.'

(34) Russian (Progovac 1993:755, adopted from Huang 2000:92)

Professor¹ poprosil assistenta² PRO² citat' svoj^{1/2} doklad.

Professor asked assistant read self's report

'The professor asked the assistant to read self's report.'

(35) Malay (adopted from Huang 2000:92)

Ali¹ berharp Fatimah² akan berkahwin dengan dirinya^{1/2}

Ali hope Fatimah will marry with self-3SG

'Ali hopes that Fatimah will marry himself/herself.'

In (29-35) monomorphemic reflexives are bound long distantly, violating locality restrictions.

If the reflexives are polymorphemic, however, they must be bound in a local domain in Korean, Chinese and Hindi-Urdu, as in (36-38):

(36) Korean

Minkiⁱ -nun[Chelsu^j -ka Sujin^k -eke caki-sasin^{*i/*j/k}uy cacin-ul poye
Minki-top Chelsu-nom Sujin-dat self -gen
photo-acc show

chuossta-ko] malhessta

gave -that said

'Minkiⁱ said that Chelsu^j showed Sujin^k self^{*i/*j/k}'s photo.'

(37) Chinese (Cole/Sung 1994:357)

Zhangsanⁱ renwei Lisi^j zhidao Wangwu^k zihuan ta ziji^{*i/*j/k}
 Zhansan think Lisi know Wangwu like him self
 'Zhansan thinks Lisi knows Wangwu himself.'

(38) Hidi-Urdu (Kidwai 83-84)

Sitaⁱ -ne ram^j -ko [PRO^j epne-ap*ⁱ / j --ko samalne-ko] keha
 Sita Ram herself
 to-control said
 'Sita said Ram to control himself.'

As we see, polymorphemic reflexives in these languages are constrained by binding condition A. This means that a polymorphemic anaphor must be bound in a local domain, ruling out long distance binding of an anaphor, as in English.

With this observation that monomorphemic reflexive *caki*¹⁶ in Korean can be bound long distantly, consider the example (38):

(38) Korean

- a. * Caki-tulⁱ -uy chinku-ka [Minki-ka kutulⁱ -ulpinhessta-ko]
 self-PL-gen friends-nom Minki-nom they-acc criticized that
 malhessta
 said
 *'Self-plⁱ 's friends said that Minki criticized themⁱ
- b. Kutulⁱ -ul caki-tulⁱ -uy chinku-ka [Minki-ka eⁱ pinanhessta-ko]
 they-acc self-pl-gen friends-nom Minki-nom criticized that
 malhessta
 said
 'Self-plⁱ 's friends said that Minki criticized themⁱ

(39) Korean

Minkiⁱ -nun [Chelsu^j -ka Sujin^k -eke cakiⁱ > j > k -uy cachin-ul poye
 Minki-top Chelsu-nom Sujin-dat self -gen
 photo-acc show
 chuossta-ko] malhessta
 gave -that said

¹⁶ Note that *caki* can be interpreted as a coreferential with any third person NP (Kim:2001)

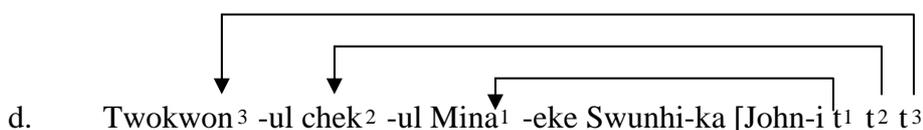
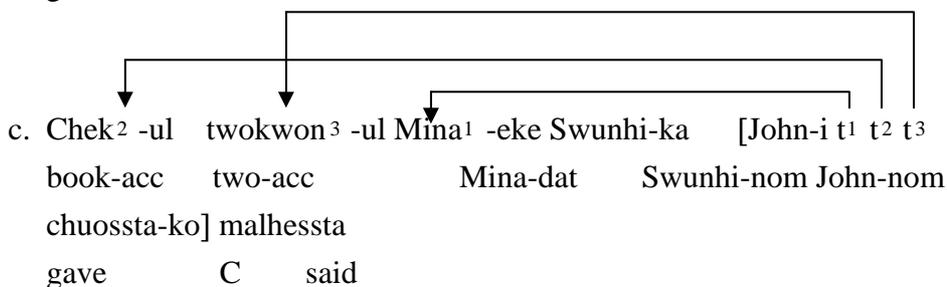
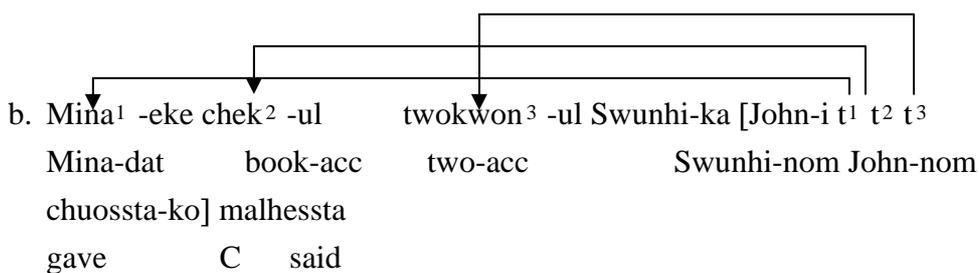
'Minkiⁱ said that Chelsu^j showed Sujin^k self^{i > j > k}'s photo.'

The violation of Binding Condition A yields the ungrammaticality of (38a). In contrast, in (38b), the pronominal *kutul*, which is scrambled from the embedded clause to the matrix IP-adjoined position, can bind the anaphor. Given that the monomorphemic reflexive in Korean can take a long distance antecedent as in (29), repeated in (39), and the matrix IP-adjoined NP c-commands an anaphor as in (38b), for the verification of the acceptability of (38b), one more condition should be satisfied: that the matrix IP-adjoined positions are argument positions.

As we noted in section 4.1, Korean is the multiple subject language which has the multiple specifiers of a single head, i.e. IP-adjoined positions can be considered to be argument positions. The following examples support the notion that the matrix IP-adjoined positions in Korean are argument positions, regardless of the matrix or embedded IP-adjoined positions:

(40) Korean

- a. Swunhi-ka [John-i Mina-eke chek-ul twokwon-ul chuossta-ko]
 Sunhi-nom John-nom Mina-dat book-acc two-acc gave that
 malhessta
 said
 'Swunhi said that John gave two books to Mina.'



two -acc book-accMina-dat Swunhi-nom John-nom
 chuossta-ko] malhessta
 gave C said

In (40b-d) three NPs are scrambled from the embedded clause to the IP-adjoined matrix clause without RM or an intervention effect. As we see, however, they differ in that in (40b) the paths are crossed, (40d) nested, while (40c) has the mixed form of (40b) and (40d), not obeying shortest move. This indicates that the matrix IP-adjoined positions in Korean are argument positions. Otherwise, (40b-d) should exhibit RM or an intervention effect.

With this in mind, consider again (38b), repeated in (41):

(41) Korean

Kutulⁱ -ul caki-tulⁱ -uy chinku-ka [Minki-ka eⁱ pinanhessta-ko]
 they-acc self-PL-gen friends-nom Minki-nom criticized that
 malhessta
 said

'Self-PLⁱ 's friends said that Minki criticized themⁱ

As we noted, the monomorphemic reflexive caki in Korean can be bound long distantly, and the matrix IP-adjoined positions are argument positions. Of course, in (41) the scrambled NP c-commands caki-tul. Therefore, in (41) the scrambled NP can be coreferential with the monomorphemic anaphor caki-tul. This fact leads us to assume that LDS in Korean exhibits A-properties.

If the involved reflexive is the polymorphemic reflexive caki-casin-tul, however, then the NP which is extracted from the embedded clause to the matrix IP-adjoined position cannot bind the polymorphemic reflexive caki-sacin-tul, as in (42):

(42) Korean

*Kutulⁱ -ul caki-casin-tulⁱ -uy chinku-ka [Minki-ka eⁱ pinanhessta-ko]
 they-acc self-PL-gen friends-nom Minki-nom criticized that
 malhessta
 said

'Self-PLⁱ 's friends said that Minki criticized themⁱ

(43) Korean

Minkiⁱ -nun[Chelsu^j -ka Sujin^k -eke caki-sasin^{*i/*j/k}uy cachin-ul poye
 Minki-top Chelsu-nom Sujin-dat self -gen
 photo-acc show
 chuossta-ko] malhessta
 gave -that said
 'Minkiⁱ said that Chelsu^j showed Sujin^k self^{*i/*j/k}'s photo.'

Despite the fact that in (42) the matrix IP-adjoined positions are argument positions, and the scrambled NP c-commands caki-casin-tul, (42) is ruled out, since in (42) the NP which is extracted from the embedded clause to the matrix IP-adjoined position cannot bind the polymorphic reflexive caki-casin-tul, which should be bound in a local domain. This means that the polymorphic reflexive caki-casin-tul in Korean cannot be bound long distantly as in (36), repeated in (43), unlike the monomorphemic reflexive caki-tul.

To summarize, Saito argues that LDS in Japanese exhibits only A'-properties, since the long scrambled NP cannot be coreferential with an anaphor in the matrix clause. Contradicting Saito's proposal, I have analyzed the Korean counterpart example from another aspect, according to which the long scrambled NP can bind the monomorphemic anaphor in the matrix clause, while it cannot bind the polymorphic anaphor in the matrix clause. This fact tells us that LDS in Korean exhibits A and A' properties just like the case of CIS. In order to see the binding relation of VP adjoined LDS the section 5.1.2 concerns the properties of VP-adjoined LDS.

5.1.2 VP-adjoined LDS

As we observed in section 4.2, Korean is a multiple object language, which means that the multiple specifiers of a single head, v, can be regarded as the multiple objects. This means that the VP-adjoined positions are narrowly L-related A-positions lacking RM or an intervention effect, since the VP-adjoined positions are the positions of the multiple specifiers of a single head, v. As a result, scrambling of multiple specifier across another multiple specifier is permitted as in (71) in section 4.2, repeated in (44):

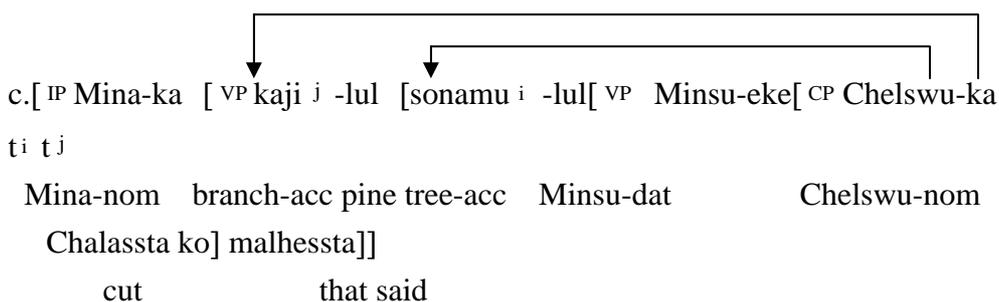
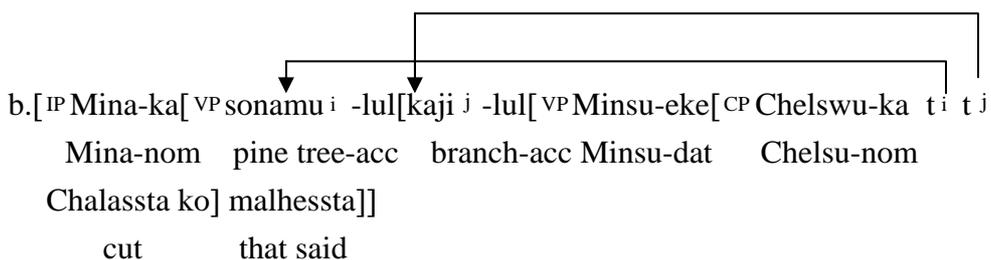
(44) Korean

- a. Minki-ka suhak-ul kongpu-lul ha-n-ta
 Minki-nom math-acc studying-acc do-pres-decl
 'Minki studies math.'
- b. [^{IP} Minki-ka [^{VP} kongpu-lul_i [^{VP} suhak-ul t_i-ha-n-ta]]]
 Minki-nom studying-acc math-acc do-pres-decl

Similarly, given that the intermediate trace can be deleted, if the initial trace is theta-marked, scrambling of the multiple objects from the embedded clause to the matrix VP-adjoined positions takes place showing no RM or an intervention effect, as in (45):

(45) Korean

- a. Mina-ka Minsu-eke [^{CP} Chelswu-ka sonamu-lul kaji-lul chalassta ko]
 Miina-nom Minsu-dat Chelswu-nom pine tree-acc branch-acc cut that
 malhessta
 'Mina said to Minsu that Chelswu cut the branch of a pine tree.'



The embedded clause in (45) has the multiple objects known as the multiple object construction. Since the multiple objects can be counted as the multiple specifiers of a single head, *v*, multiple objects as the multiple goals can ϕ -agree with probe, *v*, for the deletion of the uninterpretable ϕ -features of *v* and the structural accusative Case of the multiple goals without an intervention effect. This indicates that the paths can be crossed as in (45b)

or nested as in (45c), i.e. (45b-c) are not subject to shortest move, one of economy principles. Consequently, the multiple objects can be scrambled from the embedded clause to the matrix VP-adjoined positions without RM or an intervention effect as in (45c), because VP-adjoined positions in Korean, described as the multiple object language, are the positions of the multiple specifiers of a single head, *v*. That is, VP-adjoined positions in Korean are argument positions regardless of the matrix or embedded VP-adjoined positions.¹⁷

Accordingly, the dative and accusative objects from the embedded clause to the matrix VP-adjoined positions can be extracted without RM or an intervention effect:

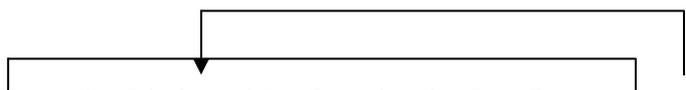
(46) Korean

a. Minki-ka [_{VP}Swunhi-eke [_{CP} Sujin-i Minsu-eke chek-ul sonmulhessta-ko]
Minki-nom Swunhi-dat Sujin-nom Minsu-dat book-acc presented that
malhessta
said

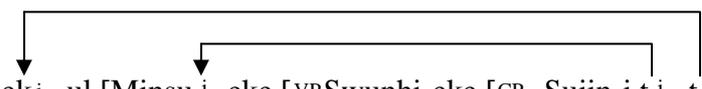
'Minki said to Swunhi that Sujin presented Minsu with a book.'

b. Minki-ka [_{VP}chekⁱ -ul [_{VP}Swunhi-eke [_{CP} Sujin-i Minsu-eke tⁱ
Minki-nom book-acc Swunhi-dat Sujin-nom Minsu-dat
sonmulhessta-ko] malhessta
presented that said

c. Minki-ka [_{VP}Minsu^j -eke [chekⁱ -ul [_{VP}Swunhi-eke [_{CP} Sujin-i t^j tⁱ
Minki-nom Minsu-dat book-acc Swunhi-dat Sujin-nom
sonmulhessta-ko] malhessta
presented that said



d. Minki-ka [_{VP}chekⁱ -ul [Minsu^j -eke [_{VP}Swunhi-eke [_{CP} Sujin-i t^j tⁱ
Minki-nom book-acc Minsu-dat Sunhi-dat Sujin-nom
sonmulhessta-ko] malhessta
presented that said



¹⁷ Given that the intermediate trace can be deleted, if the initial trace is theta-marked, the extraction of element from the embedded clause to the matrix adjoined positions raises no problem, as long as the moved elements are objects. In other words, scrambling of objects in Korean is not subject to locality condition.

As we observed above, long distance multiple scrambling in Korean is not ruled out, as in (46c-d). In (46b) the accusative object and in (46c-d) the dative and accusative objects are extracted from the embedded clause to the matrix VP-adjoined positions. However, (46c) and (46d) differ such that in (46c) the paths are crossed, satisfying shortest move, while in (46d) the paths are nested, violating shortest move in the sense of Richards (1999 and 2001). The fact that VP-adjoined positions in Korean are the positions of the multiple specifiers of a single head, *v*, contributes to this result.¹⁸

Bearing this in mind, next consider the binding relation of NP which is scrambled to VP-adjoined positions long distantly as in (48), in order to compare it with that of NP which is scrambled to IP-adjoined positions as in (47):

(47) Korean

- a. * Caki-tulⁱ -uy chinku-ka Chelswu-eke [Minki-ka
kutulⁱ -ul
self-PL-gen friends-nom Chelswu-dat Minki-nom they-acc
pinanhessta ko] malhessta
criticized that said
'Self-plⁱ 's friends said to Chelswu that Minki criticized themⁱ
- b. [^{IP} Kutulⁱ -ul [^{IP} caki-tulⁱ -uy chinku-ka Chlswu-eke [^{CP} Minki-ka eⁱ
they-acc self-pl-gen friends-nom Chelswu-dat Minki-nom
pinanheaata-ko] malhessta
criticized that said
'Self-plⁱ 's friends said to Chelswu that Minki criticized themⁱ

(48) Korean

- a. * Caki-tulⁱ -uy chinku-ka Chlswu-eke [Minki-ka kutulⁱ -ul

¹⁸ Unlike VP-adjoined LDS in Korean, VP-adjoined LDS in Japanese is severely degraded as in (1a). In contrast, IP-adjoined LDS is fully acceptable as in (1b). From this observation, Saito/Fukui (1998) point out that VP-adjoined LDS exhibits the locality of A-movement:

(1) Japanese (Saito/Fukui 1998:453)

- a. [^{IP} John-ga [^{VP} Bill-ni [^{CP} Mary-ga sore-o motteiru to] itta]] (koto)
John-nom Bill-to mary-nom it-acc have that said fact
'John said to Bill that Mary has it.'
- b. [^{IP} Sore-o_i [John-ga [^{VP} Bill-ni [^{CP} Mary-ga t_i motteiru to] itta]] (koto)
- c.?? [^{IP} John-ga [^{VP} sore-o_i [Bill-ni [^{CP} Mary-ga t_i motteiru to] itta]] (koto)

- self-PL-gen friends-nom Chelswu-dat Minki-nom they-acc
 pinanhessta-ko] malhessta
 criticized that said
 *'Self-plⁱ 's friends said to Chelswu that Minki criticized themⁱ
- b. *[^{IP}Caki-tulⁱ -uy chinku-ka[^{VP}kutulⁱ -ul Chelswu-eke[^{CP}Minki-ka eⁱ
 self-pl-gen friends-nom they-acc Chelswu-dat Minki-nom
 pinanhessta-ko] malhessta
 criticized that said
 'Self-plⁱ 's friends said to Chelswu that Minki criticized themⁱ

(47) and (48) are identical except that in (47b) the NP is scrambled to IP-adjoined position, while in (48b) the NP is extracted to VP-adjoined position. As we see, however, (47b) is acceptable and (48b) is not. The facts that in (47b) the scrambled NP c-commands the full subject and in (48b) the scrambled NP is still c-commanded by the full subject, yield this difference. Then it appears that the NP, which is long distantly scrambled to VP-adjoined positions, cannot create a new binding relation, unlike (47b). This tells us that VP-adjoined LDS shows only A'-properties.

To summarize, since the positions of the multiple objects can be regarded as the positions of the multiple specifiers of a single head, v, RM or an intervention effect in VP-adjoined LDS in Korean is absent. Although VP-adjoined positions are argument positions, however, VP-adjoined LDS does not create a new binding relation, i.e. VP-adjoined LDS poses only A'-properties.

5.2 LDS in Russian and German

Like the case of Korean and Japanese LDS, LDS in Russian is also allowed as shown by (49-50):

(49) Russian (Meyer 2002:63)

[^{IP} etu kniguⁱ [^{IP} ty [^{VP} dumaes [^{CP} cto on pricital tⁱ]]]
 this book you believe that he has-read

(50) Russian (Meyer 2002:63)

ty [^{VP} noskiⁱ [^{VP} znajes [^{CP} cto ya uze kupil tⁱ]]]
 you socks know that I already has-bought

(51) Russian (Zemskaja 1973 adopted from M?ler/Sternefeld 1993:469-70)

a. ya byl [^{CP} [^{NP} nozju skolu]_i] [^{CP} gde strojat t_i]]

I was new school-acc where they-build

'I have been where they are building the new school.'

b. Ty znaes [^{CP} petr Ivanyc_i] [^{CP} cto [^{IP} t_i uze priexal]]]?

you know Peter Ivanich-nom that already came

'Do you know that Peter Ivanich has already come?'

In (49-50) the object is extracted out of the embedded clause to the matrix IP and VP adjoined positions, while in (51a) the object and in (51b) subject are scrambled from the embedded clause to the matrix CP-adjoined position. This means that Russian LDS has the option of intermediate adjunction to CP¹⁹ unlike the LDS in Korean and Japanese in which LDS takes place from the embedded clause to the matrix IP and VP adjoined positions. In connection with this, in the literature (Saito 1985;1992 and 1998, Grewendorf/Sternefeld 1990, Lee 1992, M?ler/Sternefeld 1993 Mahajan 1994, Kidwai 2000 and many others) scrambling in Korean and Japanese is described as IP VP-adjunction, and scrambling in Russian is referred to IP VP CP-adjunction. This indicates that adjunction sites are parametrized across languages.

With respect to CP-adjunction in Russian, assuming that the extraction from the CP should occur in successive-cyclic fashion, M?ler/Sternefeld (1993) propose that proper movement in UG is constrained by the Principle of Unambiguous Binding (PUB) as in (52):

(52) Principles of Unambiguous Binding (PUB) (M?ler/Sternefeld 1993:461)

A variable that is α -bound must be β -free in the domain of the head of its chain (where α and β refer to different types of positions)

According to them, LDS in Russian may not use [Spec CP] as an escape

¹⁹ Hindi-Urdu (Kidwai 2000:35)

nur-ko_i me janti hu tum s?b log t_i boh?t pyar k?rte ho
 Noor-dat I know am you all people lot love do are
 'Noor, I know, all of you love a lot.'

Kidwai notes that in Hindi-Urdu CP-adjunction is also allowed in the course of long distance movement.

hatch due to the violation of PUB. In contrast, the option of adjunction to CP in the course of a derivation does not violate PUB, since adjunction to CP voids the barrier.

As is well known, however, adjunction to CP in Korean is not permissible. Nevertheless, scrambling of the object from the embedded clause to the matrix IP-adjoined position is allowed, as in (53), because the intermediate trace can be deleted if the initial trace is theta marked, as noted by Lasnik/Saito (1984) and Lasnik (1999), yielding an uniform chain which is legitimate at LF.

(53) Korean

[^{IP}Chinkuⁱ -rul [^{IP}Minki-ka[^{CP} Swunhi-ka korieso tⁱ manassta ko]
 friend-acc Minki-nom Swunhi-nom on the street met that
 malhessta]]
 said

'A friendⁱ , Minki said that Swunhi met tⁱ on the street.'

Then, given that PUB is only available under the assumption that traces of scrambling chains cannot be deleted on the way to LF, it is predicted that LDS in Korean is not constrained by PUB.

As we observed in section 5.1.1.1, PP scrambling in Korean is not ruled out as in (7), repeated in (54):

(54) Korean

[^{IP}Koriesoⁱ [^{IP}Minki-ka[^{CP} Swunhi-ka chinku-lul tⁱ manassta ko]
 on the street Minki-nom Swunhi-nom friend-acc met -that
 malhessta]]
 said

'[On the street]ⁱ , Minki said that Swunhi met a friend. tⁱ '

Recalling that CP-adjunction in Korean is excluded and the deletion of the intermediate trace is only allowed if the initial trace is theta-marked, the only possible option in (54) is the use of the [Spec CP] as an escape hatch in the course of derivation. However, PUB blocks this option, since in the scrambling chain in (54) two different types of movements are involved, yielding nonuniform chain. Nonetheless, (54) is acceptable. From this observation I assume that PUB is not available for LDS in Korean.

Returning to Russian again, it is interesting to know that in Russian scrambling of adverbs and split scrambling are not ruled out:

(55) Russian (Bailyn 2001:648)

- a. Ja xocu, ctoby oni bystro dopisali kursovye.
 I want that they quickly wrote papers
 'I want them to write their papers quickly.'
- b. Ja bystroⁱ xocu, ctoby oni tⁱ dopisali kursovye
 I quickly want that they wrote papers
- c. Ja zelenujuⁱ xocu, ctoby ty kupila [tⁱ knigu]
 I green-acc want that you boughtt book-acc
 'I want you to buy a green book.'

In (55b) the manner adverb *bystro* (quickly) is scrambled from the embedded clause to the matrix VP-adjoined position, and in (55c) an attributive adjective is extracted from the embedded clause to the matrix VP-adjoined position. As we discussed in chapter 3, scrambling of nonarguments which have nothing to do with ϕ -features as in (55b-c) cannot be explained in terms of scrambling as a last resort view of move α , since on this account, according to which movement takes place only for the morphological requirements such as Case assignment or feature checking, only NPs, which have ϕ -features, can be scrambled. Similarly, scrambling of nonarguments as in (55b-c) is not consistent with scrambling as a base generated approach, since nonarguments do not have ϕ -features. This leads us to suppose that scrambling in (55b-c) is optional movement.

Just like the case of LDS in Korean, the extraction of elements from the adjunct-clause is excluded, as noted by Yadroff (1991):

(56) Russian (cited from Meyer 2002:59)

[^{IP} *Yse [^{VP}grozaⁱ [^{VP} usnuli [kogoda [^{IP} tⁱ koncilas]]]]
 all thunder character-are when
 to-end-was

(57) Korean

*[^{IP}chekⁱ -lul[^{IP} Sujin-i[^{CP} Minki-ka tⁱ ilopori-myoon] hawa-lul naen]]-ta
 book-acc Sujin-nom Minki-nom lose if be

angry decl

'A bookⁱ, if Minki loses tⁱ, Sujin is angry.'

In (56-57) the embedded adjunct clauses are always barriers because they are not directly selected. Thus, the extraction from the embedded adjunct clause always yields the violation of ECP, irrespective of the extraction of arguments.

As far as UG principles are concerned, the following examples show that movement constraints such as Subjacency and the Coordinate Structure Constraint are active LDS in Russian:

(58) Russian (Bailyn 2001:647)

*Borisaⁱ try pozvoni agentu, kotoryj ljubit tⁱ
 Boris-acc you-nom phone spy-dat who loves
 'Its BORIS you phoned a spy who loves

(59) Russian (Bailyn 2001:647)

*Borisaⁱ try xoces, ctoby Ivan videl [tⁱ i Masu].
 Boris-acc you want that Ivan saw Masha-acc
 'BORIS you want Ivan to see and Masha.'

(58) in which the argument is scrambled from the embedded clause to the matrix IP-adjoined position is ungrammatical due to the violation of Subjacency. Also, (59), in which the argument is extracted from the Coordinate Structure to the matrix IP-adjoined position, violates Coordinate Structure Constraint, being ungrammatical.

So far we have discussed that LDS in Korean, Japanese, Russian and Hindi-Urdu is a successive-cyclic adjunction, although the adjunction sites are parametrized across languages. Then, it appears that for LDS in German, also considered to be a scrambling language, a successive-cyclic adjunction would be permitted. This prediction, however, is not borne out, as in (60):

(60) German (M?ler/Sternefeld 1993:465)

a. *... da niemand [VP Puddingⁱ [VP sagt [CP tⁱ da sie tⁱ mag]]]
 that nobody pudding says that she likes
 '... that nobody says that she likes pudding.'

- b. *... da [^{IP} Pudding_i [^{IP} niemand sagt [^{CP} t_i da sie t_i mag]]]
 that pudding nobody says that she likes
- c. * Gestern sagte [^{IP} Pudding_i [^{IP} niemand [^{CP} t_i w[?]de_j [^{IP} sie t_i
 yesterday said pudding nobody would she
 moegen t_j]]]]
 like

(61) Korean

[^{IP} Chinku_i -lul [^{IP} Minki-ka [^{CP} Swunhi-ka korieso t_i manassta ko]
 friend-acc Minki-nom Swunhi-nom on the street met that
 malhess]]-ta
 said decl

(62) Japanese

[^{IP} sono hon-o_i [^{IP} John-ga [^{CP} Mary-ga t_i katta to]
 that book-acc John-nom Mary-nom bought COMP
 omote iru]] (koto)
 think fact

In (60a-b), scrambling takes place from the embedded *da* -clause to the matrix VP or IP-adjoined positions, while in (60c) scrambling occurs from a V/2 clause to the matrix IP-adjoined position. As we see, however, (60a-c) are not allowed, unlike the cases of Korean and Japanese in (61) and (62). In connection with this, Müller/Sternefeld (1993) point out that (60a-c) are excluded because of the violation of Principle of Unambiguous Binding (PUB), which is articulated within the theory of improper movement. According to them, since intermediate traces in German are not deletable in scrambling chains, in (60a-c) the variables *t_i* are bound by their antecedents in a VP or IP-adjoined positions and in the intermediate trace in SpecC, i.e. in (60a-c) movement from one type of A'-position to another type of A'-position is involved. Hence, they violate PUB, not allowing scrambling out of the finite clauses.

On the other hand, a special class of verbs such as *versuchen* (try), *beginnen* (begin) and *hoffen* (hope) allows scrambling out of their infinitival complements as in (63):

(63) German (Grewendorf/Sabel 1994:279)

[^{C'} da [^{AgrP}[den Hund]_i [^{AgrP} keiner [^{CP} t_i zu f?tern] versuchte]]]
 that the dog-acc nobody-nom to feed tried

Grewendorf/Sabel (1994) indicate that in (63) abstract incorporation between the embedded and matrix verb has occurred, unifying two different heads as one head by incorporation of their heads. Therefore, assuming that the infinitival is transparent in the overt syntax, in (63) the embedded CP is not considered to be a barrier for its specifier, making it possible that the embedded object can move to the matrix AgrP in a single step, not crossing a barrier. As a consequence, they conclude that German does not permit a successive-cyclic adjunction.

To summarize, LDS in Korean, Japanese, and Russian is a process of successive-cyclic adjunction, targeting the different landing sites. Despite this similarity, however, they are grammatical for different reasons. For example, for LDS in Korean and Japanese which have no option of intermediate CP- adjunction, the intermediate traces can be deleted, if the initial trace is theta-marked, while for LDS in Russian intermediate CP-adjunction is available. Unlike these two types of languages LDS in German, also described as a scrambling language, neither the deletion of the intermediate trace, nor the option of intermediate CP-adjunction in scrambling chains are allowed. Therefore, LDS in German is ruled out, except scrambling out of infinitival complements for a special class of verbs.

