

**Locality in Movement and Scope Interpretation of
In-Situ Wh-Phrases**

Ji Young Shim

Master of Arts by Research

University of York

Language and Linguistic Science

September 2011

ABSTRACT

The dissertation investigates syntactic distributions and interpretations of *wh*-phrases in Korean and other languages from a minimalist perspective, and reveals patterns of similarities and differences between *wh*-in-situ languages and *wh*-movement languages.

First, this dissertation examines Korean long distance *wh*-scrambling with respect to anti-radical reconstruction and semantic effects, arguing that Korean long distance *wh*-scrambling is motivated by discourse properties such as contrastive focus; hence long distance scrambling in Korean is not a purely optional movement but follows Scope Economy. This dissertation notes that left periphery movement of a *wh*-phrase in Korean is not a unitary construction: there is movement of a *wh*-phrase by an agreeing question morpheme, and movement of a *wh*-phrase by a non-agreeing question morpheme. This dissertation suggests that both *wh*-movement and *wh*-scrambling uniformly are motivated by an optional edge feature (Chomsky 2005) that marks specificity or definiteness when present.

Second, this dissertation explores the correlation between superiority effects in *wh*-movement and head movement in head-final languages (e.g. Korean and Japanese), head-initial languages (e.g. English), and V2 languages (e.g. German and Spanish). Based on cross-linguistics data, the dissertation considers that in head-final languages such as Korean and Japanese, head movement may not occur at narrow syntax, whereas in other languages it obligatorily takes place, hence V-to-C is very closely related with the presence or absence of superiority, offering an analysis of the presence and absence of superiority effects in *wh*-movement in Korean (and Japanese): movement from a nonphase-edge to a phase-edge gives rise to superiority effects, but movement from a phase-edge to a phase-edge overrides superiority effects.

Third, this dissertation focuses on *wh*-scope interpretations between in-situ *wh*-phrases and the licensing heads (i.e. Q-morpheme) in Korean, proposing a local modeling of a non-local dependency that establishes a long distance *wh*-scope agreement relationship, a mechanism of indirect Agree mediating between a licensing head and *wh*-elements in an embedded clause.

The dissertation argues that, in Korean, both *wh*- phrasal movement and *wh*-scope interpretations are constrained by local operations that the Minimalist Program takes to be one of the vital properties of the faculty of language.

TABLE OF CONTENTS

ABSTRACT	ii
ACKNOWLEDGMENTS	vi
AUTHOR'S DECLARATION	vii
CHAPTER 1 INTRODUCTION	1
1.1 Issues in the Study of Korean Wh-Phrases	1
1.2 The Proposal	6
1.3 The Organization.....	7
CHAPTER 2 THE THEORETICAL BACKGROUNDS	9
2.1 Introduction.....	9
2.2 Locality Constraints in Early Minimalism.....	9
2.3 Chomsky's Agree-based Phase Theory	13
2.3.1 Structure Building: Merge, Move and Agree.....	13
2.3.2 Phase, Transfer and the Phase Impenetrability Condition	16
2.3.3 Edge Feature	18
2.4 Summary	20
CHAPTER 3 LONG-DISTANCE WH-MOVEMENT	22
3.1 Introduction.....	22
3.2 An overview of Long Distance Scrambling.....	22
3.2.1 Scrambling as a Base-Generation	22
3.2.2 Scrambling as a Movement.....	24
3.3 Properties of Korean Long Distance Scrambling	31
3.3.1 No Radical Reconstruction	31
3.3.2 Semantic Effects	31
3.4 A Non-uniform Analysis of Wh-movement	35
3.4.1 Korean as a Non-operator Movement.....	36
3.4.2 Korean as an Operator Movement	39
3.5 Question Morpheme, Wh-movement and Scope	44
3.6 Summary	45