5.3 Conclusion

In order to show that scrambling operation in scrambling languages cannot be explained in terms of economy principles, in section 5.1.1.1 I have discussed that LDS in scrambling languages such as Korean and Japanese is constrained by UG principles, because scrambling is an instance of move- α . Given that the intermediate trace in scrambling chains in Korean and Japanese can be deleted, if the initial trace is theta-marked, thus scrambling of the object from the embedded clause to the matrix IP-adjoined positions is permissible, whereas the extraction of subject is not. In sections 5.1.1.2 and 5.1.2 I have shown that due to the fact that Korean is a multiple subject-and-object language as noted in chapter 3, according to which IP and VP adjoined positions are the positions of the multiple specifiers of a single

head, T and v, respectively, LDS in Korean lacks RM or an intervention effect, regardless of IP and VP adjoined LDS.

In section 5.1.1.3, contradicting Saito's assumption that the long scrambled NP in Japanese cannot act as a binder with an anaphor in the matrix clause, I have argued that the long scrambled NP in Korean can be coreferential with the monomorphemic anaphor *caki* in the matrix clause, since the monomorphemic anaphor *caki* can be bound long distantly and the long scrambled NP, which c-commands the subject, is located in narrowly L-related position. In order to distinguish cross-linguistic variation, in section 5.2 I have compared LDS in Korean with that in Russian and German. From this comparison, I have obtained the result that LDS-chains in Japanese and Korean can be deleted, if the initial trace is theta-marked, while LDS-chains in Russian have the option of the intermediate CP-adjunction. On the other hand, for LDS-chains in German neither the deletion of the intermediate trace, nor the option of the intermediate CP adjunction are available. These facts indicate that the properties of LDS are parametrized across languages.

Chapter 6: The Properties and Scrambling of Wh-Phrases

Assuming that scrambling is an optional movement operation, in chapters 4 and 5, I have explored the properties of CIS and LDS separately. In this chapter, the properties of wh-scrambling will be examined. In general, regarding overt wh-movement, two options are available; wh-movement to specifiers of CP, or wh-movement to IP or VP-level projection, known as scrambling. Overt wh-movement in English, German and Slavic languages belong to the former type of wh-movement. In these languages, which have no Q-morpheme, wh-phrases move to [Spec CP] to satisfy the EPP-feature on C. From the fact that scrambling is an IP or VP-level projection, as discussed in previous chapters, it is expected that wh-scrambling can be considered to be the latter type of wh-movement. Since w-interrogative clauses in Korean and Japanese have a Q-morpheme, i.e. EPP-feature on C is satisfied by the presence of Q-morpheme, in these languages overt wh-movement to [Spec CP] is excluded. From this observation, I will argue that wh-scrambling in Korean and Japanese, in which wh-phrases move to IP or VP adjoined positions without the morphological requirements, is optional. Section 6.1 contains these properties of wh phrases in UG.

This optionality contributes to the result that the scrambling of wh-phrases at LF is undone, noted by Saito (1989). However, wh-scrambling at LF is not always undone. In order to prove this, following Rizzi (2002), who points out that the class of A'-positions splits into subclasses such as quantificational elements, including wh, Neg, measure and focus, and topic, I will propose that with respect to wh-scrambling at LF, quantifiers, Neg and focus can be counted as interveners for wh-scrambling, while topic is not an intervener on wh-movement at LF. Under this assumption, wh-scrambling across the elements which do not belong to the same feature class as wh-phrase can be undone, whereas wh-scrambling over the elements which belong to the same feature class as wh-phrase cannot be undone, since an intervention effect is exempted by wh-scrambling across the interveners. In section 6.2, I will investigate the properties of wh-scrambling.

6.1 The properties of wh-phrases in UG

In the literature it is supposed that as long for wh-phrases, specifically the

main ways of forming wh-multiple questions, are concerned, there are three¹ different types in the world's languages (Chomsky 1993, Grimshaw 1997, Richards 1999;2001, Boskovic 2000;2002, Pesetsky 1982;2001, Grewendorf 2001;2002 Rizzi 2000 and many others). For example, in wh-multiple questions in languages such as English and German, one wh-phrase undergoes fronting, leaving the rest in situ, while in Korean and Japanese all wh-phrases remain in situ.² On the other hand, in Bulgarian and Serbo-Croatian, which are described as another class of languages, all wh-phrases undergo fronting, targetting different landing sites. In the next sub-sections, I will examine the properties of wh-phrases in multiple-wh questions in three language types.

6.1.1 Wh-multiple questions in English and German

As mentioned above, in the treatment of wh-phrases in multiple questions in English and German, one wh-phrase moves to [Spec CP] leaving other wh-phrases in situ for the satisfaction of the EPP-feature on C. However, they differ in that English wh-multiple questions show Superiority effect, while in German short multiple questions, Superiority effect is absent. Therefore, in the next sections, English and German multiple questions will be separately discussed.

¹ Boskovic (2000;2002) classifies French as the fourth type in that French displays both the English and the Japanese patterns.

² In regard to overt and covert movement of wh-words, it is noted in the literature (Cheng 1991, M?ler 1997 and Grewendorf 2001) that languages with overt wh-movement, e.g., English and German, contain no lexical question markers as given in (a-b), while languages such as Korean and Japanese, in which all of wh-phrases stay in situ, have Q-morpheme in C_{+wh} positions as shown in (c-d):

- a. What_i did John buy t_i where?
 b. Was_i kaufte Maria t_i wo? (German)
 what bought Maria where
 'What did Maria buy where?'
 c. [Swunhi-nun muoss-ul odieso sa -ss] -ni? (Korean)
 Swunhi-top what-acc where buy-past Q
 'What did Swunhi buy where?'
 d. [Hanako-wa nani-o dokode kaita] -ka? (Japanese)
 Hanakoi-top what-acc where bought Q
 'What did Hanako buy where?'

6.1.1.1 WH-multiple questions in English

- (1) a. Who₁ t₁ bought what?
 b. *What₁ did who buy t₁ ?
 c *You gave what to whom?
 d What did you give t to whom (Rizzi 2001:220)

(1a), (1b) and (1d)) are identical such that one wh-phrase moves to [Spec CP] at S-structure leaving another wh-phrase in situ, i.e. in (1a, 1b and 1d) EPP-feature on C is satisfied. On the other hand, (1a) and (1d) are distinguished from (1b) by the fact that in (1a) and (1d) the highly located wh-phrase moves to [Spec CP], satisfying Superiority, whereas in (1b), the lowly located wh-phrase moves to [Spec CP], violating Superiority due to the RM effect in Rizzi's sense (1990), or in terms of Chomsky an intervention effect. More precisely, *who* in (1a), and *what* in (1d), located closer to the C than any other wh-phrase, moves to [Spec CP], eliminating the uninterpretable Q-feature of C-and-wh by the matching process of agree for the satisfaction of FI. In contrast, in (1b), where *what*, located lower to the C than *who*, moves to [Spec CP], *who* cannot agree with a head, C, probe, violating FI. That is, in (1a) and (1d), the EPP-feature on C as well as FI are satisfied, and in (1b), only the EPP-feature on C is satisfied, but not FI.

Wh-movement in (1a) and (1d), in which it obeys both c-command and the locality condition, is described as overt, since the moved wh-phrase is pronounced in its new position and unpronounced in its trace position, affecting the phonology (cf Pesetsky 2001). If we compare (1a, b and d), where the EPP-feature on C is satisfied, with (1c), (1c), in which two wh-phrases stay in situ, violates the EPP-feature on C. This means that there is no possibility for head, C, to Q-agree with goal, wh-phrase, thereby, the uninterpretable features of C and wh-phrase cannot be deleted, rendering the derivation crash due to the violation of FI.

As we see in (2a'), however, Superiority effect disappears with D-linking.

- (2)a. Which person _i bought which book?(Pesetsky 2001:16-17)
 a' Which book did which person buy _i ?

D-linked wh-phrases introduced by Pesetsky (1987 and 2000) have a referential index in the sense of Rizzi (1990:86), according to which "A referential index must be licenced by theta-role assignment." Thus, the extraction of the D-linked wh-phrase from wh-islands is allowed because of the possibility of a long distance binding relation, as given in (2a'). On the other hand, non D-linked wh-phrase does not have a referential index, which indicates that the movement of non-D-linked wh-phrases from wh-island violates ECP, due to the potential governor (intervenor) in A'-Specs as shown in (1b).

6.1.1.2 Wh-multiple questions in German

Just like the wh-multiple questions in English, in the wh-multiple questions in German, one wh-phrase moves to [Spec CP], leaving another wh-phrase in situ, in order that a wh-operator must be in a Spec-head configuration with X_{+wh} , which is needed for the deletion of the uninterpretable Q-feature of wh-phrase and the uninterpretable Q-feature of probe, C, by the matching process of agree, as shown in (3):

- (3)a. Wer liebt wen?
 who-nom loves who-acc
 b. Wen liebt wer?
 who-acc loves who-nom
 c. *What did who buy?

In (3a) *wer*, which is located higher than *wen*, moves to [Spec CP], satisfying Superiority. In contrast, (3b) violates Superiority by fronting of *wen*, which is not the closest to C. Nevertheless, (3b) is grammatical, unlike the English counterpart example (3c), which is ungrammatical. Then it is easy to assume that wh-multiple questions in German lack the Superiority effect (Haider 1997, Grewendorf 2001, Müller 1997, Richards 2001 and Pesetsky 2001). In order to explain the lack of Superiority effect in German, Grewendorf develops the Wh-Cluster Hypothesis (2001:94), which states that "a particular feature of a wh-element acts as a checker for other wh-elements (wh-arguments as well as wh-adjuncts)." Under his Wh-Cluster Hypothesis, (3b) has Wh-cluster, which consists of wh-object *wen* and wh-subject *wer*, making it possible for the wh-object to cross the wh-subject, in order to arrive [Spec CP] without the violation of

Superiority.³ In (3c), however, wh-cluster cannot be formed, due to the notion that Wh-phrase of multiple question in English is unambiguously interrogative. Consequently, in (3c) the wh-object can not cross the wh-subject to get into [Spec CP], exhibiting Superiority effect.

Unlike short wh-multiple questions which exhibit no Superiority, long wh-multiple questions in German show Superiority, as given in (4):

- (4)a. Wer - glaubt, da Hans wen gesehen hat?
 who believes that Hans whom seen has
 'Who believes that Hans saw who?'
- b. ??Wen glaubt wer, da Hans - gesehen hat?
 whom believes who that Hans seen has
 'Whom does who believe that Hans saw?'

Grewendorf's Wh-Cluster Hypothesis explains this phenomenon as follows: In (4b), wh-object *wen* should adjoin to the matrix wh-subject to form wh-cluster. However, it is not possible that the embedded object moves further, since the object which passes through the embedded [Spec CP] is not allowed to undergo adjunction due to the notion that this kind of movement causes improper movement. As a result, in (4b), wh-cluster can not be formed, ruling out that the extracted wh-object *wen* crosses the wh-subject *wer* to reach [Spec CP].

In my view, however, in (4b) the extracted element is an argument, which is theta-governed by the verb. So it appears that unlike adjunct, which is antecedent-governed, wh-object does not need to obey the locality restriction. Then, wh-object can adjoin to the matrix subject by one swoop without an intermediate step to the embedded [Spec CP] position, not causing improper movement. If my assumption is correct, in (4b) wh-cluster

³ From another aspect, Pesetsky (2001) tries to explain the absence of Superiority effect in German wh-multiple questions and the presence of Superiority effect in English wh-multiple questions. According to him, the German lexicon contains $C_{1\text{-spec}}$, which states that $C_{1\text{-spec}}$ requires one wh-specifier, but lacks $C_{m\text{-spec}}$, which means that $C_{m\text{-spec}}$ requires more than one wh-specifier, while English wh-multiple question involves $C_{m\text{-spec}}$. This results that German wh-multiple questions lack Superiority effect, since $C_{1\text{-spec}}$ is only what German must use, not ruling out that either *wer* in (3a) or *wen* in (3b) attracts to C. Meanwhile, in English wh-multiple questions, the interrogative complementizer requires at least two specifiers, which are subject to MLC, showing Superiority effect.

can be formed. Then (4b) should obtain no Superiority effect, as in the case of short multiple question.

6.1.2 WH-multiple questions in Slavic languages

Unlike the English and German wh-multiple questions, in which one wh-phrase moves to [Spec CP], leaving other wh-phrases in situ, in Slavic languages such as Bulgarian, Romanian, Serbo-Croatian (SC) and Russian, all wh-phrases should be fronted overtly for the elimination of the uninterpretable Q-feature of wh-phrase and C by the matching process of agree. That is, in Slavic languages the wh-criterion applies at S-structure by movement of all the wh-phrases to [Spec CP] (Rudin 1986, Richards 1997:2001; Grewendorf 2001, Pesetsky 2001 and Boskovic 1997:2002) as shown in (5-7):

(5) Bulgarian (Rudin 1986:115 and Boskovic 1995a:13-14)

a. Koj kogo e vidjal?

who whom saw-3s

'Who saw whom?'

b.*Kogo koj e vidal?

a' Koj kogo kakvo e pital

who whom what AUX asked

'Who asked whom what?'

b' Koj kakvo kogo e pital

c. Koj kogoto obica, toj za nego i govori

who whom loves he about him even talks

d.*Kogoto koj obica, toj za nego/za nego toj i govori

(6) SC (Boskovic 2002:353)

a. Ko koga voli?

who whom loves

'Who loves whom?'

b. Koga ko voli?

c. [Ko koga voli], taj o njemu i govori

who whom loves that-one about him even talks

d.?*[Koga ko voli], taj o njemu/njemu taj i govori

(7) Russian (Boskovic 2002:354)

a. Kto kogo ljubit?

who whom loves

b. Kogo kto ljubit?

c. Kto kogo uznaet, tot togo i poljubit

who whom knows that-one that and loves

'Everyone will love the person they will know.'

d. Kogo kto uznaet, tot i poljubit.

As indicated in (5-7), all of the wh-phrases move to [Spec CP] overtly, showing parametric variation according to the languages. For example, as shown in (5a, 5a', 5b, 5b', 5c and 5d), in Bulgarian, all of the wh-phrases move to [Spec CP]. However, (5b) and (5d) differ from (5a), (5a'), (5b') and (5c) in that (5b) and (5d), in which the argument precedes the subject, violating MLC, exhibit Superiority effect, no matter which wh-movement, short or long, is involved, while (5a), (5a'), (5b') and (5c), where the subject precedes the wh-object and argument, show no Superiority effect regardless of the involved wh-movement, short or long.⁴ In terms of DBP, in (5a), (5a'), (5b') and (5c) the higher active goal *Koj* Q-agrees with a head, C, whereas in (5b) and (5d) the lower inactive goal *kogo* and *gokoto* located in intervener position blocks for a head, C, to Q-agree with the active goal *Koj*, known as an intervention effect. On the other hand, in SC the presence or absence of Superiority effect is the matter of involvement of short or long wh-movement, as in (6). However, in Russian, the Superiority effect is not observed, irrespective of short and long wh-movement, as in (7).

With respect to multiple fronting of wh-phrases in Bulgarian, assuming that the fronted wh-phrases in Bulgarian are considered to be the multiple specifiers of a single head, C, Richards (2001) classifies Bulgarian as a CP-absorption language, in which multiple wh-fronting might involve multiple adjunction to CP, posing Superiority effect, since the multiple specifiers are not equidistant from the base positions. Given (6d), which exhibits Superiority effect, however, his classification of SC as an IP-absorption language, in which CP has only one specifier and IP has multiple specifiers, is problematic. That is, (6b), where short movement of wh-phrase is involved, can only be described as an IP-absorption language,

⁴ In the literature, this phenomenon is explained in terms of Wh-Clauster Hypothesis (Grewendorf 2001), which is based on feature checking, and the Principle of Minimal Compliance (Richards 1997;2001), relied on Shortest Move.

whereas (6d), in which the wh-phrase moves long distantly, should classify as a CP-absorption language just like Bulgarian. Hence, I assume that only the wh-multiple question in Russian, which exhibits no Superiority effect regardless of short or long movement of wh-phrase, can be described as an IP-absorption language. Accordingly, movement of wh-phrases to IP projection known as wh-scrambling in Russian is possible, as in the case of Korean and Japanese wh scrambling.

6.1.3 WH-multiple questions in wh-situ languages

As noted in the previous sections, English, German and Slavic languages which have overt wh-movement contain no lexical question marker, making overt wh-movement obligatory for the satisfaction of EPP-feature on C, i.e. a wh-operator is in a Spec-head configuration with X_{+wh} by overt wh-movement, which is needed for the deletion of uninterpretable Q-feature of C-and-wh by the matching process of agree in these languages. In contrast, Korean and Japanese have Q-morpheme in C_{+wh} (cf Cheng 1991), *ni* as in (8a) and *ka* as in (9a):

(8) Korean

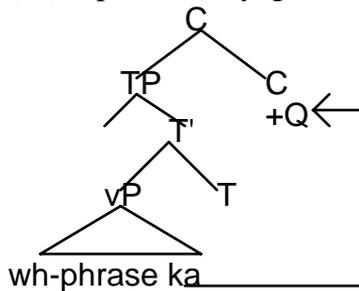
- a. [_{CP} - [_{IP} Swunhi-nun nuku₁ -eke muoss₂ -ul chuoss]-ni]?
 Swunhi-top who-dat what-acc gave Q
 'Who did Swunhi give what?'
 b *Swunhi gave what to whom?

(9) Japanese

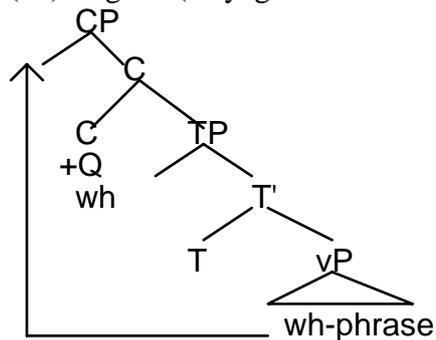
- a. [_{CP} - [_{IP} Taroo-wa dare-ni₁ nani-o₂ ageta]-ka]?
 Taroo-top who-dat what-acc gave Q
 'Who did Taroo give what?'

In these languages wh-operator is in a Spec-head configuration with X_{+wh} by the presence of Q-morpheme, i.e. EPP-feature on C is satisfied without overt wh-movement. This indicates that in (8a) and (9a), in which Q-feature of C-and-wh is borne out by the presence of Q-morpheme, the operation agree applies without overt wh-movement, eliminating the uninterpretable Q-feature of C and wh. In this regard, the feature of C-and-wh in (8a) and (9a) are weak, while that of (8b) strong since in (8b) wh-phrase is not a spec-head configuration with X_{+wh} . As a consequence, in (8a) and (9a),

(10) Japanese (Miyagawa 2001:314)



(11) English (Miyagawa 2001:315)



Given in (10-11), where wh-question in Japanese shows overt movement to C, while wh-question in English exhibits overt movement to [Spec CP], Miyagawa points out that in English, wh-questions in which C is associated with both Q and the wh-feature, the entire wh-phrase must pied-pipe to [Spec CP] for the satisfaction of EPP. On the other hand, in Japanese wh-questions the two features of Q-and-wh are distributed separately so that the wh-phrase occurs for wh and the Q-particle for Q, making it possible that the Q-particle is raised to C, leaving wh-phrase in situ.⁶ From this observation, Miyagawa concludes that the Q-particle raises to C for the satisfaction of EPP-feature on C, in order that Q-feature on C agrees with Q-feature on the Q-particle. As for the wh-phrase in situ, Miyagawa indicates that the wh-feature would agree with the wh-feature on the wh-phrase.

As noted above, however, in Japanese wh-questions Q-feature of C and wh is borne out by the presence of the Q-morpheme, i.e. in terms of DBP the

⁶ If in Japanese wh-questions the two features of Q and wh are distributed separately, e. g. the wh-phrase occurs for wh and the Q-particle for Q, either movement of Q-particle to C or movement of wh-phrase to [Spec CP] is possible. Following Alexiadou/Anagnostopoulou (1998), who suggest that if head movement or phrasal movement will satisfy EPP, then head movement is taken, since head movement which does not extend the structure unlike phrasal movement is more economical than phrasal movement, Miyagawa suggests that for economical reasons the Q-particle raises to C.

of a Q-morpheme in Korean interrogative clauses contributes to the optionality of wh-scrambling. In section 6.2.1.1 I will examine this property. Following Rizzi, (2002) who points out that an intervention effect arises within the same feature class, but not across classes, in section 6.2.1.2 I will show that scrambling of a wh-phrase over operators, which belong to the same feature class, cannot be undone by the exemption of an intervention effect, while scrambling across operators which do not belong to same feature class can be undone.

6.2.1.1 The optionality of clause-internal wh-scrambling

As observed in the previous section, in w-interrogative clauses in Korean and Japanese, being wh-situ languages,⁷ wh-movement to [Spec CP] is excluded as in (14c-d), since the EPP-feature on C is satisfied by the presence of the Q-morpheme. On the other hand, IP or VP-adjunction of wh-phrase, known as scrambling, is allowed (cf. Lee 1992, Kang 1994 and Park 2001 for Korean and Saito 1985;1992, Watanabe 1992, Takahashi 1993 and Tanaka 1997 for Japanese) as in (14e-g):

(14) Korean

- a. [CP - [IP Swunhi-nun nuku₁ -eke muoss₂ -ul chuoss]-ni]?
 Swunhi-top who-dat what-acc gave Q
 'Who did Swunhi give what?'

⁷ Hindi is also a wh-situ language, allowing free scrambling of wh-phrases (Kidwai 2000:36):

- a. Nur-ne sita-ko kiski kitab di t^h i
 Noor-nom Sita-dat whose book-acc gave was
 'Whose book did Noor give Sita?'
 b. Kiski kitab_i nur-ne sita-ko t_i di t^h i
 whose book-acc Noor-nom Sita-dat gave was
 c. [CP - [IP Swunhi-nun nuku₁ -eke muoss₂ -ul chuoss]-ni]? (Korean)
 Swunhi-top who-dat what-acc gave Q
 'Who did Swunhi give what?'

In (b) wh-phrase is scrambled into IP-adjoined position. If we compare (a) with (c), (a) has no Q-morpheme, i.e. EPP-feature on C is not satisfied, while in (c) Q-morpheme is present, which means that the EPP-feature on C is satisfied by the presence of the Q-morpheme. This indicates that in (a), the wh-phrase can be moved overtly to the position where wh-Q property is licensed as noted by S/B (2003) unlike (c), in which overt wh-movement is fully ruled out. Thus, I assume that in Hindi-Urdu both overt wh-movement for feature checking and the scrambling of wh-phrases are not excluded.

- b. * $[_{CP} - [_{IP} \text{Swunhi-nun } \mu\text{oss}_2 \text{-ul nuku}_1 \text{-eke chuoss}]\text{-ni}]?$
 Swunhi-top what-acc who-dat gave Q
- c. * $[_{CP} \text{Nuku}_1 \text{-eke } [_{IP} \text{Swunhi-nun } t_1 \mu\text{oss}_2 \text{-ul chuoss}]\text{-ni}]?$
 who-dat Swunhi-top what-acc gave Q
- d. * $[_{CP} \text{Nuku}_1 \text{-eke } \mu\text{oss}_2 \text{-ul } [_{IP} \text{Swunhi-nun } t_1 t_2 \text{ chuoss}]\text{-ni}]?$
 who-dat what-acc Swunhi-top gave Q
- e. $[_{IP} \text{Nuku}_1 \text{-eke } \mu\text{oss}_2 \text{-ul } [_{IP} \text{Swunhi-nun } t_1 t_2 \text{ chuoss}]]\text{-ni}?$
 who-dat what-acc Swunhi-top gave Q
- f. $[_{IP} \mu\text{oss}_2 \text{-ul nuku}_1 \text{-eke } [_{IP} \text{Swunhi-nun } t_1 t_2 \text{ chuoss}]]\text{-ni}?$
 who-dat who-dat Swunhi-top gave Q
- g. $[_{IP} \text{Swunhi-nun } [_{VP} \mu\text{oss}_2 \text{-u } [_{VP} \text{nuku}_1 \text{-eke } t_2 \text{ chuoss}]]]\text{-ni}?$
 Swunhi-top what-acc who-dat gave Q
- h. $[_{CP} [_{\text{Qua}} [_{\text{SpecQua}} \text{Nuku}_1 \text{-eke } \mu\text{oss}_2 \text{-ul } [_{IP} \text{Swunhi-nun } x_1 x_2 \text{ chuoss}]\text{-ni}]]? \text{(LF)}$
 who-dat what-acc Swunhi-top
 gave Q

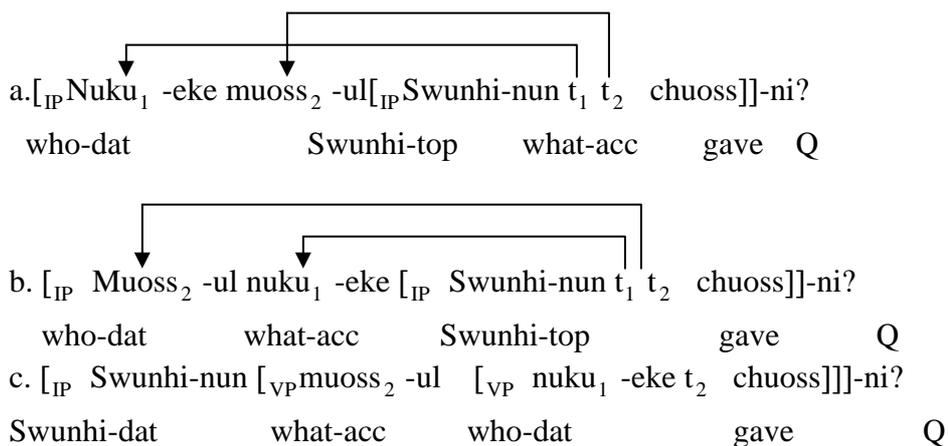
In (14a), by the presence of the Q-morpheme, which has the property of C_{+wh} , wh-phrase as a goal, can Q-agree with a head, C, without wh-movement, eliminating the uninterpretable Q-features of C-and-wh for the satisfaction of FI. Then it is easy to assume that (14c-d), in which wh-phrase overtly moves to [Spec CP], are ruled out. In contrast, as predicted, (14e-g), where wh-phrases do not move to [Spec CP], but to IP or VP-level projection, called scrambling, are permissible. Here, if we compare scrambled versions (14e-g) with (14a), where the base order is maintained, (14e-g) are fully optional since in (14a), in which EPP-feature on C is satisfied by the presence of Q-morpheme *ni* without overt wh-movement, the uninterpretable Q-features of C and wh are eliminated by the matching process of probe and goal. This means that wh-movement in (14e-g) has nothing to do with the morphological properties, as long as Korean w-interrogative clauses have a Q-morpheme.

As far as the semantic interpretation of the wh-phrases is concerned, in the base generated version (14a), wh-phrase should move to scope positions, left-peripheral A'-positions, at LF for the purpose of semantic interpretation. Similarly, in scrambled versions (14e-g), in which wh-phrases move to IP or VP adjoined position, wh-phrases should also move from the IP or VP adjoined positions to scope positions for the satisfaction of FI. This tells us

that (14a) and (14e-g) have an identical semantic interpretation at LF as in (14h), making the assumption possible that scrambling of wh-phrases in (14e-g) is undone at LF (cf. Saito 1989).

Next, consider the scrambled versions (14e-g) repeated in (15a-c) more precisely:

(15) Korean



In (15a) two wh-phrases are scrambled to IP-adjoined positions, maintaining the basic order, and in (15b) two wh-phrases are scrambled to IP-adjoined positions, not keeping the basic order. The fact that Korean is a multiple subject language makes (15b) acceptable, since in Korean IP-adjoined positions are considered to be the multiple specifiers of a single head, T, i.e., these positions are narrowly L-related (A-position), as noted in 3.2. Thus, (15b), in which the lower wh-phrase is scrambled to IP-adjoined position crossing the higher wh-phrase, is grammatical by the fact that *muoss* and *nuku* are located in the positions of the multiple specifiers of a single head, T. As a consequence, *muoss*, the lower wh-phrase, can be scrambled over *nuku*, the higher wh-phrase, without an intervention effect, as scrambling of the subject across another subject in Korean is permitted (see 3.2.3). This indicates that the paths can be crossed and nested as in (15a-b), i.e. scrambling is not constrained by shortest move.

As for (15c), wh-phrase is scrambled to VP-adjoined position and VP-adjoined positions are counted as the positions of the multiple specifiers of a single head, v, in Korean because Korean is also a multiple object language. In other words, since IP and VP adjoined positions in Korean are the positions of multiple specifiers of a single head, T and v, respectively, in

Korean local wh-multiple questions, wh-phrases move to IP or VP adjoined positions without an intervention effect.

This fact that IP-adjoined positions are the positions of the multiple specifiers of a single head, T, i.e. IP-adjoined positions are argument positions in Korean, obviates WCO effect if wh-phrases are scrambled to IP-adjoined positions as in (16c):

(16) Korean

- a. *Ku_i -uy apochi-ka nuku_i -lul pinanhess-ni?
 he-gen father-nom who-acc criticized Q
 'Who did his father criticize?'
- b. [_{CP} nuku_i -lul [_{IP} Ku_i -uy apochi-ka x_i pinanhess]-ni] (LF)
 who-dat he-gen father-nom criticized
- c. [_{IP} Nuku_i -lul [_{IP} ku_i -uy apochi-ka t_i pinanhess]]-ni?
 who-acc he-gen father-nom criticized Q

As discussed above, in Korean, wh-phrases should move to scope positions at LF for the semantic interpretation, to satisfy FI, as in (16b). But in (16b), at LF wh-operator in A'-position simultaneously binds a pronoun and a variable, exhibiting WCO effect. In contrast, in (16c), wh-phrase scrambled to the positions of multiple specifiers of a single head, T, can exempt WCO effect by creating a new binding possibility, since wh-phrase, which is scrambled to IP-adjoined position in (16c), is located in A-position.

Here, it is interesting to compare (14f), where two wh-phrases are scrambled to IP-adjoined positions, not keeping the basic order, being grammatical, with (14b), in which the accusative object precedes the dative object not maintaining the basic order, yielding the ungrammaticality, repeated in (17b-c):

(17) Korean

- a. [_{CP} - [_{IP} Swunhi-nun nuku₁ -eke muoss₂ -ul chuoss]-ni]?
 Swunhi-top who-dat what-acc gave Q
 'Who did Swunhi give what?'
- b. [_{IP} Muoss₂ -ul nuku₁ -eke [_{IP} Swunhi-nun t₁ t₂ chuoss]]-ni?
 who-dat what-acc Swunhi-top gave Q

within the same feature class,⁹ but not across classes. Since wh-phrases in situ move to scope positions at LF, it appears that scope-bearing elements such as negations and quantifiers affect the movement of wh-phrase as in (18-20), since quantifiers, negations and wh-phrase belong to the same feature class:

(18) Korean

- a. *motu-ka nuku-eke muoss-ul chuoss-ni?
 everyone-nom who-dat what-acc gave -Q

'What did everyone give to whom?'

- a'.*[_{CP} [_{Qua} [_{SpecQua} modu₁ -ka nuku₂ -eke muoss₃ -ul] [_{IP} x₁ x₂ x₃ chuoss]

everyone-nom who-dat what-acc gave

-ni]? (LF)

-Q

- b. ?Motun saramtul-i nuku-eke muoss-ul chuoss-ni?
 every person-nom who-dat what-acc gave Q

'What did every person give to whom?'

- c. Muoss-i modu-lul sulpu-ke -hess-ni?
 what-nom everyone-acc sad--make-did--Q

'What did everyone make sad?'

- c'.[_{CP} [_{Qua} [_{SpecQua} muoss₁ -i modu₂ -lul [_{IP} x₁ x₂ sulpu-ke-hess]-ni]? (LF)

what-nom everyone-acc sad-make-did Q

(19) Japanese (Tanaka 2003:322)

*Dono-hito-mo nani-o yonda no?

every person what-acc read Q

'Q everyone read what?'

(20) German (Beck/Kim 1996:6)

- a. *was glaubt niemand, wen Karl gesehen hat?
 what believes nobody whom karl seen has

'Who does nobody whom Karl saw?'

- b. *Wer hat niemanden wo angetroffen?
 who has nobody where met

⁹ Quantifier, wh, Neg, measure and focus are in the same feature class, while quantifier, modifier and topic are not.

As discussed in chapter 2, with regard to chain formation, there are two possibilities to be considered; either the chain is bound with its trace like the case of A-chain, or the length of chain should be local, like the case of A'-chain (cf. Chomsky 1981, Frampton 1999, Manzini 1999 and Richards 2001). In (18-20), where a level of scopal interpretation is involved, the chain which comes into play is A'-chain. This means that core structural relations are local. From this observation, assuming that Feature K is checked on (X, XP) only if (a) XP is in a MC¹⁰ with H, and (b) c-command holds (Chomsky 2000;2001 and Rizzi 2002), in (18-20), the wh-phrase in situ cannot enter the checking relation with the head, Qua at LF because quantifiers which belong to the same feature class as wh-phrases occupy an intervener position, as in (18a'), i.e. in (18a), (19) and (20a-b), where quantifiers c-command wh-phrase in situ, not wh-phrase, but quantifiers are MC with the head, Qua. As given by (18c), however, (18c) in which a wh-phrase c-commands the quantifier does not produce an intervention effect. This data indicate that wh-phrases in Korean should be located closer to the head, Qua, than other operators, which belong to the same feature at LF, e.g. Neg, quantifier, measure and focus. Accordingly, if the wh-phrase is c-commanded by other operators which belong to the same feature as the wh-phrase, then an intervention effect is generated, as in (18-20).

If we compare (18a) with (18b), in (18a) where *motu* (everyone) as a pronoun being a specifier is quantifier, *motu* c-commands wh-phrase, i.e. not wh-phrase, but *motu* is MC with the head Qua, while in (18b), in which *motun* (every) is a determiner, not *motun* (every), but *saram* (person) c-commands wh phrase, not being MC with the head, because specifier in (18b) located in A-position does not affect wh-movement at LF. Consequently, (18b) is much better than (18a).¹¹

Assuming that the specifier in A-position does not produce an intervention effect with respect to wh-movement, if the quantifier is replaced by a proper name, therefore, an intervention effect does not arise as in (21a' and b') and (22a'):

¹⁰ Y is in a Minimal Configuration (MC) with X if there is no Z such that (Rizzi 2002:2)

(a) Z is of the same structural type as X, and

(b) Z intervenes between X and Y.

¹¹ In (18b), *motun* (every) which obtains quantifiable property has an influence on specifier *saram* (person), even though in technical terms there is no direct c-command relation between *motun* and wh-phrase in situ. For this semantic reason, I marked (18b) with a ?.

(21) Korean

- a. *motu-ka nuku-eke muoss-ul chuoss-ni?
 everyone-nom who-dat what-acc gave -Q

'What did everyone give to whom?'

- a' Haesaengtul-i nuku-eke muoss-ul chuoss-ni?
 students-nom who-dat what-acc gave -Q

'What did students give to whom?'

(22) German (Beck/Kim 1996:6)

- a. *was glaubt niemand, wen Karl gesehen hat?
 what believes nobody whom Karl seen has

'Who does nobody whom Karl saw?'

- a'. Was glaubt Luise, wen Karl gesehen hat?
 what believes Luise whom Karl seen has

'Who does Luise believe that Karl saw?'

- b. *Wer hat niemanden wo angetroffen?
 who has nobody where met

- b' Wer hat wo niemanden angetroffen?
 who has where nobody met

'Who didn't meet anybody where?'

(21a') and (22a') in which *haeksaentul* (students) and *Luise* in A-position do not affect wh-movement at LF. As for (22b'), wh-phrase *wo* (where) in situ is not c-commanded by the negative quantifier, making it possible that wh-phrase *wo* can be MC with the head.

Recalling that an intervention effect arises within the same feature class, but not across classes, as noted above, it appears that topic, considered to be not the same feature class as wh-phrase, does not affect the movement of wh-phrases, as in (23a):

(23) Korean

- a. Minki-nun nuku-eke muoss-ul chuoss-ni?
 Minki-top who-dat what-acc gave Q

'As for Minki, what did Minki do to whom? (topic)

- a'. [_{CP} [_{Top} [_{SpecTop} Minki₁ [_{Qua} [_{SpecQua} nuku₂ -ake muoss₃ ul [_{IP} x₁ x₂ x₃ chuoss]-ni]]?]

- b. *Minki-ka chingchan-un nuku-lul haess-ni?
 Minki-nom praise-top who-acc did Q
 'Who was praised (not claimed) by Minki? (contrastive focus)
- b'. [_{CP} [_{Qua} [_{SpecQua} chingchan₁ -un nuku₂ -lul [_{IP} Minki-ka x₁ x₂ haess]
 -ni]]?
- c. *Minki-mani chingchan-un nuku-lul haess-ni?
 Minki-only praise-top who-acc did Q?
 'Who was praised (not claimed) by only Minki? (contrastive focus)
- c'. [_{CP} [_{Qua} [_{SpecQua} Minki₁ -mani chingchan₂ -unnuku₃ -lul [_{IP} Minki-ka x₁
 x₂ x₃ haess]-ni]]?

(23a) and (23b) are identical in that in (23a) *Minki* (Minki) in topic position occupies A'-position and in (23b) *chingchan* (praise) in focus position is also located in A'-position.¹² However, they differ such that *Minki* (Minki) in A'-position in (23a) does not block wh-movement at LF, which indicates that *Minki* (Minki) in topic position is not an intervener on wh-movement at LF as in (23a'), whereas *chingchan* (praise) in A'-position in (23b) blocks movement of wh-phrase to [_{Spec CP}] at LF, since *chingchan* (praise) in focus position can be considered to be an intervener on wh-movement at LF as in (23b'), like quantifiers in (18a), (19) and (20a,b), i.e. focus and wh-phrase belong to the same feature class. So topic, which is separated from Qua in (23a), is not MC with the head, Qua, as in (23a'), but focus in (23b) is as in (23b'). Accordingly, an intervention effect only arises in (23b), in which focus is considered to be the same feature class as wh-phrase. As for (23c), both *mani*-NP (only) and *chingchan* (praise) are the same feature class as wh-phrase, as in (23c'), being interveners on wh-movement at LF.

From this observation, it is expected that the scrambling of wh-phrases over interveners eliminates an intervention effect, as shown in (24b):

(24) Korean.

- a. * [_{CP} - [_{IP} moduka muoss-ul sass]-ni?
 everyone what-acc bought-Q
 'What did everyone buy?
- a'. * [_{CP} [_{Qua} [_{SpecQua} moduka₁ muoss₂ -ul [_{IP} x₁ x₂ sass]-ni]]? (LF)
- b. [_{IP} Muoss_i -lul [_{IP} moduka t_i sass]]-ni?

¹² The morphological topic marker *nun* which is attached to the sentence initial subject, encoding the topichood of the subject, in Korean is used either topic or contrastive focus (For more discussion, see chapter 7 and Choi 1996).

what-acc everyone bought Q
 b'. [_{CP} [_{Qua} [_{SpecQua} muoss₂ -ul moduka₁ [_{IP} x₁ x₂ sass]-ni]? (LF)

(24a), where interveners are considered to be the same feature class as wh-phrase at LF as in (24a'), produces an intervention effect, blocking wh-movement at LF. On the other hand, scrambling of wh-phrases over interveners eliminates an intervention effect, as given in (24b), since wh-phrase, which is scrambled to IP-adjoned position, c-commands the intervenor as LF as in (24b'). This shows that scrambling in (24b) cannot be undone at LF, unlike Saito's assumption (1989).

With respect to an intervention effect, from another aspect, Beck/Kim (1996:13-14;19) investigate similar sets of data:

(25) Korean

- a *amuto nuku-lul po-chi ahn-ss-ni?
 anyone who-acc see-CHI not do-Past-Q
 'Whom did no one see?
 b. nuku-lul_i amuto t_i po-chi ahn-ass-ni?
 who-acc anyone see-CHI no do-Past-Q

Their analysis is based on NIB and MNSC:

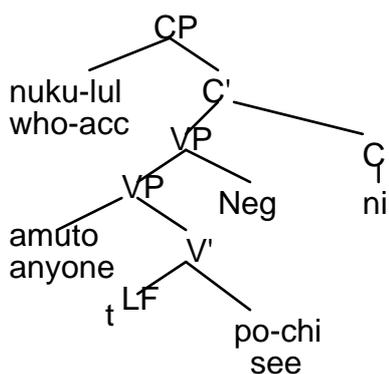
-Negation-induced barrier (NIB):

The first node that dominates a negative quantifier, its restriction and its nuclear scope is a negation induced barrier.

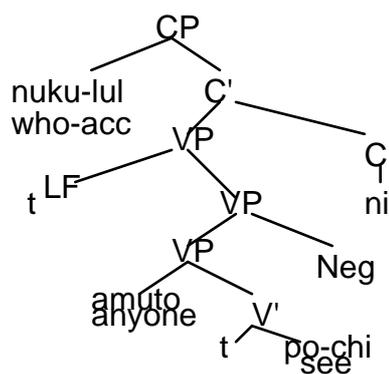
-Minimal Negative Structure Constraint (MNSC):

If an LF trace β is dominated by a NIB α , then the binder of β must also be dominated by α .

For Beck/Kim, LF representation of (25a) and (25b) looks like (26a) and (26b) respectively:



(26a) LF representation of (25a)



(26b) LF representation of (25b)

According to them, since in (25a) the trace of the wh-phrase, but not the wh-phrase itself is dominated by the NIB as in (26a), MNSC is violated. In contrast, in (25b), in which wh-phrase is scrambled to IP-adjoined position, MNSC is satisfied because t_i^{LF} is not dominated by the NIB as in (26b).¹³

In my analysis, the fact that wh-phrase, quantifier and negation belong to the same feature class contributes to the ungrammaticality of (25a) because at LF, where the quantifier is located closer to the head than wh-phrase, wh-phrase cannot agree as a goal with the head. However, in (25b), where wh-phrase is scrambled to IP-adjoined position, at LF wh-phrase is located closer to the head than quantifier and negation, being grammatical.

For example (25), I and Beck/Kim arrive at same conclusion. Unlike my approach, however, Beck/Kim's analysis is too narrow to include the examples in which negation is not involved, as in (24), repeated in (27):

(27) Korean.

a. * $[_{CP} - [_{IP} \text{moduka} \quad \text{muoss-ul sass}]]\text{-ni?}$

everyone what-acc bought-Q

'What did everyone buy?'

a'. * $[_{CP} [_{Qua} [_{SpecQua} \text{moduka}_1 \quad \text{muoss}_2 \text{-ul} [_{IP} \quad x_1 \quad x_2 \quad \text{sass}]]\text{-ni?}] \text{(LF)}$

b. $[_{IP} \text{Muoss}_i \text{-lul} [_{IP} \text{moduka } t_i \quad \text{sass}]]\text{-ni?}$

what-acc everyone bought Q

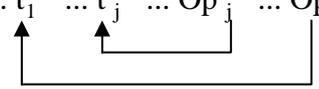
b'. $[_{CP} [_{Qua} [_{SpecQua} \text{muoss}_2 \text{-ul } \text{moduka}_1 \quad [_{IP} \quad x_1 \quad x_2 \quad \text{sass}]]\text{-ni?}] \text{(LF)}$

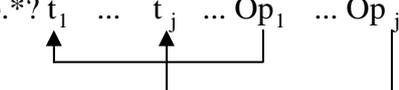
As another intervention effect research, consider Tanaka's Linear Crossing Constraint (LCC) on A'-dependencies. Assuming that A'-dependencies are allowed as in (28a), but crossing A'-dependencies are not, as in (28b),

¹³ Due to the assumption that the NIB is not a barrier in overt syntax, t_i in (26b) does not violate MNSC.

Tanaka (2003) indicates that (29a), in which LCC is violated, is not acceptable as in (30a), while (29b) where LCC is satisfied, is as in (30b):

(28) LCC (Tanaka 2003:316)

a. $t_1 \dots t_j \dots Op_j \dots Op_1$


b. $*? t_1 \dots t_j \dots Op_1 \dots Op_j$


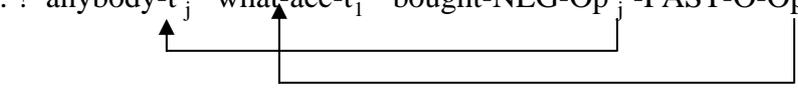
(29) Japanese (Tanaka:317)

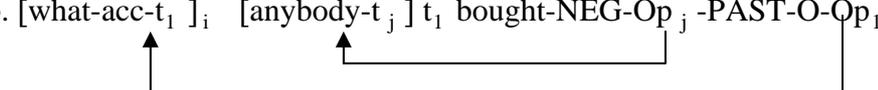
a. $?*Dare\text{-}mo \quad nani\text{-}o \quad kawa\text{-}nakatta\text{-} \quad no?$
 anybody what-acc buy-NEG PAST-Q

'Q nobody buys what?'

b. $Nani\text{-}o_1 \quad dare\text{-}mo \ t_1 \quad kawa\text{-}nakatta\text{-} \quad no?$
 what-acc anybody buy-NEG PAST-Q

(30) the example (29) in terms of LCC (Tanaka 2003:316)

a. $?*anybody\text{-}t_j \quad what\text{-}acc\text{-}t_1 \quad bought\text{-}NEG\text{-}Op_j \text{-}PAST\text{-}O\text{-}Op_1$


b. $[what\text{-}acc\text{-}t_1]_i \quad [anybody\text{-}t_j] \ t_1 \quad bought\text{-}NEG\text{-}Op_j \text{-}PAST\text{-}O\text{-}Op_1$


For Tanaka, NEG-phrase moves to [Spec NEG] and wh-phrase to [Spec CP], i.e. NEG is separated from wh-phrase, unlike my analysis, though we have same conclusion. In fact, however, Tanaka's LCC is reliable only when two different operators are involved. To me, therefore, it is not clear what LCC looks like, if more than two operators are involved.

Bearing this in mind, consider the examples in which no negation is contained and three operators are involved:

(31) Korean

a. $*[_{CP} \text{-} [_{IP} \text{motu}\text{-}ka \quad nuku\text{-}eke \text{ muoss}\text{-}ul \text{ chuoss}]\text{-}ni?$
 everyone-nom who-dat what-acc gave-Q

'What did everyone give to whom?'

a' * $[_{CP} [_{Qua} [_{SpecQua} \text{modu}_1 \text{-ka } \text{nuku}_2 \text{-ake } \text{muoss}_3 \text{ ul } [_{IP} \text{ x}_1 \text{ x}_2 \text{ x}_3 \text{ chuoss}]]\text{-ni}]?$ (LF)

b. $[_{IP} \text{Nuku}_1 \text{-eke } [_{IP} \text{motu-ka } \text{t}_1 \text{ muoss- ul } \text{chuoss}]]\text{-ni}?$

who-dat everyone what-acc gave Q

b'. $[_{CP} [_{Qua} [_{SpecQua} \text{nuku}_2 \text{-ake } \text{modu}_1 \text{-ka } \text{muoss}_3 \text{ ul } [_{IP} \text{ x}_1 \text{ x}_2 \text{ x}_3 \text{ chuoss}]]\text{-ni}]?$ (LF)

c. $[_{IP} \text{Muoss}_2 \text{-ul } [_{IP} \text{mutu-ka } \text{nuku-eke } \text{t}_2 \text{ chuoss}]]\text{-ni}?$

what-acc everyone who-dat gave Q

c'. $[_{CP} [_{Qua} [_{SpecQua} \text{muoss}_3 \text{ ul } \text{modu}_1 \text{-ka } \text{nuku}_2 \text{-eke } [_{IP} \text{ x}_1 \text{ x}_2 \text{ x}_3 \text{ chuoss}]]\text{-ni}]?$ (LF)

d. $[_{IP} \text{Nuku}_1 \text{-eke } [_{IP} \text{muoss}_2 \text{-ul } [_{IP} \text{motu-ka } \text{t}_1 \text{ t}_2 \text{ chuoss}]]]\text{-ni}?$

who-dat what-acc everyone gave Q

d'. $[_{CP} [_{Qua} [_{SpecQua} \text{nuku}_2 \text{-eke } \text{muoss}_3 \text{ ul } \text{modu}_1 \text{-ka } [_{IP} \text{ x}_1 \text{ x}_2 \text{ x}_3 \text{ chuoss}]]\text{-ni}]?$ (LF)

e $[_{IP} \text{Muoss}_2 \text{-ul } [_{IP} \text{nuku}_1 \text{-eke } [_{IP} \text{motu-ka } \text{t}_1 \text{ t}_2 \text{ chuoss}]]]\text{-ni}?$

what-acc who-dat everyone gave Q

e'. $[_{CP} [_{Qua} [_{SpecQua} \text{nuku}_2 \text{-eke } \text{muoss}_3 \text{ ul } \text{modu}_1 \text{-ka } [_{IP} \text{ x}_1 \text{ x}_2 \text{ x}_3 \text{ chuoss}]]\text{-ni}]?$ (LF)

ni]?

In (31b-c), only one wh-phrase is scrambled to IP-adjoined positions, leaving another wh-phrase in situ, and in (31d-e) both of the wh-phrases are scrambled to IP-adjoined positions. As LF representation shows, (31b-c), in which the scrambled wh-phrase c-commands intervener, are much better than (31a), where both of the wh-phrases in situ are c-commanded by interveners as in (31a'), though (31b-c) are not as perfect as (31d-e),¹⁴ in which both of scrambled wh-phrases c-command interveners at LF as in (31d') and (31e'), since another wh-phrase in situ in (31b-c) is still c-commanded by the interveners as in (31b') and (31c'). On Tanaka's account, (31d'), in which three operators are involved, crossing the paths, should violate LCC. Unlike Tanaka's prediction, however, (31d') is grammatical. So, if I am on the right track, I assume that the grammaticality or ungrammaticality is a matter of the c-command relation of operators

¹⁴ Note that IP-adjoined positions in Korean are argument positions because these positions are the positions of the multiple specifiers of a single head T. Therefore, the accusative object *muoss* can be scrambled across the dative object *nuku* without an intervention effect.

which belong to the same feature class, rather than LCC. As far as Beck/Kim's analysis is concerned, their assumption is also not sufficient to involve (31), where no negation is obtained.

Unlike (31a), in which the quantifier belongs to the same feature class as the wh-phrase, i.e. *modu*, *nuku* and *muoss* are the specifiers of head *Qua*, posing intervention effect, in (32a) an intervention effect does not arise, since topic forms a separate class from other A'-dependencies. Of course, scrambling to IP and VP adjoined positions is permissible:

(32) Korean

- a. $[_{CP} - [_{IP} \text{Minki-nun} \quad \text{nuku-eke muoss-ul sonmulhaess}]]\text{-ni?}$
 Minki-top who-dat what-acc presented Q

'As for Minki, what did Minki present to whom?

- a'. $[_{CP} [_{Top} [_{SpecTop} \text{Minki}_1 \quad [_{Qua} [_{SpecQua} \text{nuku}_2 \text{-ake muoss}_3 \text{ ul } [_{IP} \text{ x}_1 \text{ x}_2 \text{ x}_3 \text{ sonmulhaess}]]\text{-ni}]]\text{? (LF)}$

- b. $[_{IP} \text{Minki-nun} \quad [_{VP} \text{Nuku}_1 \text{-eke } [_{VP} \text{ t}_1 \text{ muoss-ul} \quad \text{sinmulhaess}]]]\text{-ni?}$
 Minki-top who-dat what-acc presented Q

'As for Minki, what did Minki present to whom? (Topic)

- b'. $[_{CP} [_{Top} [_{SpecTop} \text{Minki}_1 \quad [_{Qua} [_{SpecQua} \text{nuku}_2 \text{-ake muoss}_3 \text{ ul } [_{IP} \text{ x}_1 \text{ x}_2 \text{ x}_3 \text{ sonmulhaess}]]\text{-ni}]]\text{? (LF)}$

- c. $[_{IP} \text{Nuku}_i \text{-eke } [_{IP} \text{Minki-nun} \text{ muoss-ul } \text{t}_i \text{ sonmulhaess}]]\text{-ni?}$
 who-dat Minki-top what-acc presented Q

- c'. $[_{CP} [_{Top} [_{SpecTop} \text{Minki}_1 \quad [_{Qua} [_{SpecQua} \text{nuku}_2 \text{-ake muoss}_3 \text{ ul } [_{IP} \text{ x}_1 \text{ x}_2 \text{ x}_3 \text{ sonmulhaess}]]\text{-ni}]]\text{? (LF)}$

- d. $[_{IP} \text{Nuku}_i \text{-eke } [_{IP} \text{ muoss}_2 \text{-ul } [_{IP} \text{Minki-nun} \quad \text{t}_i \text{ t}_2 \text{ sonmulhaess}]]]\text{-ni?}$
 who-dat what-acc Minki-top presented Q

- d'. $[_{CP} [_{Top} [_{SpecTop} \text{Minki}_1 \quad [_{Qua} [_{SpecQua} \text{nuku}_2 \text{-ake muoss}_3 \text{ ul } [_{IP} \text{ x}_1 \text{ x}_2 \text{ x}_3 \text{ sonmulhaess}]]\text{-ni}]]\text{? (LF)}$

(33) Korean

- a. $*[_{CP} - [_{IP} \text{motu-ka} \quad \text{nuku-eke muoss-ul chuoss}]]\text{-ni?}$
 everyone-nom who-dat what-acc gave -Q

'What did everyone give to whom?'

- a'. $*[_{CP} [_{Qua} [_{SpecQua} \text{modu}_1 \text{-ka nuku}_2 \text{-ake muoss}_3 \text{ ul } [_{IP} \text{ x}_1 \text{ x}_2 \text{ x}_3 \text{ chuoss}]]\text{-ni}]]\text{? (LF)}$

(32a) is distinguished from (31a), repeated in (33) by the fact that in (32a), *Minki* is specifier of a head *Top* and *nuku* and *muoss* are the specifiers of a head, *Qua*, as in (32a'), while in (33) *mudu*, *nuku* and *muoss* are the specifiers of a same head, *Qua*, as in (33a'), i.e. *modu* affects wh-movement at LF. This is the reason (32a) is grammatical and (33a) is not, because topic forms a separate class from other A'-dependencies, i.e. the presence of topic does not affect movement of wh-phrase at LF. As predicted, scrambling of wh-phrase to IP and VP adjoined positions is allowed, as in (32b, c and d). If we compare LF representation of (32a) with that of scrambled versions, (32b, c and d), they are identical, which means that scrambling in (32b, c and d) is undone at LF, since the topic does not belong to the same feature class as the wh-phrase.

Since *mani* (only)-NP and focus are in the same feature class as the wh-phrase, however, *mani*-NP and *chingchan* in focus position in (34a) are interveners on wh-movement:

(34) Korean

- a. *Minki-mani chingchan-un nuku-lul haess-ni?
Minki-only praise-focus who-acc did Q
'Who was praised (but not claimed) by only Minki?'
(contrastive focus)
- a'. [_{CP} [_{Qua} [_{SpecQua} Minki₁ -mani nuku₃ -lul chingchan₂ -un [_{IP} x₁ x₂ x₃ haess]-ni]? (LF)
- b. *Minki-mani nuku_i -lul chingchan-un t_i haess-ni?
Minki-only who-acc praise-focus did Q
- b'. [_{CP} [_{Qua} [_{SpecQua} Minki₁ -mani nuku₃ -lul chingchan₂ -un [_{IP} x₁ x₂ x₃ haess]-ni]? (LF)
- c. Nuku_i -lul Minki-mani chingchan-un t_i haess-ni?
who-acc Minki-only praise-focus did Q
- c'. [_{CP} [_{Qua} [_{SpecQua} nuku₃ -lul Minki₁ -mani chingchan₂ -un [_{IP} x₁ x₂ x₃ haess]-ni]? (LF)

As (34a') shows, *mani*-NP, focus and wh-phrase are the same feature class, i.e. *mani*-NP and *chingchan* in focus position are interveners on wh-movement. Given that wh-phrase should be located closer to the head than other operators, which belong to the same feature, at LF, scrambling of

wh-phrase over focus and *mani*-NP eliminates an intervention effect as shown in (34c). This tells us that scrambling of wh-phrase in (34c) cannot be undone. The fact that wh-phrase is still c-commanded by *mani*-NP occupied an intervention position on wh-movement at LF, as in (34b'), however, makes (34b) in which wh-phrase is scrambled over *chingchan* in focus position is unacceptable.

To summarize, given that quantifier, negation, wh-phrase and focus, which belong to the same feature class, can be considered to be the specifiers of the same head, an intervention effect arises within the same feature class, but not across classes, because wh-phrases should be located closer to the head than other operators such as quantifier, negation and focus. Thus, scrambling of wh-phrase to the positions where wh-phrase c-commands quantifier, negation and focus eliminates an intervention effect, i.e. wh-scrambling over quantifier, negation and focus cannot be undone at LF. In contrast, since the wh-phrase is separated from modifier and topic at LF, wh-scrambling across other classes such as modifier and topic can be undone at LF.

6.2.2 Long Distance Wh-scrambling

The presence of a Q-morpheme in Korean w-interrogative clauses makes overt wh-movement to [Spec CP] impossible. In contrast, wh-movement to IP or VP adjoined positions known as scrambling is allowed. In wh-scrambling the scrambled wh-phrases should move to scope positions for the satisfaction of FI, as in-situ-wh-phrases do. Therefore, the scrambled and unscrambled versions have the identical scope interpretation. Section 6.2.2.1 deals with these properties. Since the class of A'-positions splits into subclasses such as quantifiers, including Wh, Neg, measure, focus and topic as noted by Rizzi (2001), wh-scrambling over interveners eliminates an intervention effect. In section 6.2.2.2 I will explore the relation between an intervention effect and scrambling of the wh-phrases.

6.2.2.1 Scope interpretation of long distance wh-scrambling

Just like the case of close internal wh-scrambling, wh-phrases in Korean can be scrambled long distantly:

(35) Korean

- a. $[_{IP} \text{Minki-ka} [_{CP} [_{IP} \text{Suna-ka muoss-ul sassnun}]-\text{ka}] \text{al -ko ship-ta}]$
 Minki-nom Suna-nom what-acc bought -Q know-to- want-decl

'Minki want to know what Suna bought.'

- a'. $[_{IP} \text{Minki-ka} [_{CP} \text{muoss}_i \text{-ul} [_{IP} \text{Suna-ka } x_i \text{ sassnun}]-\text{ka}] \text{al-ko-ship-ta}]$ (LF)

- b. $[_{IP} \text{Muoss}_i \text{-ul} [_{IP} \text{Minki-ka} [_{CP} [_{IP} \text{Suna-ka } t_i \text{ sassnun-chi}]] \text{al -ko ship-ta}]$
 what-acc Minki-nom una-nom bought-Q know-C want-decl

- b'. $[_{IP} \text{Minki-ka} [_{CP} \text{muoss}_i \text{-ul} [_{IP} \text{Suna-ka } x_i \text{ sassnun}]-\text{ka}] \text{al-ko-ship-ta}]$
 (LF)

'Minki-want to know what Suna bought.'

- c. $[_{IP} \text{Minki-ka} [_{CP} [_{IP} \text{muoss}_i \text{-ul} [_{IP} \text{Suna-ka } t_i \text{ sassnun}]]-\text{ka}] \text{al -ko ship-ta}]$

Minki-nom what-acc Suna-nom bought Q know-to- want-decl

- c'. $[_{IP} \text{Minki-ka} [_{CP} \text{muoss}_i \text{-ul} [_{IP} \text{Suna-ka } x_i \text{ sassnun}]-\text{ka}] \text{al-ko-ship-ta}]$
 (LF)

'Minki-want to know what Suna bought.'

In (35a) the embedded clause is *w*-interrogative, i.e. the *wh*-phrase is contained only the embedded clause, and the matrix clause is declarative. As we observed, in Korean *w*-interrogative clauses, the EPP-feature on C is satisfied by the presence of the Q-morpheme, and this fact excludes *wh*-movement [Spec CP]. For the satisfaction of FI, however, in-situ *wh*-phrases should move to the embedded scope position at LF, as in (35a'),¹⁵ taking the embedded scope. In (35b), the *wh*-phrase in the embedded clause is scrambled out of its scope, adjoining in the matrix declarative clause. The fact that in Korean *w*-interrogative clauses the EPP-feature on C is satisfied by the presence of the Q-morpheme leads us to suppose that *wh*-scrambling in (35b), which has nothing to do with

¹⁵ (Saito 2001:288)

- a. $[_{CP} \text{Who}_i [_{TP} t_i \text{ asked whom to find out} [_{CP} \text{what}_j [_{TP} \text{Bill bought } t_j]]]]$?
 b. $[_{CP} \text{Who}_i [_{TP} t_i \text{ wonder} [_{CP} [\text{which picture of whom}]_j [_{TP} \text{Bill saw } t_j]]]]$?