CHAPTER 4 SUPERIORITY IN MULTIPLE WH-CONSTRUCTIONS	46
4.1 Introduction	46
4.2 Cross-linguistic Data	46
4.3 Previous Analyses	48
4.3.1 Richards (1997, 2001)	49
4.3.2 Pesetsky (2000)	51
4.3.3 Boškovic(1999)	52
4.4 Agree in Multiple WH-Constructions	54
4.5 The Ordering of Wh-arguments and Superiority Effects	55
4.5.1 Multiple WH Constructions in English	57
4.5.2 Multiple WH Constructions in Korean	59
4.6 The Ordering of WH-argument vs. WH-adjunct	61
4.7 Summary	63
CHAPTER 5 LONG-DISTANCE SUPERIORITY AND HEAD MOVEMENT ...	64
5.1 Introduction	64
5.2 Cross-linguistic Data	64
5.3. Previous Analyses	67
5.3.1 Head Movement as a PF Operation	66
5.3.2 Head Movement as a Syntactic Operation	68
5.4 String Vacuous Head Movement	72
5.5 Long Distance Superiority and Head Movement	78
5.5.1 English (Head-Initial Languages)	78
5.5.2 German and Spanish (V2 Languages)	82
5.5.3 Korean (Head-Final Languages)	83
5.6 Summary	88
CHAPTER 6 WH-SCOPE INTERPRETATION IN INTERROGATIVES	90
6.1 Introduction	90
6.2 Wh-Scope and Locality Effects	90
6.2.1 Scope of In-Situ and Scrambled WH-Phrases	90
6.2.2 Island (In-) Sensitivity	92
6.3 Previous Analyses	94
6.3.1 LF Phrasal Movement	95
6.3.2 LF Pied-Piping	98
6.3.3 Operator Movement and Q-Movement	100

6.3.4 Unselective Binding.....	102
6.4 A Phase-Theoretic Approach to WH-Scope	106
6.4.1 Asymmetry between WH-arguments and WH-adjuncts in Islands	106
6.4.2 Long Distance Scope Agreement: <i>WH</i> -Scope, Agree and Phase	110
6.5. Additional Evidence.....	116
6.5.1 Multiple Wh-Phrases, Scope and Economy.....	116
6.5.2 Additional WH-Effects	118
6.6 Summary	120
CHAPTER 7 CONCLUSION	121
LIST OF ABBREVIATIONS	122
REFERENCES.....	123

ACKNOWLEDGEMENTS

I thank my supervisor, Dr George Tsoulas for his guidance and support, as well as several other members of the Department of Language and Linguistic Science, including Dr Bernadette Plunkett, Dr Heather Marsden and Dr Eytan Zweig for kindly allowing me to sit in the class they taught. I also acknowledge the financial support from Department for my participation in conference.

Thanks are due to Dr. Selçuk İşsever, Dr Tanaka Hidekazu and Dr. Kishimoto for sharing their knowledge on Turkish and Japanese with me. I also thank an anonymous external examiner and an internal examiner Dr. Shin-Sook Kim for their valuable comments and suggestions.

Finally, I am very grateful for my beloved parents who supported me in various ways: hadn't it been them I would have never pursued a research degree.

AUTHOR'S DECLARATION

I declare that all the work contained in the thesis is my own except where explicitly stated in the text, and that this work has not been previously submitted for any degree. Bits of Chapter 5 was based on the work presented at the 6th Cambridge Postgraduate Conference in Language Research (CamLing), December 2010 and appeared in the proceeding of the conference that was published in May 2011.

CHAPTER 1

INTRODUCTION

1.1 Overview of the Data¹

In the structure of the English sentence (1), the DP ‘who’ is clearly in the initial position in the main clause. Despite its surface position, however, ‘who’ is interpreted as the object of ‘saw’. In generative grammar, the higher copy ‘who’ is explained as a ‘displacement’ phenomenon (cf. Chomsky 1995: 221-222).

(1) **Who_i** do you think [Tom said [that Mary saw t_i]]

Many languages display the ‘displacement’ phenomenon in *wh*-constructions but differ with respect to obligatory/optional movement of *wh*-elements, the ordering of *wh*-elements and single/multiple movement of *wh*-elements. In the English single *wh*-construction, for instance, a *wh*-phrase obligatorily moves to a clause-initial position from its base position to form a *wh*-question, as in (2). In the English multiple *wh*-construction, the structurally highest *wh*-phrase undergoes *wh*-movement, as in (3). This phenomenon is called the superiority effect.