As discussed in section 6.1, in English multiple questions one *wh*-phrase moves to [Spec CP], leaving other *wh*-phrases in situ as in (a-b). In (a) *who* and *what* and in (b) *who* and *which* are raised overtly to satisfy EPP-feature on C, taking scope there. As far as in-situ *wh*-phrase is concerned, in-situ *wh*-phrase *whom* in (a) is contained within the matrix CP, which means that *whom* in (a) should move to the matrix scope position at LF, taking the matrix scope. If in-situ *wh*-phrase belongs to the embedded CP as well as the matrix CP as *whom* in (b), however, *whom* takes the embedded or matrix scope, since *whom* in-situ in (b) can move to the embedded scope position or to the matrix scope position at LF.

morphological requirements, is optional. This scrambled wh-phrase in (35b) would be reconstructed (lowered) into the original position where wh-criterion is satisfied, and after that at LF, wh-phrase moves to the embedded scope position as in (35b'). As a consequence, wh-phrase in (35b) can only take the embedded scope as illustrated by the translation. As for (35c), in which the wh-phrase is scrambled within its C-domain, it is easy to assume that the wh-phrase takes scope in the embedded clause. Despite the syntactic differences among (35a-c), the semantic interpretation of (35a), (35b) and (35c) at LF is identical, as shown in (35a'), (35b') and (35c'). The fact that Korean w-interrogative clauses have a Q-morpheme achieves this result because the presence of the Q-morpheme satisfies EPP-feature on C. In this regard, the scrambled versions (35b) and (35c) are undone at LF (cf. Saito 1989).

If a wh-phrase is located within the matrix clause, wh-phrase takes only matrix scope:

(36) Korean

- a. [_{CP} [_{IP} Minki-ka nuku-eke [_{CP} [_{IP} Suna-ka apassta]-ko] malhess]-ni]?
 Minki-nom who-dat Suna-nom was sick-that said -Q
 'To whom did Minki say that Suna was sick?'
- a'. [_{CP} nuku_i -eke [_{IP} Minki-ka x_i [_{CP} [_{IP} Suna-ka apaata]-ko] malhess]-ni? (LF)
- b. [_{IP} nuku_i -eke [_{IP} Minki-ka t_i [_{CP} [_{IP} Suna-ka apaata]-ko] malhess]-ni? (LF)
 who-dat Minki-nom Suna-nom was sick-that siad-Q
 'To whom did Minki say that Suna was sick?'
- b'. [_{CP} nuku_i -eke [_{IP} Minki-ka x_i [_{CP} [_{IP} Suna-ka apaata]-ko] malhess]-ni?
 (LF)

In (36a), the matrix clause is w-interrogative, and the embedded clause is declarative. Accordingly, wh-phrase in (36a) takes the matrix scope. In (36b) wh-phrase is scrambled to the matrix IP-adjoined position. Given that in Korean w-interrogative clauses, the presence of Q-morpheme rules out overt wh-movement to [Spec CP], the optionality of wh-scrambling in (36b) can be expected. This optionality of wh-scrambling makes the LF representation of (36a) and (36b) identical, as in (36a') and (36b').

Next, consider the examples in which both the embedded and the matrix clauses are w-interrogative:

(37) Korean

a. [_{CP} [_{IP} Minki-ka [_{CP} [_{IP} Suna-ka muoss-ul sassnun]-ka] al -ko
 Minki-nom Suna-nom what-acc bought -Q know-to
 shipoha]-ni]?
 want-Q

'Does Minki want to know what Suna bought?'

'What does Minki want to know whether Suna bought?'

a'. [_{CP} [_{IP} Minki-ka [_{CP} muoss_i -ul [_{IP} Suna-ka x_i sassnun]-ka] al -ko
 Minki-nom what-acc Suna-nom bought -Q know-to
 shipoha]-ni]? (LF)

want-Q

a". [_{CP} Muoss_i -ul [_{IP} Minki-ka [_{CP} x'_i [_{IP} Suna-ka x_i sassnun]-ka] al -ko
 what-acc Minki-nom Suna-nom bought -Q know-to
 shipoha]-ni]? (LF)¹⁶

want-Q

b. [_{IP} Muoss_i -ul [_{IP} Minki-ka [_{CP} [_{IP} Suna-ka t_i sassnun]-ka] al -ko
 what-acc Minki-nom Suna-nom bought -Q know-to
 shipoha]-ni]?
 want -Q

'Does Minki-want to know what Suna bought?'

'What does Minki want to know whether Suna bought?'

b' [_{CP} [_{IP} Minki-ka [_{CP} muoss_i -ul [_{IP} Suna-ka x_i sassnun]-ka] al -ko
 Minki-nom what-acc Suna-nom gave -Q know-to
 shipoha]-ni]? (LF)

want-Q

b". [_{CP} Muoss_i -ul [_{IP} Minki-ka [_{CP} x'_i [_{IP} Suna-ka x_i sassnun]-chi] al -ko
 what-acc Minki-nom Suna-nom gave -Q know-to
 shipoha]-ni]? (LF)

want-Q

c. [_{IP} Minki-ka [_{CP} [_{IP} muoss_i -ul [_{IP} Suna-ka t_i sassnun]-ka] al -kos
 Minki-nom what-acc Suna-nom bought-Q know-to
 shipoha-ni]?
 want-Q

¹⁶ The chain (*muoss-ul*, *x'*, *x*) is an uniform A'-chain, not allowing the deletion of an intermediate trace due to the economy. This uniform A'-chain, thus, satisfies the Principle of Unambiguous Binding (PUB) in the sense of M?ler/Sternefeld (1993) such that in (37a"), *muoss-ul* moves from the embedded [Spec CP] position (A'-postion) to the matrix [Spec CP] position (A'-postion).

c'. [_{CP} [_{IP} Minki-ka [_{CP} muoss_i -ul [_{IP} Suna-ka x_i sassnun]-ka] al -ko
 Minki-nom what-acc Suna-nom gave -Q know-to
 shipoha]-ni]? (LF)

want-Q

c". [_{CP} Muoss_i -ul [_{IP} Minki-ka [_{CP} x'_i [_{IP} Suna-ka x_i sassnun]-ka] al -ko
 what-acc Minki-nom Suna-nom gave -Q know-to
 shipoha]-ni]? (LF)

want-Q

'Does Minki-want to know what Suna bought?

'What does Minki want to know whether Suna bought?

(38) [_{CP} Who_i [_{TP} t_i wonder [_{CP} [which picture of whom]_j
 [_{TP} Bill saw t_j]]]]?¹⁷

As we see, (36) and (37) are identical except that in (37) the matrix and embedded clause are *w*-interrogative, while in (36) only the embedded clause is *w*-interrogative. With respect to the interpretation of in-situ *wh*-phrases at LF in (37), the fact that *wh*-phrase should move to the scope positions for the satisfaction of FI, makes two options available; the interpretation of *wh*-phrase in the embedded clause as in (37a'), and in the matrix clause as in (37a''), because the embedded clause as well as the matrix clause are *w*-interrogative just like the case of the English *wh*-multiple question as given in footnote (19), repeated in (38).

In (38), *who* and *which* move to the embedded or matrix [Spec CP], respectively, leaving *whom* in situ, to satisfy EPP-feature on C. Since *whom* is contained within the embedded CP and the matrix CP like the *wh*-phrase in (37a),¹⁸ *whom* in situ moves to the embedded or matrix scope positions at LF as in-situ-*wh*-phrase in (37a) does. Thus, in-situ *wh*-phrase, which is contained within the embedded CP as well as the matrix CP, can take the embedded scope or matrix scope. Accordingly, in (37b), where *wh*-phrase is scrambled from the embedded interrogative clause to the matrix IP-adjoined position and in (37c), in which *wh*-phrase is scrambled within its scope, the

¹⁷ For more discussion, see Saito/Fukui 1998 and Saito 2001

¹⁸ (37a) and (38) are identical in that both the embedded-and matrix-clause are *w*-interrogative and in-situ-*wh*-phrase is located within the embedded and matrix CP, though they are distinguished by the fact that in English *w*-interrogative one *wh*-phrase moves to [Spec CP] for the satisfaction of the EPP-feature on C, while in Korean *w*-interrogative the presence of the Q-morpheme excludes this overt *wh*-movement.

scopal interpretation of the matrix and embedded clause is possible as in (37b'-b'') and (37c'-c''), as long as Q-morpheme is present in both clauses, because the presence of Q-morpheme in both the embedded CP and the matrix CP makes only covert wh-movement to the embedded or matrix scope position possible. As a result, the LF representation of (37a) and the scrambled versions (37b-c) are identical, supporting the notion that wh-scrambling in (37b-c) is undone at LF.

Bearing this in mind, consider the Japanese counterpart example:

(39) Japanese (Takahashi 1993 cited from Pesetsky 2001:89):

Nani-o_i John-wa [_{CP} Mary-ga t_i tabeta ka] siritagatteiru no?
 what-acc John-top Mary-nom ate Q want to know Q
 'What did John to know whether Mary ate?'
 *'Did John want to know what Mary ate?'

According to Takahashi, in (39) the wh-phrase is moved from a lower interrogative CP to [Spec CP] of a matrix interrogative overtly like the case of English, German and Slavic languages, only taking scope in the matrix clause as indicated by the translation. As noted in 4.1, however, overt wh-movement is only necessary for the morphological requirements. For example, for the w-interrogative clauses in English, German and Slavic languages, which have no Q-morpheme, wh-phrase in situ cannot be a spec-head configuration with X_{+wh} , which is needed for the feature checking. This is the reason why in these languages wh-phrase should be raised to

[Spec CP] overtly. In contrast, in (39) wh-phrase is already a spec-head configuration with X_{+wh} by the presence of Q-morpheme without overt wh-movement to [Spec CP], making it possible for probe C to Q-agree with goal, wh-phrase. So, if my assumption is correct, in (39) overt wh-movement to [Spec CP] is ruled out, as long as agree preempts move (Chomsky 2000:102). Given that in Japanese, scrambling of wh-phrase is allowed, the only possible wh-movement in (39) would be scrambling of wh-phrase to the matrix IP-adjoined position. On this account, scrambled wh-phrase takes scope in the embedded and matrix clause, as long as both clauses have Q-morpheme, since at LF wh-phrase moves to the embedded

or matrix scope positions.¹⁹

As in the case of single wh-phrase scrambling, multiple long-distance scrambling of wh-phrases in Korean is also permissible:

(40) Korean

a. [_{CP} [_{IP} Mina-ka [_{CP} [_{IP} Swunhi-kanuku-ekemuoss-ul sonmulhessnun]-ka]
Mina-nom Swunhi-nom who-dat what-acc presented -Q
ah] -ni]?

know-Q

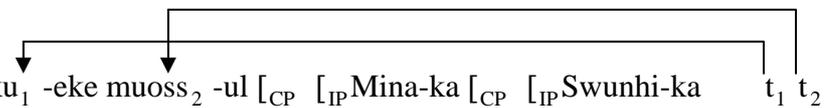
a'. [_{CP} [_{IP} Mina-ka [_{CP} nuku₁ -eke muoss₂ -ul [_{IP} Swunhi-ka x_i x₂
Mina-nom who-dat what-acc Swunhi-nom
sonmulhessnun]-ka] ah] -ni]? (LF)
presented -Q know-Q

'Does Mina know to whom Swunhi presented what?'

a". [_{CP} nuki₁ -eke muoss₂ -ul [_{IP} Mina-ka [_{CP} x'_i x'₂ [_{IP} Swunhi-ka x_i x₂
who-dat what-acc Mina-nom Swunhi-nom
sonmulhessnun]-ka] ah] -ni]? (LF)
presented -Q know-Q

'To whom does Mina know whether Swunhi presented what?'

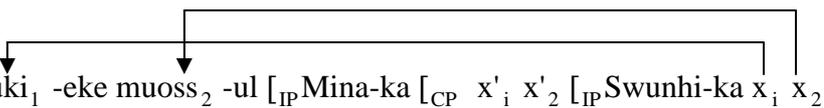
b. [_{IP} Nuku₁ -eke muoss₂ -ul [_{CP} [_{IP} Mina-ka [_{CP} [_{IP} Swunhi-ka t₁ t₂
who-dat what-acc Mina-nom Swunhi-nom
sonmulhessnun]-ka] ah] -ni]?
presented -Q know -Q



b'. [_{CP} [_{IP} Mina-ka [_{CP} nuki₁ -eke muoss₂ -ul [_{IP} Swunhi-ka x_i x₂
Mina-nom who-dat what-acc Swunhi-nom
sonmulhessnun]-ka] ah] -ni]? (LF)
presented -Q know-Q

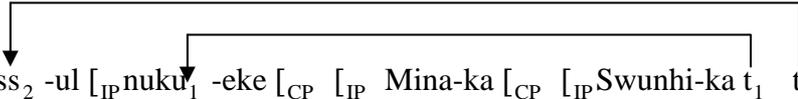
'Does Mina know to whom Swunhi presented what?'

b". [_{CP} nuki₁ -eke muoss₂ -ul [_{IP} Mina-ka [_{CP} x'_i x'₂ [_{IP} Swunhi-ka x_i x₂
who-dat what-acc Mina-nom Swunhi-nom
sonmulhessnun]-ka] ah] -ni]? (LF)
presented -Q know-Q



¹⁹ See the different analysis of Grewendorf/Sabel (1997) and Pesetsky (2001).

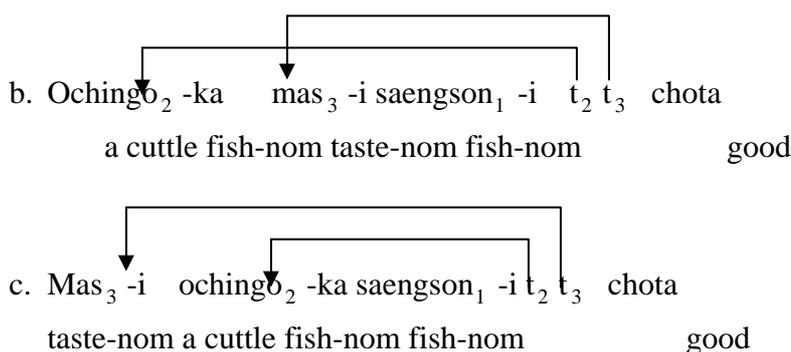
'To whom does Mina know whether Swunhi presented what?'

- c. 
- c'. [IP Muoss₂ -ul [IP nuku₁ -eke [CP [IP Mina-ka [CP [IP Swunhi-ka t₁ t₂
 what-acc who-dat Mina-nom Swunhi-nom
 sonmulhessnun]-ka] ah] -ni]?
 presented -Q know -Q
- c'. [CP [IP Mina-ka [CP nuku₁ -eke muoss₂ -ul [IP Swunhi-ka x_i x₂
 Mina-nom who-dat what-acc Swunhi-nom
 sonmulhessnun]-ka] ah] -ni]? (LF)
 presented -Q know-Q
 'Does Mina know to whom Swunhi presented what?'
- c''. [CP nuku₁ -eke muoss₂ -ul [IP Mina-ka [CP x'_i x'₂ [IP Swunhi-ka x_i x₂
 who-dat what-acc Mina-nom
 Swunhi-nom
 sonmulhessnun]-ka] ah] -ni]? (LF)
 presented -Q know-Q'
 'To whom does Mina know whether Swunhi presented what?'
- d. [IP [CP [IP Swunhi-ka nuku-eke muoss-ul sonmulhessnun]-ka] _i
 Swunhi-nom who-dat what-acc presented -Q
 [CP [IP Mina-ka t_i ah] -ni]?
 Mina-nom know-Q
- d'. [CP [IP Mina-ka [CP nuku₁ -eke muoss₂ -ul [IP Swunhi-ka x_i x₂
 Mina-nom who-dat what-acc
 Swunhi-nom
 sonmulhessnun]-ka] ah] -ni]? (LF)
 presented -Q know-Q
 'Does Mina know to whom Swunhi presented what?'
- d''. [CP nuku₁ -eke muoss₂ -ul [IP Mina-ka [CP x'_i x'₂ [IP Swunhi-ka x_i x₂
 who-dat what-acc Mina-nom
 Swunhi-nom
 sonmulhessnun]-ka] ah] -ni]? (LF)
 presented -Q know-Q'
 'To whom does Mina know whether Swunhi presented what?'

(41) The multiple subject construction in Korean

- a. Saengson₁ -i ochingo₂ -ka mas₃ -i chota
 fish-nom a cuttle fish-nom taste-nom good

'As far as fish is concerned, a cuttle fish is tasty.'



In (40), both the matrix and embedded clause are w-interrogative. Since in Korean w-interrogative clauses the wh-phrase is a spec-head configuration with the X_{+wh} by the presence of the Q-morpheme, overt wh-movement to [Spec CP] is ruled out. Given that wh-scrambling in Korean is allowed, therefore, the only possible option is that wh-phrase moves to IP-adjoined position, known as scrambling. The fact that IP-adjoined positions in Korean, described as a multiple subject language, are A-positions, regardless of the matrix or embedded IP-adjoined positions, as discussed in chapter 4, contributes to scrambling of wh-phrase across another wh-phrase without an intervention effect, as multiple specifiers can be scrambled freely without an intervention effect as in (41b-c) because *nuku* and *muoss* in (40b-c) which are scrambled to IP-adjoined positions are located in the position of multiple specifiers of a single head, T. Thus, the paths can be crossed in (40b) and nested in (40c)²⁰ as long as the scrambled positions are

²⁰ Consider (Richards 2001:48)

- a. John-ga [Tanaka sensei-ga dare-ni nani-o yomaseta to] itta-o?
 John-nom Tanaka teacher-nom who-dat what-acc read-cause that said Q
 'Who did John say professor Tanaka made read what?'
- b. Dare-ni nani-o John-ga [Tanaka sensei-ga] yomaseta to] itta-o?
 who-dat what-acc John-nom Tanaka teacher-nom read-cause that said Q
- c. *Nani-o dare-ni John-ga [Tanaka sensei-ga] yomaseta to] itta-o?
 what-acc who-dat John-nom tanaka teacher-nom read-cause that said Q
-

Assuming that multiple wh-phrases in Japanese are moved to a single landing-site regardless of local and long-distance scrambling, Richards points out that in the case of the multiple wh-phrase scrambling, the paths should apparently cross in that the highest wh-phrase moves first, followed by movement of the next highest wh-phrase to a specifier below the landing-site of the first movement in (b), in order to satisfy Shortest Move. As a consequence, (c), in which the paths are nested, disobeying Shortest Move, is ungrammatical. However, given that the languages which have the Q-morpheme in w-interrogative clauses have a spec-head configuration with X_{wh} without overt

IP-adjoined positions.

Comparing (40b-c) with (40d), in (40d) the entire embedded CP is scrambled to the matrix IP-adjoined position. As observed above, in Korean *w*-interrogative clauses, which have Q-morpheme, *wh*-phrases staying in situ move to the scope positions at LF. This fact yields the identical scopal interpretation of (40a-d) as in (40a'-a''), (40b'-b''), (40c'-c'') and (40d'-d''), since the scrambled *wh*-phrases to the IP-adjoined positions are reconstructed to the original position, and after that they move to scope positions.

If the matrix and embedded CPs have *wh*-phrase independently, then *wh*-phrase in the matrix CP takes the matrix scope, while *wh*-phrase in the embedded clause takes the embedded scope:

(42) Korean

a. [_{CP} [_{IP} Mina-ka nuku-eke [_{CP} [_{IP} Swunhi-ka muoss-ul sonmulhessnun]-ka] Mina-nomwho-dat Swunhi-nomt what-acc presented -Q muloss] -ni]?

asked -Q

a'. [_{CP} nuku₁ -eke [_{IP} Mina-ka x₁ [_{CP} muoss₂ -ul [_{IP} Swunhi-ka x₂ who-dat Mina-nom what-acc Swunhi-nom sonmulhessnun]-ka] muloss] -ni]?

presented -Q asked -Q

'To whom did Mina ask what Swunhi presented?

b. [_{IP} nuku₁ -eke [_{CP} [_{IP} Mina-ka t₁ [_{CP} [_{IP} Swunhi-ka muoss-ul who-dat Mina-nom Swunhi-nom what-acc sonmulhessnun]-ka] muloss] -ni]?

presented -Q asked -Q

b' [_{CP} nuku₁ -eke [_{IP} Mina-ka x₁ [_{CP} muoss₂ -ul [_{IP} Swunhi-ka x₂

wh-movement to [Spec CP], unlike English, German and Slavic languages, in my view, in Japanese *w*-interrogative clauses which have the Q-morpheme, overt *wh*-movement to [Spec CP] is ruled out. Meanwhile, since in Japanese scrambling of *wh*-phrase is allowed, scrambling of *wh*-phrase to the IP-adjoined positions are not excluded. In other words, in (b-c) not overt *wh*-movement to [Spec CP] but overt *wh*-movement to IP-adjoined position is involved. Under this assumption, the claim that multiple *wh*-phrases in Japanese are moved to a single landing site is problematic, because Japanese is also a multiple subject language, which means that the landing sites of *wh*-phrases in (b-c) are not single position, but rather multiple positions. So, if I am on the right track, (c) can be also grammatical like the Korean example (40c), due to the assumption that IP-specifier positions in Japanese, described as a multiple subject language like Korean, can be considered to be the positions of the multiple specifiers of a single head, T.

- who-dat Mina-nom what-acc Swunhi-nom
 sonmulhessnun]-ka] muloss] -ni)?
 presented -Q asked -Q
 'To whom did Mina ask what Swunhi presented?'
- c. [_{IP} nuku₁ -eke[_{IP} muoss₂ -ul [_{CP} [_{IP} Mina-ka t₁ [_{CP} [_{IP} Swunhi-ka t₂
 who-dat what-acc Mina-nom Swunh-nom
 sonmulhessnun]-ka] muloss] -ni)?
 presented -Q asked -Q
- c'. [_{CP} nuku₁ -eke [_{IP} Mina-ka x₁ [_{CP} muoss₂ -ul [_{IP} Swunhi-ka x₂
 who-dat Mina-nom what-acc Swunhi-nom
 sonmulhessnun]-ka] muloss] -ni)?
 presented -Q asked -Q
 'To whom did Mina ask what Swunhi presented?'

In (42a) *nuku-eke* (who-dat) is located in the matrix CP, and *muoss-ul* (what-acc) in the embedded CP. Since in Korean *w*-interrogative clauses overt *wh*-movement to [Spec CP] is excluded, *wh*-phrase should move to the scope positions covertly to satisfy FI. As shown by (42a'), *nuku-eke* (who-dat) in the matrix CP moves to the matrix scope position, taking the matrix scope, and *muoss-ul* (what-acc) in the embedded CP to the embedded scope position, taking the embedded scope.²¹ As predicted, *wh*-scrambling

-
- ²¹ a. [_{CP} [_{IP} Mina-ka [_{CP} [_{IP} Swunhi-ka nuku-eke muoss-ul sonmulhessnun]-ka]
 Mina-nom Swunhi-nom who-dat what-acc presented -Q
 ah] -ni)?
 know-Q
- a'. [_{CP} [_{IP} Mina-ka [_{CP} nuku₁ -eke muoss₂ -ul [_{IP} Swunhi-ka x₁ x₂
 Mina-nom who-dat what-acc Swunhi-nom
 sonmulhessnun]-ka] ah] -ni)? (LF)
 presented -Q know-Q
 'Does Mina know to whom Swunhi presented what?'
- a''. [_{CP} nuki₁ -eke muoss₂ -ul [_{IP} Mina-ka [_{CP} x'₁ x'₂ [_{IP} Swunhi-ka x₁ x₂
 who-da what-acc Mina-nom Swunhi-nom
 sonmulhessnun]-ka] ah] -ni)? (LF)
 presented -Q know-Q
 'To whom does Mina know whether Swunhi presented what?'
- b. [_{CP} [_{IP} Mina-ka nuku-eke [_{CP} [_{IP} Swunhi-ka muoss-ul sonmulhessnun]-ka]
 Mina-nom who-dat Swunhi-nomt what-acc presented -Q
 muloss] -ni)?
 asked -Q
- b'. [_{CP} nuku₁ -eke [_{IP} Mina-ka x₁ [_{CP} muoss₂ -ul [_{IP} Swunhi-ka x₂
 who-dat Mina-nom what-acc Swunhi-nom
 sonmulhessnun]-ka] muloss] -ni)?
 presented -Q asked -Q
 'To whom did Mina ask what Swunhi presented?'

to the IP-adjoined positions is allowed as in (42b-c). Despite the syntactic difference between (42b) and (42c), however, the LF representation of wh-phrase is identical by the fact that scrambled wh-phrase can be reconstructed to the original position, and after that wh-phrase moves to the matrix or embedded scope positions.

To summarize, the presence of Q-morpheme in Korean w-interrogative clauses rules out overt wh-movement to [Spec CP], only allowing wh-movement to IP-adjoined positions known as scrambling. Given that wh-phrases in situ should move to the scope positions for the satisfaction of FI, it appears that scrambled wh-phrases or entire CP to the IP-adjoined positions can be reconstructed to the original position, and after that they move to the scope positions. This fact makes the LF interpretation of scrambled and unscrambled versions identical.

6.2.2.2 An intervention effect and long distance wh-scrambling

As discussed in section 6.2.1.2, scrambling of wh-phrase over interveners exempts an intervention effect in that scrambled wh-phrase c-commands interveners, creating the possibility of a scrambled wh-phrase as a goal to agree with head, as in (43b-c):

(43) Korean

- a. *_[IP]Swuchin-i _[CP]_[IP]modu-ka muoss-ul sassnun]-ka] ahnta]
 Swuchin-nom everyone-nom what-acc bought Q know
 'Swuchin knows what everyone bought'
- a'._[IP]Swuchin-i_[CP]_[Qua]modu_i -ka muoss_j ul] _[IP] t_i t_j sassnun]-ka] ahnta]
 Swuchin-nom everyone-nom what-acc bought -Q know
- b._[IP]Swuchin-i _[CP]_[IP]muoss_j -ul _[IP]modu-ka t_j sassnun]-ka] ahnta]
 Swuchin-nom what-acc everyone-nom bought -Q know
 'Swuchin knows what everyone bought'
- b'._[IP]Swuchin-i_[CP]_[Qua]muoss_j -ul modu_i -ka]_[IP] t_i t_j sassnun]-ka]
 ahnta]
 Swuchin-nom what-acc everyone-nom bought -Q know

The difference between (40) repeated in (a), and (42) repeated in (b), lies in the fact that in (a) wh-phrases can be moved to the embedded scope position as in (a') as well as the matrix scope position, which is empty, as in (a''), taking the embedded and matrix scope, while in (b), the embedded wh-phrase cannot move to the matrix scope position, since the matrix scope position has been already filled with *nuku-eke* (who-dat) located in the matrix CP, only taking the embedded scope as in (b').

- c. [_{IP} Muoss_j -ul [_{IP} Swuchin-i [_{IP} modu-ka t_j sassnun]-ka] ahnta]
 what-acc Swuchin-nom everyone-nom bought -Q know
 'Swuchin knows what everyone bought'
- c' [_{IP} Swuchin-i [_{CP} [_{Qua} muoss_j -ul modu_i -ka] [_{IP} t_i t_j sassnun]-ka] ahnta]
 Swuchin-nom what-acc everyone-nom bought -Q know

Recall that an intervention effect arises if the elements, which belong to the same feature class as wh-phrase, are located closer to the head than wh-phrase. Consequently, (43a), in which quantifier *modu-ka* (everyone), considered to be in the same feature class as wh-phrase, is located closer to the head than wh-phrase as in (43a'), is unacceptable. Scrambling of wh-phrase over interveners, however, eliminates an intervention effect, since scrambled wh-phrases in (43b-c) c-command interveners *modu-ka* (everyone). Given by (43a') and (43b', 43c'), scrambling of wh-phrase in (43b-c) cannot be undone at LF as in (43b') and (43c'), if involved elements are the same feature class. So I assume that scrambled wh-phrases across interveners which are in the same feature class as wh-phrase cannot be reconstructed to the original positions. When the scrambled wh-phrase is reconstructed to the original position, an intervention effect is generated by the fact that quantifier *modu-ka* (everyone) c-commands wh-phrase *muoss-ul* (what) just like the case of (43a), as in (43a'). As for scopal interpretation of wh-phrase, since wh-phrase is contained only within the embedded CP, the scrambled wh-phrase takes only the embedded scope, as in (43b') and (43c').

For another example, consider (44), in which both the embedded and matrix clauses are w-interrogative:

(44) Korean

- a. * [_{CP} [_{IP} Swuchin-i- [_{CP} [_{IP} Minki-ka chingchan-un onuchinku-lul haessnun]
 Swunchi-nom Minki-nom praise-focus which friend-acc did
 ka] muloss]-ni?
 Q asked -Q
 'Which friend did Swuchi ask whether Minki praise (not claim)?'
 (contrastive Focus)
- a'. [_{CP} [_{IP} Swuchin-i [_{CP} [_{Qua} chingchan_i -un onuchnku_j -lul] [_{IP} Minki-ka
 Swuchin-nom praise-focus which friend-acc Minki-nom
 x_i x_j haessnun ka] muloss]-ni?

- did Q asked -Q
- a" [_{CP} [_{Qua} chingchan_i -un onuchnku_j -lul] [_{IP} Swuchin-i [_{CP} x'_i x'_j [_{IP} Minki-ka x_i x_j haessnun ka] muloss]-ni?
- b. [_{CP} [_{IP} Swuchin-i [_{CP} [_{IP} [Minki-ka [_{VP} onuchinku_i -lul chingchan-un
- Swuchin-nom Minki-nom which-friend-acc praise-top
- t_i haessnun]]-ka] muloss]-ni?
- did -Q asked -Q
- b'. [_{CP} [_{IP} Swuchin-i [_{CP} [_{Qua} onuchnku_j -lul chingchan_i -un] [_{IP} Minki-ka
- Swuchin-nom which friend-acc praise-focus Minki-nom
- x_i x_j haessnun ka] muloss]-ni?
- did Q asked -Q
- b." [_{CP} [_{Qua} onuchnku_j -lul chingchan_i -un] [_{IP} Swuchin-i [_{CP} x'_i x'_j [_{IP} Minki-ka x_i x_j haessnun ka] muloss]-ni?
- c. [_{CP} [_{IP} Swuchin-i [_{CP} [_{IP} onuchinku_i -lul [_{IP} Minki-ka chingchan-un
- Swuchin-nom which friend-acc Minki-nom praise-top
- t_i haessnun]]-ka] muloss]-ni?
- did -Q asked -Q
- c'. [_{CP} [_{IP} Swuchin-i [_{CP} [_{Qua} onuchnku_j -lul chingchan_i -un] [_{IP} Minki-ka
- Swuchin-no which friend-acc praise-focus Minki-nom
- x_i x_j haessnun ka] muloss]-ni?
- did Q asked -Q
- c". [_{CP} [_{Qua} onuchnku_j -lul chingchan_i -un] [_{IP} Swuchin-i [_{CP} x'_i x'_j [_{IP} Minki-ka x_i x_j haessnun ka] muloss]-ni?
- d. [_{IP} Onuchinku_i -lul [_{CP} [_{IP} Swuchin-i [_{CP} [_{IP} [Minki-ka chingchan-un
- which friend-acc Swuchin-nom Minki-nom praise-top
- t_i haessnun]-ka] muloss]-ni?
- did -Q asked -Q
- d'. [_{CP} [_{IP} Swuchin-i [_{CP} [_{Qua} onuchnku_j -lul chingchan_i -un] [_{IP} Minki-ka
- Swuchin-nom which friend-acc praise-focus Minki-nom
- x_i x_j haessnun ka] muloss]-ni?
- d". [_{CP} [_{Qua} onuchnku_j -lul chingchan_i -un] [_{IP} Swuchin-i [_{CP} x'_i x'_j [_{IP} Minki-ka x_i x_j haessnun ka] muloss]-ni?

The fact that Focus is in the same feature class as wh-phrase yields an intervention effect such that *chingchan-un* (praise) blocks movement of wh-phrase to the scope positions at LF as in (44a') and (44a"). For the

exemption of an intervention effect, three possibilities can be considered in (44a); scrambling of wh-phrase to the embedded VP and IP adjoined positions as in (44b-c), respectively, and scrambling of wh-phrase to the matrix IP adjoined position as in (44d). Wh-phrases in scrambled versions in (44b-d), c-command interveners at LF as in (44b', 44b''), (44c', 44c'') and (44d', 44d''), creating the possibility for wh-phrase to agree with head, i.e wh-scrambling over interveners eliminates an intervention effect. This means that scrambling of wh-phrases over interveners which belong to the same feature class as wh-phrase cannot be undone at LF as in (44b', 44b''), (44c', 44c'') and (44d', 44d'').

Then it is not difficult to assume that the addition of wh-phrase, in the position where the added wh-phrases c-command interveners, improves the deviance as in (46):

(45) Korean

a. *_{CP} [_{IP} Swuchin-i-_{CP} [_{IP} Minki-ka chingchan-un onuchinku-lul haessnun]

Swunchi-nom Minki-nom praise-focus which friend-acc did

ka] muloss]-ni?

Q asked -Q

'Which friend did Swuchin ask whether Minki praise`? (not claim)

(contrastive Focus)

b. [_{CP} [_{IP} Swuchin-i [_{CP} [_{IP} [Minki-ka [_{VP} onuchinku_i -lul chingchan-un

Swuchin-nom Minki-nom which-friend-acc praise-top

t_i haessnun]]-ka] muloss]-ni?

did -Q asked -Q

b'. [_{CP} [_{IP} Swuchin-i [_{CP} [_{Qua} onuchinku_j -lul chingchan_i -un] [_{IP} Minki-ka

Swuchin-no which friend-acc praise-focus

Minki-nom

x_i x_j haessnun ka] muloss]-ni?

did Q asked -Q

b." [_{CP} [_{Qua} onuchinku_j -lul chingchan_i -un] [_{IP} Swuchin-i [_{CP} x'_i x'_j [_{IP}

Minki-ka x_i x_j haessnun ka] muloss]-ni?

(46) Korean

a.?_{CP} [_{IP} Swuchin-i nuku-eke [_{CP} [_{IP} Minki-ka chingchan-un onuchinku-lul

Swunchi-nomwho-dat Minki-nom praise-focus which friend-acc

haessnun] ka] muloss]-ni?

did Q asked -Q

- a.' [CP nuku_k -eke]_{IP} Swuchin-i x_k [CP [Qua chingchan_i -un onuchnku_j -lul]
 who-dat Swuchin-nom praise-focus which friend-acc
 [_{IP} Minki-ka x_i x_j haessnun ka] muloss]-ni?
 Minki-nom did Q asked Q
 'To whom did Swuchin ask which friend Minki praised?'

Unlike (44a), repeated here in (45a), in (46a) the deviance is improved by the addition of wh-phrase *nuku-eke* (who-dat) to the position where wh-phrase *nuku-eke* (who-dat) c-commands the intervener *chingchan-un* (praise-focus) as in (46a'), known as additional effect (cf Saito 1994). If we compare (45b), in which the wh-phrase c-commands the intervener directly as in (45b') and (45b''), being fully grammatical with (46a), however, (46a) is not perfectly grammatical, since in the embedded CP the wh-phrase is still c-commanded by the intervener as in (46a'), though wh-phrase *nuku-eke* (who-dat) in the matrix CP c-commands the intervener.

If interveners are not c-commanded by added wh phrases, however, the ungrammaticality which is caused by an intervention effect cannot be remedied, as illustrated in (47):

(47) Korean

- a.* [_{CP} [_{IP} Swuchin-i- [_{CP} [_{IP} Minki-ka chingchan-un onuchinku-lul haessnun]
 Swunchi-nom Minki-nom praise-focus which friend-acc did
 ka] muloss]-ni?
 Q asked -Q
 'Which friend did Swuchin ask whether Minki praise`?' (not claim)
 (contrastive Focus)?'
- b.* [_{CP} [_{IP} Swuchin-i- [_{CP} [_{IP} Minki-ka chingchan-un onuchinku-lul ha-n]-
 Swuchin-nom Minki-nom praise-focus which-friend-acc do-C
 sasil-ul] nuku-eke muoss]-ni?
 fact-acc who-dat asked -Q
 'To whom did Swuchin ask the fact that Minki praised which friend?'

Despite the addition of wh phrase *nuku-eke* (who-dat) in the matrix CP, (47) is still ungrammatical because the added wh-phrase does not c-command the intervener *chingchan-un* (praise-focus), i.e. in (47b) the added wh-phrase c-commands *sasill-ull* (fact-acc), not the intervener *chingchan-un* (praise-focus).

Given that an intervention effect arises if the elements belong to the same feature class as wh-phrase, it appears that scrambling of elements, which do not belong to the same feature class as wh-phrase, across wh-phrase is permissible, as discussed in 6.1.2.1 :

(48) Korean

a. $[_{IP} \text{Swuchin-i } [_{CP} [_{IP} \text{Minki-nun } \text{muoss-ul } \text{choahanun}]]\text{-ka}] \text{ ahnta}]$
 Swuchin-nom Minki-top what-acc like -Q

know

'Swuchin knows what Minki likes'

a'. $[_{IP} \text{Swuchin-i } [_{CP} [_{Top} \text{Minki}_i] [_{Qua} \text{muoss}_j \text{-ul}] [_{IP} x_i x_j \text{ choahanun}]]\text{-ka}]$
 Swuchin-nom Miki-top what-acc like -Q

ahnta]

know

b. $[_{IP} \text{Swuchin-i } [_{CP} [_{IP} \text{muoss}_j \text{-ul}] [_{IP} \text{Minki-nun } t_j \text{ choahanun}]]\text{-ka}] \text{ ahnta}]$
 Swuchin-nom what-acc Minki-top like -Q know

b'. $[_{IP} \text{Swuchin-i } [_{CP} [_{Top} \text{Minki}_i] [_{Qua} \text{muoss}_j \text{ul}]] [_{IP} x_i x_j \text{ choahanun}]]\text{-ka}]$
 Swuchin-nom Miki-top what-acc like -Q

ahnta]

know

Since in (48a) topic *Minki* (Minki) and *muoss-ul* (what-acc) are independent from each other as in (48a'), i.e. *Minki* (Minki) and *muoss-ul* (what-acc) do not belong to the same feature class, Minki is not an intervener with respect to wh-movement, being grammatical. Scrambling of wh-phrase across topic *Minki*, thus, can be reconstructed to the original position, which means that scrambling of wh-phrase over elements which do not belong to the same feature class as wh-phrase is undone at LF, as in (48a') and (48b').

To summarize, an intervention effect is generated if the elements, which belong to the same feature class as wh-phrase, are located closer to the head than the wh-phrase at LF. Thus, scrambling of wh-phrase over the elements which belong to the same feature class eliminates intervention effect, since by the scrambling of the wh-phrase across intervener, the wh-phrase is located closer to the head than the intervener. From this fact, it is predicted that the addition of wh-phrases in the position in which the added wh-phrases c-command interveners improves the deviance.

6.3 Conclusion

In section 6.1, I have investigated the properties of wh-phrases in natural languages. As we know, their properties vary from language to language. For example, in order to satisfy EPP-feature on C, in English and German wh-multiple questions, one wh-phrase should overtly move to [Spec CP] leaving other wh-phrases in-situ, whereas in multiple questions in Slavic languages all of the wh-phrases are fronted. Wh-situ languages such as Korean, Japanese and Hindi-Urdu, in which wh-phrases stay in situ without wh-movement, belong to the third type. Given that Korean has the Q-morpheme which endows XP with C_{+wh} , it is not surprising that in Korean overt wh-movement to [Spec CP] is excluded, since in Korean w-interrogative clauses wh-phrase is a spec-head configuration with the X_{+wh} by the presence of Q-morpheme without wh-movement [Spec CP], i.e. EPP-feature on C in Korean w-interrogative clauses is satisfied by the presence of Q-morpheme.

Keeping this in mind, in 6.2.1 I have discussed the properties of wh-scrambling. Since in Korean w-interrogative clauses, EPP-feature on C is satisfied by the presence of the Q-morpheme, with respect to overt wh-movement, what comes to mind is scrambling of wh-phrases to IP or VP adjoined positions, and this overt wh-movement to IP or VP adjoined positions is optional, since in Korean w-interrogative clauses wh-phrases can agree with the head C without overt wh-movement due to the presence of the Q-morpheme. This indicates that wh-scrambling in Korean has nothing to do with the morphological requirements, and is thereby optional. This optionality contributes to the result that the scrambling of the wh-phrase at LF is undone, as long as scope bearing elements, which belong to the same feature as wh-phrases, are not involved. As a consequence, the scopal interpretation of scrambled and unscrambled wh-phrases is identical.

Following Rizzi (2000;2002), who indicates that the class of A'-positions splits into subclasses such as quantifiers, including Wh, Neg, measure and focus, and topic, in section 6.2.2 I have shown that scope bearing elements, which belong to the same feature class as wh-phrases, block wh-movement at LF, known as an intervention effect. However, this intervention effect is cured by wh-scrambling over the intervener, since wh-phrase is located closer to the head than the intervener by wh-scrambling across the

intervener at LF. From this observation I have concluded that wh-scrambling over the elements which do not belong to the same feature class as wh-phrase can be undone, while wh-scrambling across the elements, which belong to the same feature class as wh-phrase called interveners, cannot be undone.

Chapter 7 Other implications

In chapter 3, considering the empirical evidence, I have argued that scrambling is an optional movement operation. Bearing this in mind, in chapters 4, 5, and 6, I have investigated the properties of CIS, LDS and wh-scrambling. As observed in the previous chapters, scrambling is a leftward movement. Similarly, Topicalization, Quantifier Raising (QR) and Object Shift (OS) are also referred to as leftward movement. In order to compare properties of scrambling with their properties, as for the other implications, in this chapter, I will examine Topicalization, QR and OS.

In section 7.1, I will show that in Korean, NP-topics move to [Spec Top] for the satisfaction of the EPP-feature on the Top and multiple adverb-topics to IP-adjoined positions, i.e. topics can be iterated, and topicalization of VP, IP and CP is allowed, while topicalization of wh-phrases is ruled out. In Section 7.2, I will investigate the properties of quantificational phrases. For example, quantificational phrases in Korean move to [Spec Qua] to satisfy EPP-feature on Qua, and QR, which is covert movement, is constrained by finite clause boundaries. Finally, in section 7.3, I will explore the properties of OS. For example, OS takes place only if the main verb moves out of the VP, and the shifted object should be adjacent to the Case assigner I (T).

7.1 Topicalization

In general, the topic-comment articulation is described as topicalization. With respect to topicalization, however, there are two different views in the literature; Left-adjunction to IP and movement to [Spec TopP]. According to the former, topicalization is also considered to be a left adjunction to XP. The latter, however, claims that topic elements move to [Spec TopP] within the CP-projection. Following the latter assumption, in the next sub-sections, I will review the general properties of topicalization and compare them with those of scrambling.

7.1.1 Topicalization in Natural Languages

Traditionally (Reinhard 1982 and Halliday 1967), in English the left periphery, being articulated in topic and comment,¹ is described as topicalization, as in (1). The same situation appears in German, as in (2):

¹ For more discussion about topic-comment, see Meinunger 2000.

(1) Your book, you should give t to John (not to Paul)

(2) German (adopted from Grewendorf 2002:77)

Niemanden hat er gesehen.
nobody-acc has he seen

Constituents *Your book* in (1) and *Niemanden* in (2), which are left detached, are topics, expressing salient and old information, and a comment is the rest, i.e. a kind of a predicate.

In particular, topic-comment articulation in Italian and Greek is expressed by the construction called Clitic Left Dislocation (CLLD) noted by Cinque (1990):

(3) Italian (Cinque 1990:63 adopted from Rizzi 2000:250)

Il tuo libro, lo ho comparato.
'Your book, I bought it.'

(4) Greek (Alexiadou 1997:69):

ti Maria, o Janis *ti* sinandise
the-Mary-acc the-John-nom her met-3SH
'Mary, John met.'

The difference between CLLD in Italian and Greek and topicalization in English and German lies in the fact that CLLD² involves a clitic within the

² (1) Italian (Cinque 1990:63 adopted from Rizzi 2000:250)

a. Il tuo libro, lo ho comparato.

'Your book, I bought it.'

b. *Il tuo libro, ho comparato t.

'Your book, I bought.'

According to Rizzi, in (1a) where the topicalized element is the direct object, top requires a resumptive clitic within the comment. This fact results in the ungrammaticality of (1b) in which a resumptive clitic is absent within the comment.

Unlike the case of topicalization in German, in which quantifier can be topicalized as in (2), quantificational elements cannot be topics in CLLD constructions as in (3):

(2) German (cited from Grewendorf 2002:77)

Niemanden hat er gesehen
nobody-acc has he-nom seen

(3) Italian (Rizzi2000:250)

a. *Nessuno, lo ho visito.

'No one, I saw him.'

comment *lo* and *ti* as in (3-4), respectively, while topicalization in English and German does not have a clitic, as in (1-2).

According to the above data, topics in English and German and CLLD in Italian and Greek are phonetically null. Topics in languages such as Korean, Japanese and Hindi-Urdu, however, are morphologically marked by topic particles, i.e. in these languages Top heads are overt, thus pronounced as in (5-7):

(5) Korean

- a. Minki-nun chek-ul iknun-ta
 Minki-top a book-acc read-decl
 'As for Minki, he reads a book (thematic)
- b. Minki-ka chek-un iknun-ta
 Minki-nom a book-top read-decl
 'Minki reads a book (but not others) (contrastive)
- c. [_{VP} Peychi-lul ssu- ki]-nun Minki-ka hess-ta
 a letter-acc write-Nml -top Minki-nom did-decl
 'As for writing a letter, Minki did it.' (thematic)
- d. [_{IP} Minki-ka peychen-lul ssuki]-nun hessta
 Minki-nom letter-acc -Nml -top did
 'As for the fact that Minki writes a letter, he did it.'
- e. [_{CP} [_{IP} Minki-ka peynchi-lul soaata]-ko]-nun, [_{IP} Suchin-i malheaata]
 Minki-nom letter-acc wrote -that-top Suchin-nom said
 'As for the fact that Minki wrote a letter, Suchin said that he did.'
- e. [_{PP} Cheksang-wyie]-nun chek-i issta
 desk -o -top book-nom is
 'As far as on the desk is concerned, there is a book.' (thematic)

(6) Japanese

- a. John-wa hon-o yonta
 John-top a book read
 'As for John, he reads a book (thematic)
- b. ame-wa futteimasu-ga, yuki-wa futteimasen
 rain-top falling but snow-top not falling
 'It's raining but it isn't snowing.' (contrastive)

b. *Tutto, lo ho fatto.
 'Everything, I did it.'

(7) Hindi-Urdu (Kidwai 2000:42-44)

- a. jon-to kitab per^h ta he
 John-top book reads is
 'As for John, he reads books.' (thematic)
- b. baris-to ho--rehi he, per ole nahi per rahe he
 rain-top be PROG is but hail stones not fall PROG is
 'It's raining, but there's no hail.' (contrastive)

As (5-7) show, XPs in Korean, Japanese and Hindi-Urdu can be topicalized by the way of the attachment of topic markers such as *nun* in Korean,³ *wa* in Japanese and *to* in Hindi-Urdu. With regard to the semantics of *nun*, *wa* and *to* in (5-7), it is assumed that XPs marked by topic particles in these languages introduce the presupposition that the interlocutors in the discourse share the knowledge of the referent of XP-*nun*, *wa* and *to*. This leads us to suppose that XP-*nun*, *wa* and *to* interpreted as a topic should be old information or presumed old (cf. Choi 1995, Miyagawa 1987 and Kidwai 2000). In particular, XP-*nun*, *wa* and *to* can be interpreted as thematic reading, as in the (a) examples, or contrastive reading, as in the (b) examples, according to the semantic interpretation.

As shown by the translation, if the thematic reading is available, the topic has the function of the topic. In contrast, when the contrastive reading is required, the topic can be considered to be the focus, like the case of English, German, Italian and Greek as in (8-11):

(8) YOUR BOOK you should give t to John (not mine)

(9) German (Grewendorf 2002: 80)

³ a. Minki-nun chek-ul iknun-ta
 Minki-top a book-acc read-decl
 'As for Minki, he reads a book.'
 b. Minki-ka chek-ul iknun-ta
 Minki-nom a book-acc read-decl
 'Minki reads a book.'

In Korean, the topic marker *nun* makes a XP, marked with it the topic of the sentence, and XP marked with topic, XP-*nun*, stands out as familiar and prominent information among other elements of the sentence (cf. Choi 1995). Therefore, the subject *Minki* marked with topic marker *nun* in (a) is presented as a distinct entity from the rest of the sentence, whereas *Minki* marked with the nominative case marker in (b) is neutral, in that it is not informationally restricted.

JEMANDEN hat er kritisiert
 someone-acc has he criticized

(10) Italian (Rizzi 2000:240)

IL TUO LIBRO ho letto (, non il suo)
 'Your book I read, (not his)

(11) Greek (Alexiadou 1997:71)

TUS GALLUS (*tus)⁴ ematha kala menodas sto Parisi
 THE-FRENCH-acc cl-acc learnt-1SG well living in Paris

In (8-11) focal elements *YOUR BOOK*, *IL TUO LIBRO*, *JEMANDEN* and *TUS GALLUS* are preposed, bearing focal stress, known as focalization. Here, the preposed elements introduce new information, unlike the topicalization, in which preposed constituents express old information. Compared with (b) examples in (5-7), this data indicate that in these languages, the focus head is also phonetically null, like the topic head. As given by (5-7), however, in Korean, Japanese and Hindi-Urdu the topic head as well as the focus head are pronounced.

To summarize, topic is a preposed element, and the comment is a kind of complex predicate, called topic-comment articulation. Similarly, preposing of constituents bears focal stress, referred to as focalization. In languages such as English, German, Italian and Greek, both the topic head and focus head are phonologically null, whereas the topic head as well as focus head in Korean, Japanese and Hindi-Urdu are overt, thus pronounced.

7.1.2 Topic within the CP Projection

With respect to the ways of dealing with topicalization and CLLD, there are two different assumptions in the literature; left-adjunction to IP (Baltin 1982 and Lasnik/Saito 1992)) and movement to [Spec TopP] (Alexiadou 1997, M?ler/Sternefeld 1993, Kidwai 2000, Rizzi 1997;2000;2002, Grewendorf

⁴ In Greek focalization a clitic should be absent, as with Italian focalization (Italian Cinque 1990:63 cited from Rizzi 2000:250):

- a.* IL TUO LIBRO lo ho comparato (non il suo).
 'YOUR BOOK I bought it (not his)
 b. IL TUO LIBRO ho comparato t (non il suo).
 'YOUR BOOK I bought (not his)

2002 and many others). According to the former, topicalization, described as left-adjunction to IP, takes place optionally, while the latter says that topicalization targets the specifier of its own Topic Phrase (TopP) within the CP projection.

Firstly, consider the notion of topicalization as left-adjunction to IP:

- (12) a. John said that this book, he thought you would like t
 b. ... [this book₁] [_{IP} he thought [_{CP} [_{IP} [_{IP} you would like t₁]]]]
 (Lasnik/Saito 1992:81-82)

In (12a) NP *this book* stays in situ, and in (12b), the NP *this book* has undergone topicalization to the IP-adjoined position.⁵ This topicalization has occurred optionally, just like the case of scrambling, making it possible that non topicalized and topicalized versions can be freely alternated, not blocking each other.

Assuming of the successive-cyclic IP-adjunction under the precondition that the most deeply embedded [Spec CP] must be used as an escape hatch in the derivation of (12a), Lasnik/Saito point out that movement of *this book* through the embedded SPEC of CP is not excluded. So, derivation (12a) looks like (12b). Since traces must be bound through a derivation, in (12b) a trace is simultaneously bound by the position of [Spec CP] and the IP-adjoined adjunction position.

This approach, in which embedded topicalization is referred to as adjunction to IP (Baltin 1982 and Lasnik/Saito 1992), however, is contradicted by Müller/Sternefeld (1993;1997), who also deny Chomsky's notion

⁵ As the evidence that topicalization is a syntactic movement operation, Grewendorf (2002:83) considers reconstruction of variable binding and anaphor binding as in (a-b), and effect of Principle C as in (c), since they are analyzed under the relation of antecedent and an empty category, which result from the movement operation:

- a. Seinen_i Mantel, den hat niemand_i vergessen.
 he-gen coat which-acc has nobody forgotten
- b. Der Politiker_i hat [den Frieden mit sich_i /*ihm_i und seiner Familie]
 art-nom politician has Art-acc with himself/*him and he-gen family
 seiner Karriere geopfert
 he-gen career sacrificed
- c. *Das Buch ?er Chomsky_i , das hat er_i gestern in den Papierkorb
 art-nom about Chomsky which has he-nom yesterday into art-acc paper basket
 thrown

(1977;1986) that topicalization is subject to wh-island constraint, as wh-movement is:

- (13) a. John said that this book, he thought you would like t
 b. ... [this book_i] [_{IP} he thought [_{CP} [_{IP} [_{IP} you would like t_i]]]]
 (Lasnik/Saito 1992:81-82)

(14) German (M?ler/Sternefeld 1993:484)

- a. Ich glaube [_{CP} den Fritz_i hat [_{IP} sie t_i gesehen]]
 I believe ART-acc Fritz has sie-nom seen
 b. * Ich sagte [_{CP} wen_i hat [_{IP} sie t_i gesehen]]
 I said who-acc has she-nom seen

(15) German (M?ler/Sternefeld 1993:485)

- a. *Radios_i glaube ich [_{CP} gestern_j hat [_{IP} Ede t_j t_i repariert]]
 radios-acc believe I yesterday has Ede repaired
 b. ??Radios_i wei ich nicht [_{CP} wie_j (da) [_{IP} man t_j t_i repariert]]
 radios-acc know I not how that one repairs

Mueller/Sternefeld (1993) argue that (13b), in which movement from one type of A'-position to another type of A'-position is involved, is ruled out by the violation of PUB, according to which a variable that is α -bound must be β -free in the domain of the head of its chain. For Chomsky's claim that topicalization obeys the same island constraint as wh-movement, considering German, they indicate that topicalization occurs with V/2 in German as in (14a), excluding wh-movement, as in (14b). Furthermore, as shown by (15a-b), topic islands are much stricter than wh-island. From this observation, they conclude that topicalization is neither movement to the [Spec CP] nor adjunction to the IP, but rather targets the specifier of its own Topic Phrase (TopP). On this account, topicalization can be brought into the line with the last resort view of move α .

Similarly, Rizzi (2000;2002), assuming that a Top head belongs to the complementizer system, points out that the function of the Top is analogous to that of AgrS within the IP system, despite the difference that the specifier of Top is located in A'-position, unlike the specifier of AgrS, which is located in A-position. Consequently, (13b) and (14a) would then be (16-17):

- (16) John said [_{CP} that [_{Top} [_{SpecTop} [this book]_i] [_{IP} he thought [_{CP} [_{IP} [_{IP}

you would like t_1]]]]]

(17) (German)

Ich glaube [_{CP} [_{Top} [_{SpecTop} [den Fritz]_i hat [_{IP} sie t_1
gesehen]]]]]

I believe ART-acc Fritz has sie-nom
seen

(16-17), where *this book* and *den Fritz* move to the specifier of the Top, show that topicalization takes place for the spec-head configuration of the Top, in order that probe Top agrees with the goals *this book* and *den Fritz* as in (16-17), respectively, for the elimination of the uninterpretable structural Case of goals *this book* and *den Fritz* and the uninterpretable ϕ -features of the Top by the matching process agree. So, I assume that topicalization in (16-17) takes place for the satisfaction of the EPP-feature on Top as T and C require the EPP-feature on them. This means that topicalization is triggered by the morphological requirements, supporting the notion that topicalization is subject to last resort view of move α .⁶

Then the Topic in Korean, which has an overt head, looks like (19):

(18) Korean

[_{IP}Suchin-i [_{CP}[_{IP}Minki-nun chek-ul iknun-ta]-ko] malhessta]

Suchin-nom Minki-top book-acc read that said

'Suchin said that as for Minki, he reads a book.'

(19) Topic within the CP-projection

[_{IP} Suchin [_{CP} [_{Top} [_{SpecTop} Minki_i [_{IP} t_i chek-ul iknun-ta]-ko]
malhessta]

In (18), the topic particle *nun* can be considered to be an overt functional head, targeting [Spec TopP] inside the CP projection for the satisfaction of the EPP-feature on top as in (19).

As observed above, the topic particle *nun* in Korean can be used as the topic as well as focus. Keeping this in mind, consider the following example, in

⁶ For a precise analysis of topicalization as a last resort operation, see M?ler 1997, Grewendorf 2002 and Rizzi 2000).

order to see the relation between the topic and focus within the CP projection:

(20) Korean

- a. [IP Suchin-i [CP [IP Minki-nun chek-un⁷ iknun⁷]-ko] malhessta]
 Suchin-nom Minki-top book-foc read that said
 'Suchin said that as for Minki, he reads a book (but not other things)
- a' [IP Suchin-i [CP [Top [SpecTop Minki_i] [Qua [SpecQua chek_j] [IP t_i t_j iknun- ta]-ko]]] malhesta].
- b.* [IP Suchin-i [CP [IP Minki-nun chek-un iknun⁷]-ko] malhessta]
 Suchin-nom Minki-focus book-top read that said
 *'Suchin said that as for book, it is read by Minki.'
- b'.* [IP Suchin-i [CP [Qua [SpecQua Minki_i] [Top [SpecTop chek_j] [IP t_i t_j iknun- ta]-ko]]] malhesta].

(21) Korean

- a. [IP Suchin-i [CP [IP chek-un Minki-nun iknun⁷]-ko] malhessta]
 Suchin-nom book-top Minki-foc read that said
 'Suchin said that as for book, it is read by Minki (but not by other person)
- a'. [IP Suchin-i [CP [Top [SpecTop chek_i] [Qua [SpecQua Minki_j] [IP t_i t_j iknun- ta] ko]]] malhessta]
- b. * [IP Suchin-i [CP [IP chek-un Minki-nun iknun⁷]-ko] malhessta]
 Suchin-nom book-foc Minki-top read that said
 *'Suchin said that as for Minki, he reads a book (not other things).'
- b'* [IP Suchin-i [CP [Qua [SpecQua chek_i] [Top [SpecTop Minki_j] [IP t_i t_j iknun- ta] ko]]] malhessta]

As for the LF representation, following Rizzi, I assume that quantificational elements include wh-phrase, focus, Neg, and quantifier, i.e. wh-phrase, focus, Neg and quantifier form a kind of quantificational chain. Then, it is predictable that wh-phrase, focus, Neg and quantifier can be characterized as quantificational specifiers. This requires that at LF, the focus moves to [Spec Qua] and the topic [Spec Top], as in (20a' and b') and (21a' and b'). Given that in Korean topic particles *nun* and *un* can be used as topic as well as focus, (20-21) show that in Korean the element which is preposed, i.e. located higher than the other element, should be interpreted as the topic, as

⁷ According to the phonological environment, the particles *nun* and *un* are differently selected. For example, when there is no final consonant at the ending of the noun, *nun* is used, but if there is a final consonant at the ending of the noun, *un* is taken.

in (20a-a') and (21a-a'), if two elements marked with *nun* (*un*) are interpreted either as the topic or focus. This is the reason why (20b-b') and (21b-b'), in which the preposed element is interpreted as not topic, but focus, are excluded. This fact suggests that in Korean, the topic is located higher than the focus in the CP projection.

Along with this notion, next consider the relation between the topic-focus and the wh-phrase,⁸ which is also located within the CP projection:

(22) Korean

- a. [_{IP}Suchin-i [_{CP}[_{IP}Minki-nun muoss-un sassnun]-ka] mulossta]
 Suchin-nom Minki-top what-foc bought Q asked
 'Suchin asked what Minki bought.'
- a'. [_{IP}Suchin-i [_{CP} [_{Top} [_{SpecTop}Minki_i] [_{Qua} [_{SpecQua}muoss_j]] [_{IP} t_i t_j sassnun] ka.]]] mulossta]
- b.*[_{IP}Suchin-i [_{CP}[_{IP}muoss-un Minki-nun sassnun]-ka] mulossta]
 Suchin-nom what-top Minki-foc bought Q asked
 'Suchin asked what Minki bought.'
- b' *[_{IP}Suchin-i [_{CP} [_{Top} [_{SpecTop}muoss_i] [_{Qua} [_{SpecQua}Minki_j]] [_{IP} t_i t_j sassnun] ka.]]] mulossta]

As shown by (22a), the focus and wh-phrase can co-occur, meaning that the focus and wh-phrase share the same feature as in (22a'). On the other hand, the co-occurrence of the topic and wh-phrase is ruled out, as in (22b-b'), since the topic and wh-phrase target different landing sites, i.e. the topic is independent from the wh-phrase.