(2) a *Do you think that Mary bought **what**?

b What do you think that Mary bought?

(3) a **Who_i** did you think t_i would meet **whom**?

b ***Whom_j** did you think **who** would meet t_j?

c ***Who_i** **whom_j** did you think t_i would meet t_j?

d ***Whom_j** **who_i** did you think would t_i meet t_j?

By contrast, in languages such as Korean, a language with a rich morphology and relatively free word order, a *wh*-element is base-generated where its non-interrogative counterparts appear in a declarative sentence. Thus, Korean is deemed a *wh*-in-situ language. However, Korean *wh*-

¹ Throughout the dissertation, for the sake of consistency, I have made slight changes to example sentences from the literature.

phrases can optionally undergo leftward scrambling of constituents. An example of a *wh*-question in this language is given below. The movement of a *wh*-phrase can also be observed both within and across clauses in this language, as in (4-5).² Note that in multiple *wh*-fronting there is no restriction on ordering of *wh*-phrases, as in (6).

- (4) a. Suni-ka **mwuess-ul** mekess-ni?
 Suni-Nom what-Acc ate-Q
 b. **Mwuess-ul** Suni-ka mekess-ni?
 ‘What did Suni eat?’

- (5) a. John-un [nwu-ka **mwuess-ul** mekessta-ko] malhass-ni?
 John-Top who-Nom what-Acc bought-C said-Q?
 b. **Mwuess-ul**_i John-un [t_i nwu-ka t_i mekessta] malhass ni?
 ‘Who did John say *t* ate what?’

- (6) a. **Nwukwu-eykey**_i **mwuess-ul**_j John-un [t_i t_j Mary-ka t_i t_j cwuessta-ko] malhass-ni?
 Whom-Dat what-Acc John-Top Mary-Nom gave-C said-Q
 To whom, what did John say that Mary gave?
 b. **Mwuess-ul**_j **nwukwu-eykey**_i John-un [t_i t_j Mary-ka t_i t_j cwuessta-ko] malhss-ni?

Multi-*wh*-fronted *wh*-elements are not necessarily adjacent to each other but can be split by an intervening element such as an adverb (Nishiyama, Whitman, & Yi 1996).

- (7) **Nwuku-lul**_k gegi-eyse_j **nwuku-eykey**_i John-un [Mary-ka t_i t_j t_k sokayhayssta-ko]
 Who-Acc there-at whom-Dat John-Top Mary-Nom introduced C
 Malhayss-no?
 said Q
 ‘lit. who, there, to whom, did John say that Mary introduced?’

² The judgements on the data of the long movement of single and multiple *wh*-phrases discussed above are not uniform. For some native speakers of Korean, Japanese, and Turkish, the acceptability of long *wh*-movement like (5), (6), and (7) is much degraded.

Although the movement of *wh*-elements is relatively free, superiority effects appear in long-distance *wh*-movement when an embedded *wh*-phrase crosses over another *wh*-phrase in a higher clause (Moon 1996; Kim 2006; see also Takahashi 1993 on Japanese). Superiority-obeying multiple *wh*-fronting is acceptable in the same construction, as in (9b).

- (8) a. ***Mwuess-ul**_i John-un **nwuku-eykey** [Mary-ka t_i mekessta-ko] malhass-ni?
 What-Acc John-Top whom-Dat Mary-Nom ate C said Q
 ‘Whom did John tell that Mary ate what?’
- b. ? **Nwuku-eykey**_i **mwuess-ul**_j John-un t_i [Mary-ka t_j mekessta-ko] malhass-ni?

As another restriction on *wh*-scrambling, there is an asymmetry between *wh*-questions containing adjunct *wh*-phrases and argument *wh*-phrases, and questions containing only argument *wh*-phrases. Unlike *wh*-arguments, a *wh*-adjunct cannot scramble over a *wh*-argument and it must follow the *wh*-argument, as in (10b). However, if there is an additional *wh*-phrase preceding *way*, ‘why,’ the *wh*-adjunct does not need be adjacent to the verb, as in (10c).