So far we have reached the conclusion that within the CP-projection in Korean, the topic is located higher than the focus, and the focus and wh-phrase share the same feature, while the topic is separated from the focus and wh-phrase. Here, the remaining question is the location of the wh-phrase in connection with the focus in the CP-layer. The following examples can help us to find an answer to this question:

(23) Korean

- a. *[_{IP}Suchin-i [_{CP}[_{IP}Minki-ka **chek-un** muoss-ul sassnun]-ka]

⁸ Note that wh-phrase, which forms a quantificational chain, moves to [Spec Qua] as focus does.

- Suchin-nom Minki-nom **book-top** what-acc bought Q
 mulossta]
 asked
 'Suchin asked what kind of book Minki bought.'
- b. *_{[IP}Suchin-i _{[CP}_{[IP}Minki-ka **chek-un** muoss-ul sassnun]-ka]
 Suchin-nom Minki-nom **book-focus** what-acc bought Q
 mulossta]
 asked
- b'. *_{[IP}Suchin-i _{[CP} _{[Qua} _{[SpecQua} chek_i muoss_j -ul]_{[IP} Minki-ka t_i t_j
 sassnun] ka.]]] mulossta]
- c. _{[IP}Suchin-i _{[CP}_{[IP}Minki-ka muoss_i -ul chek-un t_i sassnun]-ka]
 Suchin-nom Minki-nom what-acc book-focus bought Q
 mulossta]
 asked
- c'. _{[IP}Suchin-i _{[CP} _{[Qua} _{[SpecQua} muoss_i -ul chek_j -un]_{[IP} Minki-ka t_i t_j
 sassnun] ka.]]] mulossta]

The fact that *chek* (book), marked with *un*, cannot be interpreted as the topic within the clause in which the subject is presented, yields the ungrammaticality of (22a). In (22b) *chek* (book), marked with *un*, is not interpreted as the topic, but focus, which means that (22b) should be grammatical. Nonetheless, (22b) is still unacceptable because *chek* (book), which belongs to the quantificational elements, is located on the intervener position with respect to movement of the wh-phrase, also considered to be the quantificational element at LF, as in (22b'), known as an intervention effect. As (22c-c') show, since the wh-phrase is located higher than the focus within the CP-layer, scrambling of the wh-phrase over the focus *chek-un* (book) eliminates an intervention effect. This data indicate that the wh-phrase precedes the focus in the CP projection. Then the CP-layer in Korean looks like (24):

(24) Force Top [WH-phrase Focus] Fin IP

This analysis is consistent with Rizzi's notion (1997;2002:18), according to which the CP layers split into several positions by a system of functional heads and their projections, as given in (25):

(25) Force Top* Int Top* Focus Mod* Top* Fin IP

Returning to the topic again, in Korean, clauses can have a number of topics, as in Italian (Rizzi 2000:2002):⁹

(26) Korean

- a. [_{IP}Suchin-i [_{CP}[_{IP} oche-nun pame-nun korie-nun
Suchin-nom yesterday-top, at night-top on the street-top
saram-un chekssta]-ko mahessta]
people-top few that said
'Suchin said that as for on the street, yesterday, at night, there were a few
people.'
- b. [_{IP}Suchin-i [_{CP} [_{Top} [_{SpecTop}saram₁] [_{IP}oche_i [_{IP}pam_j [_{IP}kori_k] [_{IP}
t_i t_j t_k t₁ chekessta]]]]-ko] malhessta]

(27) Italian (Rizzi 2002:21)

L'anno prossimo, in questo modo, le elezioni, senza troppe difficult'a,
'Next year, in this way, the elections, without
trouble
a Ginni, proteste farglie vincere
(to) Gianni, you could make (to) him win them.'

In (26), where four elements *oche*, *pame*, *kori*, and *saram* are marked with topic particles, they can be interpreted as topics, since elements marked with topics represent each member of a contextually shared set. The same situation is found in Italian as in (27). The above data support the notion that a clause can have any number of topics. As far as LF representation of (26a) is concerned, it looks like (26b). In (26b) NP *saram* (people) moves to [SpecTop] and three adverbs *oche*, *pam* and *kori* to IP-adjoined positions, since adverbs which lack ϕ -features cannot be specifiers of a head. From (26b) I assume that only a single NP-topic targets specifier of topic-head, and the other non-argument topics move to IP-adjoined positions without an intervention effect. If I am on the right track, scrambling of multiple adverb topics is not ruled out.

On the other hand, four elements marked with *nun* (*un*) in (26), repeated in (28), cannot be interpreted as focus:

⁹ According to Alexiadou (1997:76), a clause in Greek has also a number of topics.

(28) Korean

- a. *_{[IP]Suchin-i} [_{CP} [_{IP} oche-nun pame-nun korie-nun
 Suchin-nom yesterday-foc, at night-foc on the street-foc
 saram-un chekssta]-ko mahessta
 people-foc few that said
- b. [_{IP]Suchin-i} [_{CP} [_{Top} [_{SpecTop} saram₁] [_{IP}oche_i [_{IP}pam_j [_{IP}kori_k] [_{IP}
 t_i t_j t_k t_l chekessta]]]]]-ko] malhessta]

The contrastive (focus) reading is required, if the contextually shared set involves at least one member. Consequently, the focus only referentially picks out one member of the set, standing out among other potentially topical elements in the discourse (cf. Miyagawa 1987 and Choi 1995). This is the reason why a clause does not have a number of foci, thereby (28) which has a number of foci is excluded.

Despite the fact that in Korean topics occur many times, however, in Korean a clause cannot have multiple NP-topics as in (29a), though it has multiple adverb-topics, as in (26):¹⁰

(29) Korean

- a. *_{[IP]Suchin-i} [_{CP} [_{IP}**Minki-nun Chelswu-nun** choahanta]-ko malhessta
 Suchin-nom **Minki-top Chelswu-top** like that said
- b. [_{IP]Suchin-i} [_{CP} [_{IP}**Minki-nun Chelswu-nun** choahanta]-ko malhessta
 Suchin-nom **Minki-top Chelswu-foc** like that said
 'Suchin said that as for Minki, he likes Chelwsu (not other person).'

As illustrated by (29b), if two NPs are marked with topic particles, only a preceding NP should be interpreted as the topic and the other as the focus, excluding (29a), where two NPs are interpreted as topics.

To summarize, topicalization targets the specifier of its own topic phrase within the CP projection, which splits into several subpositions such as topic, quantifier including focus, and wh-phrase. In Korean, the topic is located higher than the focus and can take place many times if the topic is an adverb, whereas a clause cannot have multiple focus.

So far, we have discussed topicalization. In the following section I will

¹⁰ Note that (26) has only one NP-topic and three adverb topics.

compare topicalization with scrambling, trying to find asymmetries between topicalization and scrambling.

7.1.3 Scrambling versus Topicalization

First, as observed in the previous section, topics in Korean are iterable, as in (26), repeated in (30):

(30) Korean

- a. [_{IP}Suchin-i [_{CP} [_{IP} oche-nun pame-nun korie-nun
Suchin-nom yesterday-top, at night-top on the street-top
saram-un chekssta]-ko maessta]
people-top few that said
'Suchin said that as for on the street, yesterday, at night, there were a few
people.'
- b. [_{IP}Suchin-i [_{CP} [_{Top} [_{SpecTop}saram₁] [_{IP}oche_i [_{IP}pam_j [_{IP}kori_k] [_{IP}
t_i t_j t_k t₁ chekssta]]]]-ko] maessta]

The same situation is found in scrambling in scrambling languages such as Korean, German and Hindi-Urdu:

(31) Korean

- a. [_{IP}Minki-ka Suchin-eke chek-ul chuossta]
Minki-nom Suchin-dat book-acc gave
'Minki gave a book to Swunhi.'
- b. [_{IP} Swunhi_i -eke [_{IP} chek_j -ul [_{IP} Minki-ka t_i t_j chuossta]]]
Swunhi-dat book-acc Minki-nom gave
'[To Suchin]_i [a book]_j, Minki gave t_i t_j.'

(32) German (Mueler/Sternefeld 1993:480)

- ... da dem Fritz_i die Geschichte_j [_{IP} niemand t_i t_j glaubt]
that art-dat Fritz the story-acc nobody-nom believes

(33) Hindi (Kidwai 2000:40)

- ye kitab_i ram-ko_j sita-ne t_j t_i di
this book-DO Ram-IO Sita-SU gave

As shown by (30b) and (31b), they differ in that in topicalization, argument

topics move to [Spec CP] and non-argument topics to IP-adjoined positions as in (30b), while the scrambled elements move to IP-adjoined positions as in (31b). Here, I assume that [Spec Top] as well as IP-adjoined positions in (30b) are A'-positions, since these positions are located within the CP-projection. On the other hand, since IP-adjoined positions in Korean can be considered to be multiple specifiers of a single head T, the elements which are scrambled to these positions as in (31b) are located in A-positions.

Second, the topic and wh-phrase cannot co-occur as in (32a), i.e. a wh-phrase cannot be used as the topic. In contrast, scrambling of the wh-phrase is allowed, as in (33):

(32) Korean

a.* [_{IP}Suchin-i [_{CP}[_{IP}Minki-ka **muoss-un** sassnun]-ka] mulossta]

Suchin-nom Minki-nom **what-top** bought -Q asked

'Suchin asked what Minki bought.'

a'.* [_{IP}Suchin-i [_{CP} [_{Top} [_{SpecTop}muoss_i [_{IP} Minki-ka t_i sassnun] ka.]

Suchin-nom what Minki-nom bought Q

mulossta]

asked

b. [_{IP}Suchin-i [_{CP}[_{IP}**Minki-nun** **muoss-ul** sassnun]-ka] mulossta]

Suchin-nom **Minki-top** **what-acc** bought -Q asked

'Suchin asked what Minki bought.'

b'. [_{IP}Suchin-i [_{CP} [_{Top} [_{SpecTop}Minki_i [_{Qua} [_{SpecQua}muoss_j -ul [_{IP} t_i t_j

sassnun]-ka] mulossta]

bought-Q asked

(33) Korean

a. [_{IP}Suchin-i [_{CP}[_{IP}Minki-ka **muoss-ul** sassnun]-ka] mulossta]

Suchin-nom Minki-nom what-acc bought -that asked

'Suchin asked what Minki bought.'

b. [_{IP}Suchin-i [_{CP} [_{IP}muoss_i -ul [_{IP}Minki-ka t_i sassnun]-ka] mulossta]

Suchin-nom what-acc Minki-nom bought -that asked

c. [_{IP}muoss_i -ul [_{IP}Suchin-i [_{CP}[_{IP}Minki-ka t_i sassnun]-ka] mulossta]

what-acc Suchin-nom Minki-nom bought that asked

Given that the CP layer can be dissolved into a series of functional heads,

the ungrammaticality of (32a) is yielded from the fact that within the CP layer, topics are independent from wh-phrases. On this account, the topic-and-wh-phrase cannot co-occur, since the Top and Qua heads are different functional heads in the CP-projection. If the topic and wh-phrase do not co-occur, therefore, a clause is grammatical as in (32b), because the topic targets a specifier of its own topic, and the wh-phrase specifier of Qua as in (32b'). As for scrambling of wh-phrase, the wh-phrase is freely scrambled, e.g. within the embedded clause as in (33b), as well as across the embedded clause, as in (33c).

From this observation, I assume that both topicalization and scrambling in Korean do not block wh-movement, unlike the cases in German and Hindi-Urdu:

(34) German (Mueler/Sternefeld 1993:483)

- a. *Warum_i den Fritz_j hat diese Frau t_i t_j geküsst?
 why art-acc Fritz has this-nom woman kissed
- b. Was_i hat dem Fritz_j diese Frau t_i t_j geschenkt?
 what-acc has art-dat Fritz this-nom woman given

(35) Hindi-Urdu (Kidwai 2000:46)

- a. *sita [enjum-ki-gari-ke-liye-to] kitna pēsa degi
 Sita Anjum-car-for -top how much money will give
 'How much money [for Anjum's car] will Sita pay?'
- b. [enjum-ki-gari-ke-liye]_i sita t_i kitna degi
 Anjum-gen-car-gen-for Sita how much will give
 'How much will Sita give for Anjum's car?'

Mueler/Sternefeld (1993) point out that in comparison with scrambling, which does not block wh-movement, as in (34b), topicalization has blocking effects on wh-movement in German, as in (34a). Similarly, in Hindi-Urdu, the topic creates a topic island for LF wh-movement as in (35a), while scrambling does not, as in (35b), noted by Kidwai (2000). Their analyses, however, face a serious problem, since in (34a) and (35a) topics can move to [Spec Top] and wh-phrases to [Spec Qua] separately, as the Korean examples (32b-b') show. Then, topicalization should have no blocking effects on wh-movement, due to the fact that the topic head and Qua head are different functional heads in the CP-projection.

Third, VP,¹¹ IP and CP in Korean can be topicalized as in (5), repeated in (36):

(36) Korean

a. [_{VP}Peynchi-lul ssu- ki]-nun Minki-ka hessta
 a letter-acc write-Nml -top Minki-nom did

'As for writing a letter, Minki did it.'

a' * [_{VP} Minki-ka ssu- ki]-nun peynchi-lul hess-a
 Minki-nom write-Nml-top a letter-acc did

b. [_{IP}Minki-ka peynchi-lul ssuki]-nun hessta
 Minki-nom letter-acc -Nml -top did

'As for Minki writes a letter, he did it.'

c. [_{CP} [_{IP}Minki-ka peynchi-lul soaata]-ko]-nun, [_{IP}Suchin-i malheaata]
 Minki-nom letter-acc wrote -that-top
 Suchin-nom said

'As for the fact that Minki wrote a letter, Suchin said that he did.'

As given by (36a), VP topicalization is permitted. However, the subject and a verb cannot be fronted together, leaving the object, as in (36a'). This means that the verb and its object in Korean form a constituent, and the verb and its subject do not. Similarly, IP and CP, in which the verb and its object form a constituent, can be topicalized.

However, scrambling of VP and IP is not allowed as in (37a-b), though CP-scrambling is, as in (37c):

(37) Korean

a. * [_{VP}Peychen-lul sossta]_i Mink-ka t_i
 a letter-acc wrote Minki-nom

b. * [_{IP}Minki-ka peynchi-lul sossta]_i t_i
 a friend-acc met-decl Minki-nom

c. [_{CP} [_{IP}Minki-ka peynchi-lul soaata]-ko]_i [_{IP}Suchin-i t_i malheaata]
 Minki-nom a letter-acc wrote -that Suchin-nom said

¹¹ In German, VP can also be topicalized:

German (Haider/Rosengren 1999:57)

[Eine VP topikalisiert] hat man hier

'a VP topicalized here'

A VP was topicalized here.

'Suchin said that Minki wrote a letter.'

The fact that scrambling in Korean is adjunction to IP and VP excludes scrambling of non-argumental VP and IP to the IP and VP adjoined positions. In contrast, argumental CP can be scrambled to the IP-adjoined positions since in my view, non-argumental VP and IP cannot be adjoined to the IP-adjoined positions.

To summarize, the above data suggest that scrambling and topicalization show symmetries as well as asymmetries with respect to their syntactic properties: 1) scrambling and topicalization can be iterated; NP-topic moves to [Spec Top] and multiple adverb-topics to IP adjoined positions, while multiply scrambled elements move to IP-adjoined positions. 2) Topicalization of wh-phrases is not permissible, while scrambling of wh-phrases is. 3) VP, IP and CP can be topicalized, but scrambling of VP and IP is ruled out, although CP-scrambling is possible.

7.2 Quantifier Raising (QR)

Unlike nonquantified expressions, Quantifier Phrases (QP) move to left-peripheral A'-positions to be interpretable by determining their relative scopes and binding domains known as Quantifier Raising (QR). In the classical analyses, in general, QR is described as XP-adjunction. In section 7.2.1, however, I will propose that quantificational phrases move to [Spec Qua], obeying economy conditions. After the discussion of the general assumptions of QR, in section 7.2.2, I will compare the properties of scrambling with those of QR.

7.2.1 The general views of QR

Quantifiers differ from R-expressions in that they do not pick out a specific entity from the universe of discourse. This fact forces them to be moved out of their argument positions, A-positions, to scope positions, left-peripheral positions, A'-positions at LF, in order for their relative scopes and binding domains to be determined, satisfying Full Interpretation. This movement of quantifiers at LF is referred to Quantifier Raising (QR) as in (38a') and (38b'):

- (38)a. Someone believes that everyone left.
 a'. [[someone_i [x_i believes [that [everyone_j [x_j left]]]]]]]
 a".*[[everyone_j [someone_i [x_i believes [that [x_j left]]]]]
 b. Someone believes that Frank likes everyone
 b'. [[someone_i [x_i believes [that [everyone_j [Frank likes x_j]]]]]]
 b".*[[everyone_j someone_i [x_i believes [that [Frank likes x_j]]]]]]
 (Aoun/Hornstein 1985:623-624)

In the literature (May 1985, Mueller/Sternefeld 1993, Aoun/Li 1993, Hornstein 1995, Kennedy 1997, Fox 1999 and many others), it has been suggested that quantifiers can be adjoined to any appropriate maximal projections, forming operator-variable structures in a way that quantifiers moved to operator positions bind variables associated with their maximal projections, as in (38a') and (38b'). This shows that QR can be considered to be XP (generally IP or VP)-adjunction, being constrained by finite clause boundaries as shown by (38a'') and (38b''). In (38a') and (38b') the scope of the quantifier is its c-command domain determining its scope¹² according to the direction of dependence between the quantifiers. Thus, QP *someone* in (38a) and (38b) has wide scope over the QP *everyone* in the embedded clause, because QR is subject to clause-boundedness.

Although QR is bound in finite clauses, in the literature (May 1985, Larson/May 1990, Fingo/May 1994, Pesetsky 2001, Kennedy 1997, Fox 1999 and Fintel/Iatridou 2003) it is indicated that in the case of antecedent contained deletion (ACD), quantifier phrases in the embedded clauses can take the matrix scope, since QR of the entire quantificational expression generates structures where the ACD is eliminated, as in (39b):

- (39) a. Kollberg recognized every suspect Beck did
 b. [_{IP} [_{DP} every suspect Beck did [_{VP} e]]]_i [_{IP} Kollberg
 [_{VP} recognized e]]]_i (Kennedy 1997:662-663)

In (39b), where the entire quantificational expression *every suspect Beck did* undergoes to an IP-adjoined position that dominates VP, the eliminated VP is not contained within its antecedent. This shows that QR of the entire quantificational expression avoids the regress problem in ACD¹³ structure in

¹² Scope Principle (Aoun/Li 19991 hereafter Dikken 1996:82):

X has scope over Y if X c-commands a member of the chain containing Y.

¹³ ACD constructions display Subjacency effects as in (a'), wh-island effect as in (b') and

that QR, which applies at LF, alters the domination relations among the participating VPs, as firstly noted by May (1985).

Bearing this in mind, consider the exceptional Case-marking (ECM) construction:

- (40) a. Someone expected every Republican to win
 b. Someone expected that every Republican would win
 (Hornstein 1999:51)

Assuming scope effect as the proof of raising, Hornstein points out that *someone* in (40) can be interpreted as within the scope of *every Republican*, since the ECM subject *every Republican* in (40a) raises to the matrix [Spec AgrO] to satisfy Case requirement. Since by raising of *every Republican* to the matrix [Spec AgrO], a deleted VP is contained in an ECM subject, *every Republican* can take the matrix scope. In contrast, in (40b), in which the Case of the embedded finite subject *every republican* is checked in the embedded [Spec AgrS], *someone* has no scope effect over *every Republican*, i.e. a deleted VP is contained in the subject of a finite embedded clause, ruling out that the eliminated VP cannot escape antecedent containment. The above data tell us that QR is needed in antecedent-contained deletion (ACD) constructions in order for VP-deletion to be licensed.

With respect to QR and ACD construction, Fox (1999:184-185) indicates that QR in ACD constructions exempts condition C as in (41b), whereas QR without ACD does not, as in (41a):

- (41) a. ??* You introduced him_i to everyone John_i wanted you to meet.
 a' you [everyone that John_i wanted you to meet]_x
 [introduced him_i to x one that John_i wanted you to meet].
 b. You introduced him_i to everyone John_i wanted you to.
 b'. you [everyone that John_i wanted you to <introduce him to x>]_x
 [introduced him_i to x]

complex NP effect as in (c):

- a. Duells suspected everyone Angleton said Philby did.
 a' ??*Duells suspected everyone Angleton wondered why Philby did
 b. Who did Angeleton say Philby suspected.
 b'. ??Who did Angeleton wonder why Philby suspected.
 c. ?? Duells suspected everyone that Angleton believed the claim that Philby did.
 c' ?? Who did Angeleton believe the claim that Philby suspected.

(Lasnik 1999:43)

(41a), which has the LF representation as in (41a'), violates Condition C. (41b) which involves ACD, however, can be interpreted as in (41b'), not violating Condition C. That is, ACD-resolving QR bleeds condition C.¹⁴

As is well known, however, a English sentence which has two quantifiers in the same minimal sentence is ambiguous, due to the relative scope of the two quantifiers, having two interpretations, as in (42a-b):

(42) Everyone saw someone

- a. For every x there is some y such that it is the case that x saw y ($\forall > \exists$)
 b. There is some y, such that for every x, it is the case that x saw y ($\exists > \forall$)

In (42) both quantifiers move to left peripheral scopal positions at LF and either can move to a position above the other, as firstly noted by May (1977). This fact results in the ambiguity in (42). As the following examples show, however, sentences in Korean and Japanese which contain two quantifiers in the same minimal sentences are unambiguous, unlike the case of (42):

(43) Korean (Beck/Kim 1996:41)

Nukunka-ka onu kyosuna chonkyongha-n-ta.
 someone-nom evry professor respect-Pres-Dec
 'Someone respects every professor ($\exists > \forall$, * $\forall > \exists$)

(44) Japanese (adopted from Hornstein 1999:57)

Dareka-ga daremo-o semata
 someone-nom everyone-acc blamed
 'Someone blamed everyone ($\exists > \forall$, * $\forall > \exists$)

¹⁴ Furthermore, in regarding to scope reconstruction, considering condition C Fox (1999:169) suggests that scope reconstruction feeds condition C as in (1a) and (2):

- (1) a. *[How many people from Diana's_i neighborhood] does she_i think
 there are t at the party?
 b. [How many people from Diana's_i neighborhood] does she_i think
 t are at the party?
 (2) ?? I reported him_i to [every cop that John_i was afraid of]

(1a) and (2), in which obligatory scope reconstruction takes place, are ungrammatical or severely degraded because of the violation of condition C. However, (1b) is acceptable, since scope reconstruction is not obligatory.

(42) and (43-44) are identical in that they contain two quantifiers in the same minimal sentences. However, (42), in which the scope of quantifiers is not encoded by their linear order, showing ambiguity, is distinguished from (43-44), considered to be rigid-scope languages, in which the scope of quantifiers is entirely determined by their surface position, being unambiguous. Then, following May (1985), who proposes that the scope of quantifiers at LF is determined by the maximal projection which dominates it, I assume that the LF representation of (42) and (43-44) would be in (45-47):

(45)a. $[_{IP} \text{ [everyone]}_i \ [_{IP} \text{ [someone]}_j \ [_{IP} \text{ } x_i \text{ saw } x_j \]]]]$

b. $[_{IP} \text{ [someone]}_j \ [_{IP} \text{ [everyone]}_i \ [_{IP} \text{ } x_i \text{ saw } x_j \]]]]$

(46) $[_{IP} \text{ [nukunka}_i \text{ -ka]} \ [_{IP} \text{ } x_i \text{ } [_{VP} \text{ [onu kyosuna}_j \]} \ [_{VP} \text{ } x_j \text{ chonkyonghanta} \]]]]$

(47) $[_{IP} \text{ [dareka}_i \text{ -ga]} \ [_{IP} \text{ } x_i \text{ } [_{VP} \text{ [daremo}_j \text{ -o]} \ [_{VP} \text{ } x_j \text{ semata}]]]]]$

In (45) where *everyone* and *someone* are dominated by the same maximal projection IP, either can take wide scope as shown by (45a-b). In contrast, in (46-47) the existential quantifier *nukunka-ka* (someone-nom) and *dareka-ka* (someone-nom) are dominated by the maximal projection IP, whereas the universal quantifier *onu kyosuna* (everyone-acc) and *daremo-o* (everyone-acc) in (46-47) are dominated by the maximal projection VP. This means that in (46-47) the scope of *nukunka-ka* (someone-nom) *dareka-ka* (someone-nom) must be wider than that of *onu kyosuna* (everyone-acc) *daremo-o* (everyone-acc) in (46-47).

So far we have discussed the traditional QR research. However, the traditional analyses seem to be problematic. As noted above, left peripheral scopal positions are A'-positions. Under this assumption, since the subject quantifier is located on intervener position for the movement of the object quantifier at LF, the object quantifier cannot cross the subject quantifier. Then (42) cannot be interpreted as (45) due to an intervention effect. Keeping this problem in mind, now I will provide an analysis relying on the fact that quantifiers do not move to XP-adjoined positions, but rather move to [Spec Qua] for the satisfaction of EPP-feature on head, Qua. On this account, the LF representation of (42-44), repeated in (48-50), would not be illustrated (45-47), repeated in (51-53), but rather (54-56) :

(48) Everyone saw someone

a. For every x there is some y such that it is the case that x saw y ($\forall > \exists$)

b. There is some y , such that for every x , it is the case that x saw y ($\exists > \forall$)

(49) Korean (Beck/Kim 1996:41)

Nukunka-ka onu kysosuna chonkyongha-n-ta.

someone-nom evry professor respect-Pres-Dec

'Someone respects every professor ($\exists > \forall$, $*\forall > \exists$)

(50) Japanese (adopted from Hornstein 1999:57)

Dareka-ga daremo-o semat

someone-nom everyone-acc blamed

'Someone blamed everyone ($\exists > \forall$, $*\forall > \exists$)

(51)a. $[_{IP} [everyone]_i [_{IP} [someone]_j [_{IP} x_i \text{ saw } x_j]]]]$

b. $[_{IP} [someone]_j [_{IP} [everyone]_i [_{IP} x_i \text{ saw } x_j]]]]$

(52) $[_{IP} [nukunka_i -ka] [_{IP} x_i [_{VP} [onu kysosuna_j] [_{VP} x_j \text{ chonkyonghanta}]]]]]]$

(53) $[_{IP} [dareka_i -ga] [_{IP} x_i [_{VP} [daremo_j -o] [_{VP} x_j \text{ semata}]]]]]]]$

(54)a. $[_{Qua}[_{SpecQua} \text{everyone}_i \text{ someone}_j] [_{IP} x_i \text{ saw } x_j]]$

a' $[_{Qua}[_{SpecQua} \text{someone}_j \text{ everyone}_i] [_{IP} x_i \text{ saw } x_j]]$

(55)a. $[_{Qua} [_{SpecQua} \text{nukunka}_i -ka \text{ onu kysosuna}_j] [_{IP} x_i \text{ chonkyonghanta}]]]$

a' $[_{Qua} [_{SpecQua} \text{onu kysosuna}_j \text{ nukunka}_i -ka] [_{IP} x_i \text{ chonkyonghanta}]]]$

(56)a. $[_{Qua}[_{SpecQua} \text{dareka-ga}_i \text{ daremo-o}_j] [_{IP} x_i \text{ x}_j \text{ semata}]]]$

a' $[_{Qua}[_{SpecQua} \text{daremo-o}_j \text{ dareka-ga}_i] [_{IP} x_i \text{ x}_j \text{ semata}]]]$

As given by (54a-a'), quantifiers in English can move to [Spec Qua] across another quantifier without an intervention effect, resulting in unambiguity, since in (54a) *everyone* c-commands *someone* and in (54a') *someone* *everyone*. Then it appears that the two quantifiers *everyone* and *someone* are equidistant from the base positions. On the other hand, the fact that the scope of quantifiers is entirely determined by their surface position in Korean and Japanese rules out the LF representation of (55a') and (56a'). That is, in these languages two quantifiers are not equidistant from the base positions, thus, the universal quantifier *onu kysosuna* and *daremo* cannot

cross the existential quantifier *nukunka-ka* and *dareka-ka* because of an intervention effect. As a result, the only possible LF representation of (49) and (50) looks like (55a) and (56a), in which the subject existential quantificational phrase takes scope over the object universal quantificational phrase, being unambiguous.

As observed above, with respect to QR, in the literature it is proposed that the scope of quantificational elements is clause bound, as in (34), repeated in (57). Here, assuming that quantifiers move to [Spec Qua], I will show the reason why QR should be clause-bound:

(57) a. Someone believes that everyone left.

a'. [[someone_i [x_i believes [that [everyone_j [x_j left]]]]]]]

a"*[[everyone_j [someone_i [x_i believes [that [x_j left]]]]]]]

(Aoun/Hornstein 1985:623-624)

In my approach, LF representation of (57) would be (58):

(58)a. [_{Qua}[_{SpecQua} someone_i [x_i believes [_{CP} that [_{Qua}[_{SpecQua} everyone_j [x_j left]]]]]]]]]

b. *[[_{Qua}[_{SpecQua} everyone_j someone_i [x_i believes [_{CP} that x'_j [x_j left]]]]]]]

Since in A'-chain¹⁵ core structural relations should be local, like the case of wh-movement, the matrix quantifier *someone* moves to the matrix scopal position [Spec Qua] and the embedded quantifier *everyone* to the embedded scopal position [Spec Qua] as in (58a), in order to satisfy FI. Accordingly, (58b), where the embedded quantifier *everyone* moves to the matrix scopal position [Spec Qua] skipping the embedded scopal position [Spec Qua], violates the locality condition in terms of MP shortest move. The fact that scopal interpretation of quantifiers is always possible within the CP-layer, which is split into subclasses such as topic, quantificational elements and modifier as noted by Rizzi (1997;2002), excludes the LF interpretation like (58b), because the embedded left peripheral scopal position is closer than that of the matrix for the scopal interpretation of the embedded quantifier.¹⁶

¹⁵ Note that quantificational chain in (58a) is A'-chain.

¹⁶ According to M?ler/Sternefeld (1993), since CP never constitutes a possible adjunction site for LF movement due to the violation of PUB, QR should be clause-bound.