- (9) a. Ne-nun **Muwess-ul** **way** sasss-ni?
 You-Top what-Acc why bought-Q
 ‘Why did you buy what?’
- b. * **Way** **nwukwu-lul** nenun sass-ni?
 Why what-Acc you-Top bought-Q
- c. **Nwu-ka** **way** **muwess-ul** sasss-ni?
 Who-Nom why what-Acc bought-Q
 ‘Who bought what why?’

Interestingly, however, in certain cases of long-distance movement, when a *wh*-phrase undergoes leftward scrambling, it takes only matrix scope. In Kyungsang dialect, among several Korean dialects, an agreement phenomenon between a *wh*-phrase and a *wh*-question morpheme is observed (Suh 1989). Put another way, yes/no questions and *wh*-questions have their own sentence-final interrogative morphemes. As shown in (10a-c), the matrix clause

question morpheme *-na* appears only in *yes/no*-questions, and *-no* appears only in *wh*-questions, and the moved *wh*-phrase takes only the *wh*-question morpheme *-no*.

(10) a. Ni-nun [Swuni-ka **edey** kassta-ko] sayngkakha-**na**?

You-Top Swuni-Nom where went- C think Q

‘Do you think Swuni went somewhere?’

b. Ni-nun [Swuni-ka **edey** kassta-ko] sayngkakha-**no**?

‘Where do you think Swuni went?’

c. **Edey** ni-nun [CP Swuni-ka t_i kassta-ko] sayngkakha-**na/no*?

‘Where do you think Swuni went?’

Summarizing the above Korean facts introduced so far, while some ordering restrictions are found when a *wh*-adjunct co-occurs with a *wh*-argument, and when a *wh*-argument crosses over another *wh*-argument in a higher clause, there is no restriction on ordering among *wh*-arguments in general.

In connection with the above Korean data, I address the following questions: how is movement of a *wh*-phrase in *wh*-in-situ languages like Korean different from that of a *wh*-element in overt *wh*-movement languages like English? How is movement of *wh*-questions containing an adjunct *wh*-phrase and argument *wh*-phrases different from that of *wh*-questions containing only argument *wh*-phrases in Korean? I will deal with these issues in more detail in Chapters 3 and 4.

Similarly to Korean, in some languages, such as Spanish and German, no superiority effect appears in short *wh*-movement but one does emerge in long *wh*-movement (Frank, 2007). Regarding this, I will examine the role of head movement and its effect on the presence and absence of superiority in long *wh*-movement cross-linguistically in Chapter 5, noting the properties of verbs and head-final morphemes in head-final languages such as Korean and Japanese.

Another intriguing set of Korean data that I turn to in this dissertation is the (un)limited long distance *wh*-scope interpretation of in-situ *wh*-phrases. In general, Korean *wh*-phrases are immune to islands effects, but certain in-situ-*wh*-phrases such as *way* ‘why’ are not, as the contrast in (11) and (12) shows.

(11) a. Mary-nun [[John-ekey **mwuess-ul** cwun] saram-ul] manness-ni?
 Mary-Top John-Dat what-Acc gave man-Acc met-Q
 ‘For what x, Mary met the man who gave John x?’ (Complex NP Island)

b. Mary-nun [John-i **mwuess-ul** sasski ttamune] coahass-ni?
 Mary-Top John-Nom what-Acc bought because liked-Q
 ‘For what x, Mary liked x because John bought x?’ (Adjunct Island)

(12) a. *Mary-nun [[John-ekey i chayk-ul **way** cwun] saram-ul] manness-ni?
 Mary-Top John-Dat this book-Acc why gave man-Acc met-Q
 ‘What did Mary meet the man who gave (it) to John?’ (Complex NP Island)

b. *Mary-nun [John-i i chayk-ul **way** sasski ttamune] coahass-ni?
 Mary-Top John-Nom this book-Acc why bought because liked-Q
 ‘What did Mary leave because John liked (it)?’ (Adjunct Island)

In addition, the *wh*-island effect disappears due to an additional *wh*-phrase in the matrix clause, and thereby the *wh*-phrase in the embedded clause can take matrix *wh*-scope (Watatabe 1992).