Similarly, the embedded quantifier subject in Korean takes only the embedded scope as in (59c-c'). However, the embedded quantifier ECM subject can take the matrix scope as in (59a-a'):

- (59)a. Suchin-i [motu-lul ywucoy-lako] saenkakhanta
 Suchin-nom everyone-acc to be guilty think
 'Suchin thinks [everyone to be guilty]
 (Everyone can take wide scope)
 a'. [Qua [SpecQua motu_i -lul [IP suchin-i [IP t_i ywucoy-lako] saenkakhanta]
 b. Suchin-i [PRO ku chek-ul saki-ro] keychunghessta
 Suchin-nom the book-acc buy-to decided
 'Suchin decided [PRO to buy the book]
 c. Suchin-i [CP motu-ka ywucoyta-lako] saenkakhanta
 Suchin-nom everyone-nom is guilty -that think
 'Suchin thinks that [everyone-nom is guilty]
 (everyone takes only the embedded scope)
 c'. [IP Suchin-i [CP [Qua [SpecQua motu_i -ka [IP t_i ywucoyta]-lako]]]
 saenkakhanta]

(60) CP-layer in Korean

Force Top Qua (wh, focus) Fin IP

In general, the accusative Case of the ECM subject *modu-lul* in (59a) is externally licensed by the matrix verb *saenkakhanta* (believe), while the Case of a null PRO subject is internally licensed by the null-Case infinitive particle *ro* as in (59b). Then it appears that control structure and finite clauses have the selectional relation to C-T_{comp}, allowing an EPP-feature, whereas raising /ECM constructions have the relation V-T_{def}, ruling out an EPP-feature, as noted by Chomsky (2001:8). In other words, as shown by (59a'), the ECM subject quantifier *modu-lul* in the embedded IP, which lacks the finiteness, should move to the matrix scope position for its scope to be determined, since the scope position in Korean is located above the Finiteness which is typically related to tense and mood, as in (60). This means that the only possible scope position in (59a) is the matrix scope position. The fact that within the embedded CP-layer the scope for the nominative quantifier can be determined, however, makes it impossible for the embedded subject quantifier to move to the matrix [Spec Qua] as in (59c-c').

In my research, the quantifier ECM subject moves to scope position [Spec Qua], i.e. A'-movement is involved, unlike Hornstein's approach, in which A-movement is involved in a sense that the ECM subject moves to [Spec AgrO] to be case assigned.

To summarize, in traditional analyses, quantifiers move to IP-adjoined scopal positions, in order for their relative scopes and binding domains to be determined. Considering the problem found in the traditional approaches, however, I have proposed that quantifiers move not to IP-adjoined left peripheral positions, but rather to [Spec Qua] for the satisfaction of EPP-feature on head, Qua.

7.2.2 Scrambling versus QR

First, as noted in chapters 4, 5 and 6, Scrambling is the process of IP-and-VP adjunction as in (61b-c) and optional movement. In contrast, in my analysis, quantificational elements move to [Spec Qua] for the satisfaction of EPP-feature on head Qua, i.e. QR is an instance of last resort view of move α as in (62b):

(61) Korean

- a. [_{IP}Minki-ka oche chinku-eke peynchi-lul ssoستا]
- Minki-nom yesterday friend-dat letter-acc wrote
- 'Minki wrote a letter to a friend yesterday.'
- b. [_{IP}Peynchi_i -lul [_{IP}Minki-ka oche chinku-eke t_i ssoستا]]
- letter-acc Minki-nom yesterday friend-dat wrote
- c. [_{IP}Minki-ka oche [_{VP}peynchi_i -lul [_{VP}chinku-eke t_i ssoستا]]]
- Minki-nom yesterday letter-acc friend-dat wrote

(62) a. Nukunka-ka onu kyosuna chonkyongha-n-ta.

someone-nom every professor respect-Pres-Dec

'Someone respects every professor ($\exists > \forall, * \forall > \exists$)

b. [_{Qua} [_{SpecQua} nukunka_i -ka onu kysosuna_j [_{IP} x_i x_j chonkyonghanta]

Second, scrambling, as (63-66) show, can cross tensed boundaries, whereas QR is constrained by finite clause boundaries, as in (67a-b):

(63) Korean

Chinku_i -lul Minki-ka [Swunhi-ka kori eso t_i mannassta-ko] malhessta
 friend Minki-nom Swunhi-nom on the street met -that said
 'A friend_i , Minki said that Swunhi met t_i on the street'

(64) Japanese

Sono hon-o_i John-ga [Mary-ga t_i katta to] omotteiru
 that book-acc John-nom Mary-nom bought that thinks
 'That book_i , John thinks that Mary bought t_i .'

(65) Russian (adopted from M?ler/Sternefeld 1994:341)

Ja byl [_{CP} [_{NP} novuju skolu]_i [_{CP} gde strojat t_i]]
 I was new school-acc where they-build

(66) Hindi-Urdu (Kidwai 2000:35)

nur-ko_i mε janti hu, tUm sδb log t_i bohδ pyar kδrte ho
 Noor-do I know am you all people lot love do are
 'Noor, I know, all of you love a lot.'

(67)a. Someone believes that everyone left.

a'. [_{Qua} [_{SpecQua} someone_i [_{x_i} believes [_{CP} that [_{Qua} [_{SpecQua} everyone_j [_{x_j} left]]]]]]]]

b. Suchin-i [_{CP} motu-ka ywucoyta-lako] saenkakhanta (Korean)

Suchin-nom everyone-nom is guilty -that think
 'Suchin thinks that [everyone-nom is guilty]

(everyone takes only the embedded scope)

b'. [_{IP} Suchin-i [_{CP} [_{Qua} [_{SpecQua} motu_i -ka [_{IP} t_i ywucoyta]-lako]]]
 saenkakhanta]

(68) John said that (they wrote that) Mary played on every piano that we
 predicted he would

(Fintel/Iatridou 2003:183)

(69)a. Suchin-i [motu-lul ywucoy-lako] saenkakhanta
 Suchin-nom everyone-acc to be guilty think

'Suchin thinks [everyone to be guilty]

(Everyone can take wide scope)

a'. [Qua [SpecQua motu_i -lul [IP suchin-i [IP t_i ywucoy-lako] saenkakhanta]

As observed above, scrambling is the process of adjunction. The landing sites of scrambling, however, vary from language to language. For example, scrambling in Korean and Japanese is described as IP and VP adjunction, and scrambling in Russian is referred to as IP,VP and CP adjunction. As a consequence, in (63-64) and (66), argument NPs are scrambled from the embedded clause to the matrix IP-adjoined positions, and in (65) the argument NP is extracted out of the embedded clause to the matrix-CP-adjoined positions. In contrast, as shown by (67a-b), generally, quantificationl phrases can not be moved from the embedded clause to the matrix IP adjoined positions, since within the embedded CP-layer, quantifier phrases have the option for scope to be determined anyway, though ACD-resolving quantificational phrases and the quantifier ECM subject should not be clause bound, as in (68-69).

Thirdly, scrambling is overt movement, as in (61), repeated in (70), and QR as in (59), repeated in (71), is covert LF movement.

(70) Korean

- a. [IP Minki-ka oche chinku-eke peynchi-lul ssoستا]
 Minki-nom yesterday friend-dat letter-acc wrote
 'Minki wrote a letter to a friend yesterday.'
- b. [IP Peynchi_i -lul [IP Minki-ka oche chinku-eke t_i ssoستا]]
 letter-acc Minki-nom yesterday friend-dat wrote
- c. [IP Minki-ka oche [VP peynchi_i -lul [VP chinku-eke t_i ssoستا]]
 Minki-nom yesterday letter-acc friend-dat wrote

(71)a. Suchin-i [motu-lul ywucoy-lako] saenkakhanta
 Suchin-nom everyone-acc to be guilty think

'Suchin thinks [everyone to be guilty]

(Everyone can take wide matrix scope)

a'. [Qua [SpecQua motu_i -lul [IP suchin-i [IP t_i ywucoy-lako] saenkakhanta]

b. Suchin-i [CP motu-ka ywucoyta-lako] saenkakhanta

Suchin-nom everyone-nom is guilty -that think

'Suchin thinks that [everyone-nom is guilty]

(everyone takes only the embedded scope)

b'. [_{IP} Suchin-i [_{CP} [_{Qua} [_{SpecQua} motu_i -ka [_{IP} t_i ywucoyta]-lako]]]
saenkakhanta]

In (70b-c) the object *peynchi-lul* (letter-acc) is scrambled to IP and VP adjoined positions, respectively. The movement which is involved in scrambling in (70b-c) is overt because it affects phonology in that the scrambled object is pronounced in its new scrambled position, i.e. the highest position in a movement chain is pronounced and unpronounced in its trace positions. However, in (71a-b), in which QR occurs, a moved quantifier is pronounced in a trace position, rather than its final position, as if no movement had taken place, not affecting phonology. This movement is called covert (cf. Pesetsky 2001). If we consider overt and covert movement in the sense of Chomsky (1993;1995), (70b-c), where the movement operation takes place before spell out, raising all of the category with pied-piping for PF, is overt, and (71a-b) is covert, since in (70b-c), only an attracted feature raises to the checking position after spell out, copying only the grammatical features. This shows that the difference in the material copied by the movement operation attributes to phonological distinctions. Also, the fact that QR is needed in antecedent-contained deletion (ACD) constructions in order for VP-deletion to be licensed supports the notion that QR is covert movement, because for the interpretation of ACD, phonologically vacuous movement of the phrase, which contains the deletion site, is required.

Now consider not the differences between scrambling and QR, but rather the relations between them.

As noted in chapter 4, a sentence in Korean which contains two quantifiers in the same minimal sentence is unambiguous, as in the (a) examples in (43), repeated in (72). Interestingly, however, it is pointed out that scrambling of quantifiers alters the scopal interpretation, as in (72b):

(72) Korean (Beck/Kim 1996:41)

- a. Nukunka-ka onu kyosuna chonkyongha-n-ta.
 someone-nom every professor respect-Pres-Dec
 'Someone respects every professor ($\exists > \forall$, $*\forall > \exists$)
- b. Onu kyosuna nukunka-ka t_i chonkyongha-n-ta.
 every professor someone-nom respect-pres-Dec

'Someone respects every professor ($\exists > \forall, \forall > \exists$)

(73) Hoji's observation (Beck/Kim 1995:41)

QP1 ...QP2

Following Hoji (1985), Beck/Kim claim that QP1 is unambiguous if it is base generated as in (73), but is ambiguous if QP1 is fronted, derived by scrambling. The problem is that there is no clear explanation why QP1, which is scrambled to IP-adjoined position is ambiguous, though QP1 is unambiguous, if it is base generated.

Thus, given that in rigid-scope languages such as Korean, the scope of quantifiers is entirely determined by their surface position, and quantifiers move to [Spec Qua], I assume that the LF representaton of (72a-b) would be (74):

(74)(Korean)

a. [_{Qua} [_{SpecQua} nukunka_i -ka onu kysosuna_j [_{IP} x_i x_j chonkyonghanta]

a'. * [_{Qua} [_{SpecQua} Onu kysosuna_i nukunka_j -ka [_{IP} x_i x_j chonkyonghanta]

b. [_{Qua} [_{SpecQua} onu kysosuna_i nukunka_j -ka [_{IP} x_i x_j chonkyonghanta]

b'. * [_{Qua} [_{SpecQua} nukunka_j -ka onu kysosuna_i [_{IP} x_i x_j chonkyonghanta]

In (74a), where *nukuna-ka* (someone-nom) c-commands *onu kysosuna* (every professor), *nukuna-ka* (someone-nom) takes the scope over *onu kysosuna* (every professor), ruling out the scope effect of *onu kysosuna* (every professor) over *nukuna-ka* (someone-nom) as in (74a'), since *nukuna-ka* (someone-nom) in (74a) is located on intervener position of the movement of *onu kysosuna* (every professor). This means that the paths should be crossed,¹⁷ and not nested to obey Superiority. Due to the same reason, (74b)

¹⁷ Following Yatsushiro (1996) who indicates that local scrambling of quantifiers obeys Superiority, Richards points out that scrambling of the higher of the two quantifiers as in (1b) or both quantifiers which preserve the underlying c-command relation between them as in (1c) makes the sentences unambiguous, since (1c) where the paths are crossed obeys Superiority:

where the scrambled *onu kyosuna* (every professor) moves across *nukuna-ka* (someone-nom) without an intervention effect taking scope over *nukuna-ka* (someone-nom) is the only possible LF interpretation. Consequently, (75b') in which *nukuna-ka* (someone-nom) moves over the intervener *onu kyosuna* (every professor) is excluded. Thus, the scrambled version (72b) can be also unambiguous like (72a). My approach shows precisely the reason why the only quantificational phrase which c-commands another quantificational phrase at LF should take scope. Then, (72) can be revised as in (75), where both sentences are unambiguous:

(75) Korean

- a. Nukunka-ka onu kyosuna chonkyongha-n-ta.
 someone-nom evry professor respect-Pres-Dec
 'Someone respects every professor ($\exists > \forall$, $*\forall > \exists$)
- b. Onu kyosuna nukunka-ka t_i chonkyongha-n-ta.
 everyprofessor someone-nom respect-pres-Dec
 'Someone respects every professor ($\forall > \exists$, $*\exists > \forall$)

Here one might argue that in general scrambling of quantifiers produces scope ambiguities as in (76):

(76) German (Haider/Rosengren 1999:13)

- a. da man fast jedem Experten mindestens ein Bild zeigte
 (unambiguous scope)
 'that one almost every expert at least one picture showed'
 that at least one picture was shown to almost every expert
- b. da man [fast jedes Bild]_i mindestens einem Experten e_i zeigt

(1) Japanese (Richards 2001:64)

- a. John-ga dareke-ni daremo-o syookaisita
 John-nom someone-dat everyone-acc introduced
 'John introduced everyone to someone.'
 unambiguous: someone>everyone
- b. Dareka-ni John-ga ---daremo-o syookaisita
 someone-dat John-nom everyone-acc introduced
 unambiguous:someone>everyone
- c. Dareka-ni daremo-o John-ga --- --- syookaisita
 someone-dat everyone-acc John-nom introduced
 unambiguous:someone>everyone

(ambiguous scope)

'that one almost every picture at least one expert showed'

that almost every picture was shown to at least one expert

Following Frey (1993) Haider (1999:13) points out that "a quantifier Q can get a wide scope reading with respect to a phrase E, iff at least one member of the chain of E is c-commanded by Q". Accordingly, in (76b), where the universal quantifier c-commands the existential quantifier, the existential quantifier c-commands a trace of the scrambled universal quantifier, making it possible that this phrase can be assigned to the scope of the lower quantifier. This is the reason why (76b) is ambiguous.¹⁸ However, recall that quantifiers can be counted as the multiple specifiers of a single head, Qua. Then, at LF the existential quantifier cannot have the scope over the universal quantifier, i.e. the universal quantifier is located on intervener

¹⁸ According to Pafel's approach (1993 adopted from Fisher 1999) to quantifier scope in German, the scope effect would be determined from the difference between the scopal values (SV) as in (1-2):

(1) $SV(Q_1) - SV(Q_2) > 1$:

The quantifier with the larger SV takes wide scope, i.e. the sentence is unambiguous.

(2) $SV(Q_1) - SV(Q_2) < 1$:

Either quantifier may take wide scope, i.e. the sentence is ambiguous.

The factors such as SUBJECT, EX-PRE (external precedence) and IN-DIS (inherent distributivity) are involved for Pafel in the culminative character of the approach:

EX-PRE ... is assigned to quantifiers in the Vorfeld	1.5
which linearly precede other quantifiers;	
SSUBJECU ... is assigned to subject quantifiers	1
IN-DIS is assigned to quantifiers that have	1
inherently distributive character.	

(3) a. Jeder Pianist hat eine Fuge in seinem Repertoire.
 every pianist-nom has a fugue-acc in his repertoire

Q_1 = jeder Pianist, Q_2 = eine Fuge

Q_1 : EX-PRE+SUBJECT+IN-DIS $SV(Q_1) = 1.5+1+1 = 3.5$

Q_2 :- $SV(Q_2) = 0$

$Q_1 > Q_2$: possible $Q_2 > Q_1$: impossible

b. Eine Fuge_i hat jeder Pianist t_i in seinem Repertoire

Q_1 : EX-PRE $SV(Q_1) = 1.5$

Q_2 . SUBJECT+IN-DES $SV(Q_2) = 1+1 = 2$

$Q_1 > Q_2$: possible $Q_2 > Q_1$: possible

As we see, Pafel's approach shows that base generated clause (3a) is unambiguous, whereas the scrambled clause, (3b) is ambiguous. However, note that in (3) only one quantifier is involved, i.e. on my account, in (3) no problem arises. If in (3) two quantifiers are involved, then, on my account, the ambiguities which is produced by scrambling of quantifiers faces a same problem as in (76b).

position for the movement of the existential quantifier. So, on my account, (76b) should be unambiguous.

As another relation between scrambling and QR, consider the fact that the scrambling of quantificational phrases exempts WCO effect as observed in chapter 4:

(77) Korean

a. * ku_i -uy chinku-ka nukunka $_i$ -lul kriwohanta

he-gen friend-nom someone-acc miss

'His $_i$ friend misses someone $_i$.'

b. nukunka $_i$ -lul ku_i -uy chinku-ka t_i kriwohanta

someone-acc he-gen friend-nom miss

'Someone $_i$, his $_i$ friend misses t_i '

(78) Hidi (Kidwai 2000:51)

a. *Uski $_i$ behen-ne her lerke $_i$ -ko dek^h a

his sister-nom each boy-acc saw

'His $_i$ sister saw every boy $_i$ '

b. her lerke $_i$ -ko uski $_i$ behen-ne t_i dek^h a

each boy-acc his sister-nom saw

'His $_i$ sister saw every boy $_i$.'

If operators c-command pronouns from A'-positions, as in (77a) and (78a), they are ruled out due to WCO effect, i.e. in (77a) and (78a), the pronominal in the subject can not be coindexed with quantificational phrases in situ. If quantificational phrases are scrambled to IP-adjoined positions as in (77b) and (78b), however, pronominals in the subject can be bound with the scrambled quantificational phrases, since scrambling of quantificational phrases exempts WCO effect by creating the new binding possibilities.

To summarize, the distinctions between scrambling and QR are as follows:

1) scrambled elements move to IP and VP adjoined positions and quantificational phrases [Spec Qua]. 2) scrambling is not subject to clause-boundedness, while QR is constrained by finite clause boundaries except for the quantifier ECM subject and ACD-resolving QR. 3) scrambling is overt movement, whereas QR is covert. Moreover, as for other relations between scrambling and QR, the change of scope effect and

exemption of WCO effect, which are derived by scrambling, have been discussed.

7.3 Object Shift (OS)

Object shift, which is found in all the Scandinavian languages, occurs by the way of leftward movement of the object out of VP, when the main verb is moved out of a predicate in overt syntax. As observed in chapters 3, 4, 5 and 6, scrambling is also leftward movement in that the scrambled elements move to IP and VP adjoined positions. Section 7.3.1 deals with the general views of OS, and in section 7.3.2 I will try to find out the relations between OS and scrambling.

7.3.1 The general assumptions of OS

In the Germanic SVO languages such as Icelandic, Norwegian, Swedish and Danish, an object may move out of a VP preceding the negation and other predicate adjunct, when the main verb has moved out of a VP, not making it possible that the shifted object crosses the main verb. This leftward movement of the object out of a VP is described as Object Shift (OS)¹⁹ and the fact that OS is permitted only if the main verb moves out of a predicate in overt syntax, is referred to Holmberg's Generalization (HG 1986):

(79) Icelandic (Holmberg/Platzack 1995:141;143)

a. Jon pekkir hana ekki

John knows her not

a'.* Jon hefur hana (ekki) seð.

John has her/it not seen

b. Lasu studentarnir greinina ekki allir?

read the-students the-article not all

'Didn't the students all read the article?'

¹⁹ Unlike OS, in which the object moves out of a VP, in Japanese the complement subject is raised to the matrix clause known as Raising to Object (RTO) as in (1):

(1) John-ga Bill-o_i [t_i baka-da -to] omot-teiru.
 John-nom Bill-acc fool-COP-COMP think-PROG
 'John thinks of Bill as a fool.'
 (Tanaka 2002:637)

(80) Swedish (Holmberg/Platzack 1995:141;143)

- a. Johan k?ner henne inte
 Johan knows her not
- b. L?te studenterna den/*artikeln inte alla?
 read the students it the-article not all
- b'.*Studenterna vill den (inte) l?a
 the-students want it not read

(81) Danish (Vikner 1994:499)

- a. Hvorfor l ste studenterne den/*artiklen ikke t
 why read students-the it /the-article not
- b. Hvorfor har Peter ikke k?bt den
 why has Peter not bought it
- b'.*Hvorfor har Peter den ikke k?bt t?
 why has Peter it not bought

(79a'), (80b') and (81b'), in which the verb is still inside the VP, are ungrammatical, since in (79a'), (80b') and (81b') the shifted object crosses the main verb. With respect to OS, there is a distinction between Icelandic OS, and Swedish OS and Danish OS. For example, in Icelandic both pronouns and full NPs undergo object shift as in (79a) and (79b), whereas in Swedish and Danish only pronominal objects may, as in (80b) and (81a). Given that the object which stays in base positions receives Case from V , and the shifted object from I , it appears that this asymmetry results from the fact that I in Icelandic contains agreement feature, but I in Swedish and Danish lacks agreement feature.²⁰

If OS takes place by the way of the object out of a VP when the main verb is moved out of a predicate in overt syntax, then OS can be considered to be leftward movement, VP-adjunction (Vikner 1994, Holmberg/Platzack 1995), though there are different views with respect to the landing site of Scandinavian OS. For example, Holmberg/Platzack (1995) point out that the landing site of Scandinavian object Shift is a mixed position, posing some properties of A and A' movement, whereas Vikner (1994) assumes that adjoined position is A-position. As we observed above, the shifted object is Case-licensed by I , or in terms of Chomsky, T. This fact requires a strict

²⁰ As the evidence that I in Swedish and Danish lacks agreement morphology, Holmberg/Platzack (1995) and Vikner (1995) note that Swedish and Danish do not have V-to-I in embedded clauses.

adjacency between the shifted object and I such that the shifted object must be the leftmost VP-adjoined position, intervening nothing between it and I, as in (82):

(82) Icelandic (Holmberg/Platzack 1995:153)

- a. að peir lasu bokina ekki allir
 that they read the-book not all
- b. að peir lasu ekki allir bokina
- c. ?? að per lasu ekki bokina allir

In (82a) in which the object shift occurs to the position next to I, the Case of the shifted object is licensed by I, and in (82b), where the object stays in base position, V licenses the Case to the object. Consequently, they are acceptable. In contrast, (82c), in which the negation intervenes between the shifted object and I, is severely degraded, since the position of the shifted object is not the leftmost VP-adjoined position, thus the shifted object cannot receive Case from I.

With respect to OS, considering the evaluation of the probe-goal relation, Chomsky (2001:27-28) points out that OS languages and non-OS languages differ, in that OS languages allow the association of T and in situ subject under the assumption that terms of the minimal domain of H are equidistant from probe P, while non-OS languages permit association only under the notion that the phonological edge of HP is accessible to probe P. This difference accounts for the richness of T,²¹ according to which a richer T allows a deeper search of the category including the goal.

Bearing this in mind, consider the examples (79-81), repeated in (83-84), in terms of Chomsky:

²¹ Icelandic, in which both pronouns and full NPs undergo OS, has a richer inflectional verbal morphology than Danish, where only the pronominal object undergoes OS:

(a) *throw*, infinitive and present indicative:

		Icelandic	Danish
	Inf	kaste	kaste
Sg.	1	eg kasta	jeg kaster
	2	þu kastar	du kaster
	3	hana kastar	han kaster
Pl.	1	við k?tum	vi kaster
	2	þið kasti	I kaster
	3	þeir kasta	de kaster

(Vikner 1995:119)

(83) Icelandic (Holmberg/Platzack 1995:141;143)

- a. Jon þekkir hana ekki
John knows her not
- a'.* Jon hefur hana (ekki) séð.
John has her/it not seen
- b. Lasu studentarnir greinina ekki allir?
read the-students the-article not all
'Didn't the students all read the article?'

(84) Swedish (Holmberg/Platzack 1995:141;143)

- a. Johan k?ner henne inte
Johan knows her not
- b. L?te studenterna den/*artikeln inte alla?
read the students it the-article not all
- b'.*Studenterna vill den (inte) l?a
the-students want it not read

(85) Danish (Vikner 1994:499)

- a. Hvorfor l ste studenterne den/*artiklen ikke t
why read students-the it /the-article not
- b. Hvorfor har Peter ikke k?bt den
why has Peter not bought it
- b'.*Hvorfor har Peter den ikke k?bt t?

If we consider (83-85) in Chomsky's sense, in (83a) *Jon* (John) and *hana* (her), in (83b) *studentarnir* (the-students) and *greinina* (the-students), in (84a) *Johan* and *henne* (her), in (84b) *studenterna* (the-students) and *den* (it) and in (85a) *studenterne* (studenten) and *den* (it) are equidistant from the probe, T (I). The equidistance makes for the subject and the shifted object to be selected as its goal for agree to be applied for the elimination of the uninterpretable ϕ -features of head T and the uninterpretable structural Case of a goal.

As discussed above, OS is allowed only if V has raised to I, known as Holmberg's Generalization (HG).

HG, however, is revised by Chomsky (2001), who considers phonological adjacency as in (86):

- (86) a. v^* is assigned an EPP-feature only if that has an effect on outcome.
 b. The EPP position of v^* is assigned Int'.
 c. At the phonological border of v^*P , XP is assigned Int'.
 (Chomsky 2001:35)

Keeping this in mind, consider again the examples (79-81), repeated in (87-89), in terms of (86):

(87) Icelandic (Holmberg/Platzack 1995:141;143)

- a. Jon þekkir hana ekki
 John knows her not
 a'.* Jon hefur hana (ekki) séð.
 John has her/it not seen
 b. Lasu studentarnir greinina ekki allir?
 read the-students the-article not all
 'Didn't the students all read the article?'

(88) Swedish (Holmberg/Platzack 1995:141;143)

- a. Johan k?ner henne inte
 Johan knows her not
 b. L?te studenterna den/*artikeln inte alla?
 read the students it the-article not all
 b'.*Studenterna vill den (inte) l?a
 the-students want it not read

(89) Danish (Vikner 1994:499)

- a. Hvorfor l ste studenterne den/*artiklen ikke t
 why read students-the it /the-article not
 b. Hvorfor har Peter ikke k?bt den
 why has Peter not bought it
 b'.*Hvorfor har Peter den ikke k?bt t?
 why has Peter it not bought

Since in (87a'), (88b') and (89b'), where V-raising does not take place, the trace of the object is in a v^*P -internal position, the parameter (86c) cannot be applied. This leads us to suppose that v^* cannot have an EPP-feature. On the other hand, (87a), (87b), (88b) and (89a), where the trace of the object is

at the phonological border²² of v*P after verb raising, have the option of the parameter (86c). This means that the option of an EPP-feature for v* under the principle (86a) is available, allowing assignment of Int to the pronoun chain. This fact indicates that for Chomsky, OS contains a kind of phonological adjacency, rather than being motivated by semantic requirement.

To summarize, the classical analyses suggest that OS is the leftward movement by the way of the object movement out of a VP, when the main verb is moved out of a predicate. On the other hand, considering phonological adjacency, Chomsky revises the classical assumption in that OS occurs, since the trace of the object is at the phonological border of v*P after verb raising.

7.3.2 Scrambling versus OS

First, though OS can be described as VP-adjunction like the case of VP-adjoined-scrambling²³, they differ by the fact that OS occurs only if the verb moves out of a VP as in (79-81), repeated in (90-92), while scrambling in scrambling languages takes place without verb movement, as in (93-96):

(90) Icelandic (Holmberg/Platzack 1995:141;143)

a. Jon pekkir hana ekki

John knows her not

b.* Jon hefur hana (ekki) seð.

John has her/it not seen

(91) Swedish (Holmberg/Platzack 1995:141;143)

a. Johan k?ner henne inte

Johan knows her not

b'.*Studenterna vill den (inte) I?a

²² Chomsky (2001:28;34) distinguishes phonological edge from the phonological border in that phonological edge contains an edge element with no phonological material c-commanding it within the category, while phonological border of XP is a position not c-commanded by the phonological material within HP, being broader than phonological edge. This is the reason why (86c) can be applied into OS languages, but not non-OS languages.

²³ The landing site of scrambling is language-specific. For example, the landing site of scrambling in Korean, Japanese and German is IP and VP-adjoined positions, whereas scrambling in Russian is referred to IP VP and CP adjunction. Given that OS is VP-adjunction, I will consider only VP-adjunction scrambling.

the-students want it not read

(92) Danish (Vikner 1994:499)

a. Hvorfor lste studenterne den/*artiklen ikke t
 why read students-the it /the-article not

b' *Hvorfor har Peter den ikke købt t?

why has Peter it not bought

(93) Korean

a. Minki-nun Swunhi-eke pyench-lul ssoستا
 Minki-top Swunhi-dat letter-acc wrote
 'Minki wrote Swunhi a letter.'

b. Minki-nun [_{VP} pyench_i -lul [_{VP} Swunhi-eke t_i ssoستا]]

Minki-top letter-acc Swunhi-dat wrote
 'Minki wrote [a letter]_i to Swunhi t_i .'

(94) Japanese (Yatushiro 2000:1)

a. Osamu-ga Misa-ni Hiroshi-o syookaisita
 Oasmu-nom Misa-dat Hiroshi-acc introduced
 'Osamu introduced Hiroshi to Misa.'

b. Osamu-ga Hiroshi-o Misa-ni syookaisita
 Osamu-nom Hiroshi-acc Misa-dat introduced
 'Osamu introduced Hiroshi to Misa'

(95) German (M?ler 1999:9)

a. da man dem Fritz das Geld gegeben hat
 that one ART Fritz-dat ART money-acc given has

b. ?da man das Geld dem Fritz gegeben hat
 that one ART-money-acc ART Fritz-dat given has

(96) Hindi-Urdu (Kidwai 2000:2)

a. nur-ne ?njum-ko kitab di
 Noor-sub Anjum-dat book-acc gave
 'Noor gave Anjum a book.'

b. nur-ne kitab ?njum-ko di
 Noor-nom book-acc Anjum-dat gave

In the (a) examples in (90-92), where the object is shifted, and the (b)

examples in (93-96), in which the object is scrambled, the object has been moved out of its base position and adjoined to the VP. However, the (a) examples in (90-92) are distinguished from the (b) examples in (93-96) in that in (90a), (91a) and (92a) the verb moves out of the VP, maintaining VO order and in (93b), (94b), (95b) and (96b) the verb stays in base position, keeping the OV order. This fact tells us that for OS, verb movement out of a VP is inevitable, but not for scrambling. Consequently, the (b) examples in (90-92), where the main verb stays in situ, and the shifted object thereby crosses the main verb, are ungrammatical.

Second, since OS is movement into a Case-marked position (Vikner 1994 and Holmberg/Platzack 1995), PPs cannot be shifted to VP-adjoined positions, as in (97-98). On the other hand, PPs can be scrambled to VP-adjoined positions:

(97) Danish (Vikner 1994:492)

a. Jeg betalte ikke t for den

b. *Jeg betalte for den ikke t t

I paid (for it) not (for it)

(98) Swedish (Holmberg/Platzack 1995:165)

a. Jag talar into med henne.

I speak not with her

b.*Jag talar med henne into

I speak with her not

Recall that the shifted object receives Case from I . Then, the unacceptability of (97b) and (98b) in which not argument, but PP moves into Case-marked position, is expected because in (97b) and (98b) *den* (it) and *henne* (her) have been already Case-assigned by *for* (for) and *med* (with), i.e. there are two Case assigners, I and preposition *for* (for) and *med* (with) in (97b) and (98b).

As discussed in chapter 3, the landing site of VP-adjunction scrambling in Korean, Japanese and German is not Case-marked position, but rather VP-adjoined positions, as in (99-104):

(99) Korean

a. Minki-ka [_{VP}Swunhi-lul[_{PP} kori -eso] mannassta]

Minki-nom Swunhi-acc the street-on met

Minki met Swunhi on the street.

b. Minki-ka [_{VP}[_{PP} kori -eso]_i] [_{VP}Swunhi-lul t_i mannassta]

Minki-nom the street-on Swunhi-acc met

'Minki met [on the street]_i Swunhi t_i.'

(100) Korean

Minki-nun [_{VP}pyenchi_i -lul [_{VP}Swunhi-eke t_i ssossta]]

Minki-top letter-acc Swunhi-dat wrote

'Minki wrote [a letter]_i to Swunhi t_i

(101) Japanese

a. John-ga Taroo-o [_{PP}naihu-de] sasita

John-nom Taroo-acc knife-with stabbed

'John stabbed Taroo with knife.'

b. John-ga [_{PP}naihu-de]_i Taroo-o t_i sasita

John-nom knife-with Taroo-o stabbed

'John stabbed [with knife]_i , Taroo t_i.'

(102) Japanese

Osamu-ga Hiroshi-o_i Misa-ni t_i syookaisita

Osamu-nom Hiroshi-acc Misa-dat introduced

'Osamu introduced Hiroshi to Misa

(103) German (M?ler 1994:354)

a. da der Fritz sich [_{NP} ein Buch von Henscheid] gekauft hat

that ART Fritz-nom REFL-dat a book-acc by Henscheidbought has

b. da der Fritz sich [_{PP} von Henscheid]_j gestern [_{NP} ein Buch t_j]

that ART Fritz REFL-dat by Henscheid yesterday a book-acc

gekauft hat

bought has

(104) (German)

?da man [das Geld]_i dem Fritz t_i gegeben

hat

that one ART-money-acc ART Fritz-dat given has

As shown by (99-104), scrambled elements move not into Case-marked position, but into VP-adjoined position, which has nothing to do with Case-assignment. Accordingly, argument, as in (100), (102) and (104) as well as PPs (99b), (101b) and (103b), can be scrambled.

Third, due to the fact that the shifted object is Case-licensed by I the shifted objects have a fixed position between the subject and all other preverbal VP-adjuncts, nothing intervenes between the shifted object and I as in (105-107), since Case-licensing requires adjacency. As for scrambling, considered to be movement to VP-adjoined positions, no such requirement is needed, as in (108-109):

(105) Holmberg/Platzack 1995:182)

- a. D?f? l?te barnen **den** inte sa g?na alla
 therefore read the children it not so readily all
- b. *D?f? l?te **den** barnen inte sa g?na alla
- c. *D?f? l?te barnen inte **den** sa g?na alla
- d. *D?f? l?te barnen inte sa g?ns **den** alla

(106) Danish (Vikner 1994:494)

- a. I gar l ste Peter **den** uden tvivl ikke
 t t
- b. *I gar l ste Peter uden tvivl **den** ikke t t
- c. *I gar l ste Peter uden tvivl ikke t **den**
 yesterday read Peter it without doubt it not it

(107) Icelandic (adopted from Haider 2000:65)

- a. I g r las Jon b kurnar ekki
 yesterday read Jon books-the not
- b. *I g r las b kurnar Jon ekki
 yesterday read books-the Jon not

(108) Korean

- a. Sujin-un kori-eso uyeonhi Minki-lul manassta
 Sujin-top street-on unexpectedly Minki-acc met
 'Sujin met Minki on the street unexpectedly.'

b. Sujin-un Minki_i -lul kori-eso uyenhi t_i manassta

Sujin-top Minki-acc street-on unexpectedly met

c. Sujin-un kori-eso Minki_i -lul uyeonhi t_i manassta

Sujin-top street-on Minki-acc unexpectedly met

(109) German (Bayer/Kornfilt 1994:22)

a. da Maria in seiner Wohnung den Professor schon oft besucht hat

that Maria in his apartment the professor already often visited has

'that Maria has often visited the professor in his apartment.'

b. da Maria den Professor_i in seiner Wohnung t_i schon oft besucht hat

that Maria the professor in his apartment already often visited has

(105c-d) and (106b-c), in which VP-adjunctions intervene between the shifted object and I , and (105b) and (107b), where the object is shifted to the left of the subject, i.e. the shifted object is not adjacent to its Case-assigner I , are ungrammatical due to the violation of adjacency, which is required for Case-licensing. This fact excludes the permutation of arguments in OS. As far as scrambling is concerned, in (108b) the object is scrambled to the VP to the left of two VP-adjoined adjuncts, and in (108c) the object is adjoined to the VP in between two-VP-adjoined adjuncts, and in (109b) the object is scrambled to the left of the adjunct, and they are not ruled out, since scrambled positions are not Case positions, but rather VP-adjoined positions. Accordingly, scrambling does not require adjacency, making a permutation of arguments.

To summarize, 1) OS occurs only if the main verb moves out of the VP, while scrambling takes place without verb movement. 2) PPs cannot be shifted, but PPs can be scrambled. 3) the shifted object should be adjacent to its Case assigner I , ruling out reordering of the arguments with respect to other arguments, whereas in scrambling the permutation of arguments is permissible, because the scrambled elements move to VP-adjoined positions.

7.4 Conclusion

Considering the fact that topic heads in English, German, Italian and Greek are phonologically null, while topic heads in Korean, Japanese and

Hindi-Urdu are overt, thus pronounced, I have shown that topic elements move to

[Spec Top] located within the CP projection, in order to satisfy an EPP feature on Top. After analysis of topicalization I have compared the syntactic properties of topicalization with those of scrambling. For example, firstly, both scrambling and topicalization can be iterated. Secondly, topicalization of wh-phrases is not allowed, while scrambling of wh-phrases is. Thirdly, VP, IP and CP can be topicalized, but scrambling of VP and IP is ruled out.

As far as QR is concerned, in traditional analyses quantifiers move to IP-adjoined scopal positions, in order for their relative scopes and binding domains to be determined. Considering the problem found in the traditional research, however, I have provided an analysis which is based on the assumption that quantifiers move, not to IP-adjoined left peripheral positions, but rather to [Spec Qua] for the satisfaction of an EPP-feature on head Qua, and after that I have explored the distinctions between scrambling and QR; 1) scrambled elements move to IP and VP adjoined positions and the quantificational phrases [Spec Qua], 2) scrambling is not subject to clause-boundedness, while QR is constrained by finite clause boundaries except the quantifier ECM subject and ACD-resolving QR, 3) scrambling is overt movement, whereas QR is covert.

With respect to OS, I have discussed that OS occurs only if the verb raises to I, while scrambling takes place without V-to-I movement. As another difference it is noted that OS moves to Case-marked position, while the scrambled elements move to VP-adjoined position. Consequently, PPs cannot be raised into this Case-marked position; however, PPs can be scrambled. In addition, since the position of shifted object is Case-marked position, nothing intervenes between the shifted object and I, while for scrambling, considered to be movement to VP-adjoined position, no such requirement is needed.

Chapter 8: Conclusion

In this study I have investigated scrambling as an optional movement. By investigation I have provided new analyses. In section 8.1 I will summarize arguments which are focused on my proposals, and section 8.2 contains the general discussion.

8.1 Summary

Generally, in the base generated versions, arguments have a local relation with their associated predicates, maintaining adjacency between the theta assigner and assignee. However, by movement of arguments, arguments may appear dislocated to the theta assigner, the verb. This movement of constituents is referred to as scrambling. With respect to scrambling, in the classical analyses, it is suggested that scrambling, which is derived from the base generated version by the movement of constituents, is the process of XP-adjunction and is optional. This optionality of scrambling, however, raises a serious problem under the last resort view of move α in Minimalism (Chomsky 1993, 1995, 2000 and 2001), according to which movement should be forced for the satisfaction of morphological requirements such as Case-assignment or feature checking. Since then, there have been two different attempts to analyze scrambling in terms of Minimalism; the one is an attempt to analyze scrambling as a movement of last resort view of move, and the other claims that scrambling is not movement operation, but base generated.

Considering a lot of empirical evidence, therefore, I have discussed the current linguistic trends, and shown that scrambling is neither last resort view of move α nor base generated, but rather optional movement, as is traditionally suggested. With this assumption, since the notion that IP and VP adjoined positions in Korean are argument positions plays a crucial role in my study, contradicting the traditional assumption, I have provided an analysis for the multiple subject and object construction in Korean. Unlike the classical analysis, according to which each nominative Case of the multiple subject is licensed by the different heads, T and adjective, in my approach a single head T licenses multiple nominative Case to the multiple subjects, because the multiple subjects which are equidistant targets from the base position can be counted as multiple specifiers of a single head, T.

As a consequence, my analysis predicts the cases in which three or four nominative Cases are licensed, while the traditional analysis does not. In particular, due to the equidistance, the multiple subject can be scrambled across another multiple subject without an intervention effect, as long as there is no inalienable relation between multiple subjects. Moreover, since IP-adjoined positions in Korean are argument positions, IP-adjoined CIS creates new binding possibilities, thus exempting WCO effect.

Like the case of multiple subject construction, the multiple object can be considered to be multiple specifiers of a single head, *v*, thereby, scrambling of the multiple object over another multiple object is allowed. Unlike IP-adjoined CIS, however, VP-adjoined CIS does not create a new binding relation. This means that VP-adjoined CIS only shows A'-properties.

As for LDS, I have shown that LDS-chain is subject to principles of UG such as subjacency, ECP, CNPC and CED. In the literature it is suggested that IP-adjoined LDS has only A'-property because a long scrambled NP out of CP cannot bind the anaphor in the matrix clause (Saito 1989;2001). Saito's suggestion is generally accepted in the study of scrambling. Firstly, I have discussed the problems which arise in Saito's analysis, and after that, from the fact that monomorphemic reflexives in Korean can be bound long distantly and IP-adjoined positions are narrowly L-related, I have proposed that the long scrambled NP can be coreferential with the matrix monomorphemic reflexive. On the other hand, if the matrix reflexive is polymorphemic, the long scrambled NP cannot bind the matrix reflexive, since polymorphemic reflexives should be bound in a local domain. My approach says that IP-adjoined LDS in Korean exhibits A-property as well as A'-property according to the involvement of monomorphemic reflexives and polymorphemic reflexives. On the other hand, VP-adjoined LDS only exhibits A'-properties, since scrambled elements which are scrambled to VP-adjoined positions are always c-commanded by the anaphoric subject.

In addition, I have examined the properties of LDS which are parametrized across languages. For example, LDS-chain in Korean and Japanese can be deleted if the initial trace is theta-marked, and LDS-chain in Russian has the option of the intermediate CP-adjunction, whereas in German neither the deletion of the intermediate trace, nor the option of the intermediate CP-adjunction are available.

In order to prove that wh-scrambling is optional, rather than last resort view of move α , with respect to wh-movement, I have researched the three different language groups such as English, German, and Slavic languages and wh-situ languages. In English and German multiple questions, one wh-phrase moves to [Spec CP], leaving other wh-phrases in situ for the satisfaction of EPP-feature on C, while in Slavic languages all of the wh-phrases should move to [Spec CP]. In Korean and Japanese multiple questions, however, all wh-phrases stay in situ. As is well known, Korean and Japanese have a Q-morpheme which endows Q-feature with a clause, i.e. by the presence of Q-morpheme EPP-feature on C is satisfied, ruling out overt wh-movement to [Spec CP]. Then as another overt wh-movement, wh-movement to IP or VP level projection, known as scrambling, comes to mind. This indicates that overt wh-scrambling in Korean is optional because overt wh-scrambling has nothing to do with morphological requirements. As a consequence, the long scrambled wh-phrase which is extracted from the embedded interrogative clause to the matrix interrogative clause takes the embedded scope as well as the matrix scope.

However, due to the requirement of FI, wh-phrases in Korean and Japanese should move to scope positions. With respect to wh-movement to scope positions, following Rizzi, I have shown that an intervention effect is generated if the elements, which belong to the same feature class as wh-phrase, are located closer to the head than wh-phrase at LF, since quantifier, negation, wh-phrase and focus, which belong to the same feature class, can be considered to be the specifiers of the same head. Then it appears that scrambling of wh-phrase over the elements, which belong to the same feature class, eliminates an intervention effect, since by scrambling of wh-phrase across intervener, wh-phrase is located closer to the head than intervener. In this case, wh-scrambling over quantifier, negation and focus cannot be undone at LF.

In contrast, since wh-phrases are separated from modifier and topic at LF, wh-scrambling across other classes such as modifier and topic can be undone at LF. After discussion of the properties of scrambling, I have examined the topicalization, QR and OS, in order to compare properties of scrambling with their properties. The distinctions between scrambling and topicalization are as follows; NP-topics move to [Spec Top] and multiple adverb-topics to IP adjoined positions, while multiply scrambled elements move to IP-adjoined positions, and topicalization of wh-phrases is not

permissible, but scrambling of wh-phrases is; and topicalization of VP, IP and CP is possible, whereas scrambling of VP and IP is not.

As for the distinction between scrambling and QR, I found the following results; the scrambled elements move to IP and VP adjoined positions and the quantificational phrases [Spec Qua], scrambling is not subject to clause-boundedness, while QR is constrained by finite clause boundaries, and scrambling is overt movement, whereas QR is covert. Finally, I have looked at the relation between scrambling and OS. According to this approach, OS occurs only if the main verb moves out of the VP, while scrambling takes place without verb movement. PPs cannot be shifted, but PPs can be scrambled, and the shifted object should be adjacent to its Case assigner I° , ruling out reordering of the arguments with respect to other arguments, whereas in scrambling the permutation of arguments is permissible.

8.2 Concluding Remarks

Chomsky's minimalist assumptions have a major influence on current linguistic theory. The main claim is that movement operation is only necessary for the morphological requirements and the morphologically motivated movement should take place by the way of least effort, which attributes a certain evaluative power to the economy of derivation. This fact contradicts the traditional suggestion that scrambling is derived from the base generated version by the movement of constituents to IP VP (CP) adjoined positions without any morphological properties, being optional. Since scrambling as optional movement cannot be maintained in minimalism, some linguists have tried to research scrambling within the framework of minimalism.

These scrambling approaches in minimalism are divided in two directions over the treatment of scrambling; the one claims that scrambling is the last resort view of move- α , and the other argues that scrambled elements are freely base generated.

As is well known, Chomsky revises the checking mechanism of MP, creating the term agree in MI (2000) and an intervention effect in DBP (2001). MI and DBP are known as the extended versions of MP. In MI Chomsky points out that the choice of move over agree, which establishes a relation between an attracting head and goal without the copying operation

characteristic movement, follows from the presence of EPP-features on T and C. Otherwise, since move is more complex than its subcomponents merge and agree, merge and agree preempt move. Given that in the base generated versions agree is always applied, it is expected that the base generated versions, in which EPP-feature on T and C is always satisfied, are more economical than scrambled versions, in which movement is involved regardless of overt and covert movement. If Chomsky had not revised the checking mechanism of MP, then, the claim that scrambling is a kind of last resort view of move α would be considered to be an argument since movement comes into a play. As long as agree preempts move, however, the claim of scrambling as last resort view of move α loses the meaning by the fact that in agree, movement does not come into a play.

Here, one might argue that scrambling approaches in minimalism are consistent with MP, in which without the notion of agree and an intervention effect, only MLC plays a crucial role for movement, which is motivated for feature checking. As we know, in MP movement operations take place for the elimination of the uninterpretable features by the feature checking. This requires that the phrases which take part in feature checking should be NPs, since they have interpretable ϕ -features and uninterpretable structural Case, ruling out movement of adverbs and PPs, which lack ϕ -features and structural Case. Despite the fact that adverbs and PPs have no ϕ -features and structural Case, however, scrambling of adjectives and PPs are allowed, as this study shows.

Now let us consider the second argument that scrambled elements are freely base generated (merged). In DBP Chomsky (2001:4) indicates that an intervention effect arises if probe P matches inactive goal₁ which is closer to than active goal₂, barring agree between probe and active goal₂. This tells us that arguments cannot be freely base generated due to an intervention effect.

Another problem found in scrambling approaches within the framework of minimalism is that in minimalism, the only criterion for evaluation is derivational cost, which has no direct parametrization effect on natural languages. This leads us to expect that minimalist assumptions cannot explain a whole range of language-specific phenomena. As I have shown in

this study, however, scrambling operation crosslinguistically exhibits a variety of properties according to the languages.

In order to prove that scrambling research in terms of economy principles in minimalism is problematic, I have tried to consider scrambling in minimalism. Economy principles in minimalism should reject scrambled versions in which movement occurs without any morphological properties. Then, the question might arise: Is the operation of scrambling unacceptable? The answer to this question is "NO". Scrambled versions are only ungrammatical within the framework of minimalism, due to the violation of economy principles. Scrambling in scrambling languages, however, is completely grammatical. This means that scrambling is not ungrammatical, but just not consistent with last resort view of move α . Also this fact does not indicate that the last resort view of move α is problematic, but rather that scrambling does not fit into the last resort view of move α .

Here, let us consider Optimality Theory (OT), which has emerged as the rethinking of minimalism, although I have not explored this issue in this study. OT was introduced into phonology by Prince and Smolensky (1993), and the success of OT attributes to the emergence of OT syntax by Grimshaw (1997) and Pesetsky (1997 and 1998). OT proposes that constraints are universal, can be violated and are differently ranked due to the systematic variation between languages. In terms of OT, scrambled versions, which are more marked than unscrambled versions by movement operations, are not ungrammatical, but rather suboptimal. This leads us to assume that the grammaticality or ungrammaticality of scrambling depends purely on the linguistic theories under which scrambling is considered. For example, scrambling in terms of economy principles in minimalism should be ruled out, whereas scrambling in OT is acceptable. Conclusively, all I can say is that scrambling is fully grammatical, but not consistent with economy principles in minimalism.

Here I will leave open the matter of the superiority of linguistic theories such as minimalism and OT since this matter is beyond this study.

Zusammenfassung

In der traditionellen Literatur, wurde darauf hingewiesen, dass Scrambling ein optionaler Bewegungsprozess ist. Aber diese Optionalität des Scrambling kann unter der Annahme des Minimalismus problematisch sein, weil dieser davon ausgeht, dass eine Bewegung nur für die morphologischen Eigenschaften wie Kasuszuweisung oder Merkmalsüberprüfung stattfinden muss. Aus diesem Grund, versuchen manche Linguisten, Scrambling auf der Grundlage des Minimalismus zu analysieren. Jedoch bewegen sich diese Versuche in zwei unterschiedliche Richtungen: der eine behauptet, dass Scrambling ein obligatorischer Bewegungsprozess ist, der morphologisch bedingt ist und der andere nimmt an, dass die gescrambelten Elemente in der Basis generiert sind.

Das Ziel dieser Studie ist es aber, zu zeigen, dass Scrambling weder ein obligatorischer Bewegungsprozess, noch basisgeneriert ist, sondern ein optionaler Bewegungsprozess, der mit morphologischen Eigenschaften nichts zu tun hat. In dieser Studie betrachte ich koreanische Daten hauptsächlich, indem ich versuche, diese im Rahmen eines komparativen Ansatzes mit dem Japanischen, Deutschen and Russischen zu vergleichen.

In der D-Struktur befindet sich jedes Argument in der Position, in der es seine thematische Rolle erhält, d. h., dort hat ein Argument eine lokale Beziehung zum Prädikat. Aber es scheint, dass bei einer Bewegung des Arguments dieses keine lokale Beziehung zum Thetazuweiser haben kann. Diese Permutation von Konstituenten wird Scrambling genannt. In der klassischen Literatur wird Scrambling, das von der basisgenerierten D-Struktur bei der Konstituentenbewegung abgeleitet wird, als XP-Adjunktion und optionale Bewegung angenommen. Um diese klassische Annahme zu bewahren, habe ich die gegenwärtigen linguistischen Trends diskutiert, indem ich zahlreiche empirische Resultate einbezogen habe. In dieser Diskussion habe ich gezeigt, dass Scrambling ein optionaler Bewegungsprozess ist, wie auch traditionell angenommen wird.

Da in dieser Studie die Tatsache, dass IP-und-VP-Adjunktpositionen Argumentpositionen sind, eine wichtige Rolle spielt, habe ich unter der Annahme, dass Scrambling ein optionaler Bewegungsprozess ist, die multiple Subjekt-Konstruktion im Koreanischen erforscht. Traditionell wird darauf hingewiesen, dass jeder Nominativ-Kasus der multiplen Subjekt-Konstruktion im Koreanischen von unterschiedlichen Köpfen, z.B Tempus und Adjektiv, zugewiesen wird. Da diese klassische Analyse eine multiple Subjekt-Konstruktion, die mehr als drei Subjekte hat, nicht erklären kann, habe ich eine neue Analyse vorgelegt, wonach jeder Nominativ-Kasus in der multiplen Subjekt-Konstruktion im Koreanischen von einem singulären Kopf, Tempus, zugewiesen wird, weil die multiplen Subjekte als multiple Spezifikatoren des singulären Kopfes, Tempus, angenommen werden können, die von der Basispositionen äquidistant sind. Meine Analyse basiert auf Chomskys Annahme, dass eine Struktur mit mehrfachen Spezifikatoren nicht ausgeschlossen ist.

Die Äquidistanz der mehrfachen Spezifikatoren führt dazu, dass ein Subjekt ohne Interventionseffekt über ein anderes Subjekt gescrambelt wird, so lange es keine inalienable Relation zwischen den multiplen Subjekten gibt. Auf Grund der Tatsache, dass IP-Adjunktpositionen im Koreanischen Argumentpositionen sind, schafft kurzes Scrambling in die IP-Adjunktpositionen einen neuen Bindungseffekt.

Wie im Fall von multiplen Subjekt-Konstruktionen, können die multiplen Objekte als mehrfache Spezifikatoren des singulären Kopfes AgrO, angenommen werden. Dann ist es nicht schwierig, anzunehmen, dass Scrambling des einen Objekts über ein anderes Objekt ohne Interventionseffekt möglich ist. Aber kurzes Scrambling in die VP-Adjunktpositionen schafft keinen neuen Bindungseffekt, obwohl VP-Adjunktpositionen im Koreanischen Argumentpositionen sind. Diese Daten zeigen, dass kurzes Scrambling im Koreanischen gemischte A-und-A' Eigenschaften besitzt.

Für LDS habe ich diskutiert, dass die LDS-Kette UG-Prinzipien unterliegt. Die Grammatikalität zwischen Objekten und Subjekten beim langen Scrambling aus Komplementsätzen bzw. Adjunksätzen lässt sich zum Beispiel auf das ECP zurückführen. In der traditionellen Literatur wird angenommen, dass langes Scrambling in die IP-Adjunktpositionen nur A'-Eigenschaften hat, weil eine lange gescrambelte NP die Anapher im Matrixsatz nicht binden kann, wie Saito (1989; 2001) argumentiert hat. Zunächst habe ich die Probleme von Saitos Analyse diskutiert und danach habe ich auf Grund von der Tatsache, dass eine monomorphemische Anapher im Koreanischen ein langes Antezedens haben kann, während die polymorphemische Anapher in einem lokalen Bereich gebunden sein muss, gezeigt, dass eine lange gescrambelte NP mit der monomorphemischen Anapher im Matrixsatz koindiziert sein kann, d. h. langes Scrambling im Koreanischen besitzt sowohl A-Eigenschaften als auch A'-Eigenschaften in Abhängigkeit davon, ob es sich um eine monomorphemische oder eine polymorphemische Anapher handelt.

Aber eine NP, die in die VP-Adjunktposition gescrambelt ist, kann eine Anapher im Matrixsatz nicht binden, weil VP-Adjunktpositionen immer vom Subjekt c-kommandiert werden. Denn wir können annehmen, dass im Vergleich mit einer NP, die in die IP-Adjunktposition gescrambelt ist, eine NP, die in die VP-Adjunktposition gescrambelt ist, nur A'-Eigenschaften zeigt. Weiter habe ich parametrisierte Eigenschaften des langen Scrambling in den unterschiedlichen Sprachen erforscht.

Um zu beweisen, dass wh-Scrambling eine optionale Bewegung ist, habe ich drei unterschiedliche Sprachgruppen wie Englisch, Deutsch und slawische Sprachen, sowie wh-in-situ Sprachen untersucht. In Sprachen, wie dem Englischen und Deutschen werden mehrfache w-Fragen dadurch gebildet, dass zur Befriedigung des EPP-Merkmals des C-Kopfes eine wh-Phrase in die [Spek CP] Position bewegt wird, während andere wh-Phrasen in-situ bleiben. Dagegen werden alle wh-Phrasen in den slawischen Sprachen in die [Spek CP] Position bewegt. Diese empirischen

Resultate weisen darauf hin, dass in den mehrfachen w-Fragen im Englischen, Deutschen und Slawischen zur Befriedigung des EPP-Merkmal des C-Kopfes mindestens eine wh-Phrase in die [Spek CP] Position bewegt werden muss, um die nicht interpretierbaren EPP-Merkmale des C-Kopfes und das nicht interpretierbare Merkmal der wh-Phrase zu tilgen. Mit anderen Worten ist wh-Bewegung in diesen Sprachen morphologisch bedingt.

Wenn wir mehrfache w-Fragen im Koreanischen und Japanischen betrachten, bleiben alle wh-phrasen in-situ, ohne Bewegung in die [Spek CP] Position. Dieses Phänomen kann dadurch erklärt werden, dass es in diesen Sprachen einen Frage-Partikel gibt, der eine Spezifikator-Kopf Konfiguration der wh-Phrase und des C-Kopfes ohne wh-Bewegung in die [Spek CP] ermöglicht, d. h. die Anwesenheit eines Frage-Partikels befriedigt das EPP-Merkmal des C-Kopfes. Daher ist wh-Bewegung in die [Spek CP] Position in mehrfachen Fragen im Koreanischen ausgeschlossen. Aus diesem Grund habe ich argumentiert, dass wh-Scrambling im Koreanischen eine optionale Bewegung ist, weil es dort gar nichts mit morphologischen Eigenschaften zu tun hat.

Aber die in-situ bleibenden wh-Phrasen sollten zur Befriedigung von FI in die Skopus-Positionen bewegt werden. Für Bewegung der wh-Phrasen in die Skopus-Positionen, habe ich, in Anbetracht von Rizzis Analyse des C-Systems, gezeigt dass ein Interventionseffekt beobachtet wird, wenn die Elemente wie Quantifikator und Fokus, die zu der gleichen Merkmal-Klasse wie die wh-Phrase gehören, näher beim Kopf liegt, als die wh-Phrase in der LF. Dieser Interventionseffekt kann durch das Scrambling der wh-Phrase über Quantifikator und Fokus repariert werden, d.h. in diesem Fall kann Scrambling auf LF nicht ungetan gemacht werden. Im Gegensatz zu Quantifikator und Fokus gehört Topik nicht zu der gleichen Merkmalsklasse wie die wh-Phrase. Das bedeutet, dass diese Tatsache dazu führt, dass Topik keinen Einfluss auf die wh-Bewegung hat, weil die wh-Phrase vom Topik unabhängig ist. Daraus folgt, dass Scrambling der wh-Phrase über Topik ungetan gemacht werden kann, weil Topik und die wh-Phrase zu unterschiedlichen funktionalen Köpfen des C-Systems gehören.

Nach der Diskussion von Eigenschaften des Scrambling, habe ich Topikalisierung, QR und OS betrachtet, um die Eigenschaften dieser unterschiedlichen Prozesse zu vergleichen. Die Unterschiede zwischen Scrambling und Topikalisierung sind folgende: 1) NP-Topik bewegt sich in die Spezifikator-Position des Topik-Kopfes und multiple Adverb-Topiks in die IP-Adjunktpositionen, während sich alle gescrambelten Elemente in die IP-Adjunktpositionen bewegen. 2) Topikalisierung von wh-Phrasen ist ausgeschlossen, aber Scrambling von wh-Phrasen ist möglich 3) VP, IP und CP können topikalisiert werden, während Scrambling einer IP ausgeschlossen ist.

Als Unterschiede zwischen Scrambling und QR habe ich folgende Ergebnisse gefunden: 1) die gescrambelten Elemente bewegen sich in die IP-und-VP-Adjunktpositionen, aber die quantifikatorischen Phrasen

bewegen sich in die Spezifikator-Position des Qua-Kopfes. 2) Scrambling ist nicht satzgebunden, QR jedoch schon. 3) Scrambling ist overte Bewegung, aber QR ist covert.

Schliesslich, habe ich die Beziehung zwischen Scrambling und OS erforscht und folgende Ergebnisse gefunden: 1) OS findet nur dann statt, wenn das Hauptverb die VP verlässt, während Scrambling ohne Verb-Bewegung stattfindet. 2) PPs können nicht geshiftet werden, aber PP-Scrambling ist möglich. 3) Da das geshiftete Objekt zu seinem Kasus-Zuweiser adjazent sein soll, ist eine Permutation von Argumenten bei OS ausgeschlossen, während sie im Scrambling möglich ist.

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