(13) a. ??John-un [Mary-ga **mwuess-ul** sassnunci] Tom-ni mulessni?
 John-Top Mary-Nom what-Acc bought Q Tom-Dat asked Q
 ‘What did John ask Tom whether Mary bought t?’

b. John-un [Mary-ga **mwuess-ul** sassnunci] **nwukwu-ekey** mulessni?
 John-Top Mary-Nom what-Acc bought Q who-Dat asked Q
 ‘Who did John ask t whether Mary bought what?’

Given that syntactic computations are highly local, it would be reasonable to assume that both long movements and long agreements are compositions of more local operations. The question is: what is the mechanism for unbounded dependencies across clauses? I will examine the existing theories about scope interpretation of *wh*-phrases, such as movement approaches and

non-movement approaches, and present an alternative analysis of the Korean data in Chapter 6.

Taken together, we have briefly seen data regarding structural and interpretive properties of *wh*-phrases in Korean. Mainly based on Korean data, the thesis will attempt to provide accounts for locality effects in long-distance movement and long-distance *wh*-scope interpretation in Korean *wh*-constructions. In the next section, I present the main proposal of this dissertation from a minimalist perspective, based on the Korean facts sketched above.

1.2 The Proposal

One of the main tenets of Chomsky's (1995, 2000) view of human language is that humans are endowed with an innate computational system (C_{HL}) that relates sounds and meanings. This computational system is characterized by primitive operations (Merge, Agree and Move) and economy principles that follow the Last Resort operation that constrains the operation Move.

One crucial theoretical issue in linguistic theory has to do with the way in which the syntax interacts with the phonological component (PF) and the semantic component (LF). In the recent minimalist framework, the syntax actually sends information to the phonology and semantics not just at a single point, but at multiple points during the syntactic derivation at the end of each syntactic phase (cf. Uriagereka 1999). That is, the basic operations are repeated endlessly during the course of the derivation, obeying the Phase Impenetrability Condition (Chomsky 2001; hereafter PIC). What this means is that in phase theory, once a phase is in a spelled-out domain, neither Agree nor Move can apply to any element in the spelled-out domain (Chomsky 2000, 2001, 2004).

Incorporating the theoretical considerations, the thesis shows that as far as the locality conditions are concerned, in Korean both (*wh*-) phrasal movement to the left periphery and (*wh*-) scope agreement to the right periphery are constrained by economy conditions such as the PIC, in accordance with the local operation that the MP takes to be one of the vital properties of the faculty of language. In doing so, adopting Chomsky's economy-based approach, a non-movement approach for local agreement (i.e., Agree) in a clause and a feature-based movement approach for long distance agreement across clauses are proposed.

To be more specific, it is argued that movement of *wh*-phrases in Korean involves an Internal Merge (i.e, Rmerge) operation or Agree followed by Internal Merge, while *wh*-scope agreement involves Agree or Agree followed by a feature movement (i.e feature transmission)

operation; syntactic dependencies may be established either by Agree between an uninterpretable feature on a probe in an intermediate clause and a matching interpretable feature on a goal in an embedded clause, or by Agree between an uninterpretable feature on a probe in a matrix clause and a matching interpretable feature (i.e., transmitted feature) on a goal in an intermediate clause. The locality constraint and operation of *wh*-movement and *wh*-scope agreement in Korean are shown in Table 1.

Table 1. Long Movement of Wh-Phrases and Long Distance Wh-Scope Agreement in Korean

Wh-Phrase	Locality	Operation	Motivation
(Long-distance) Wh-Scrambling/ (Long-distance) Wh-Movement	PIC	Internal Merge/ Agree followed by Internal Merge	EF
Direct Questions / Indirect Questions	PIC	Agree/ Feature movement followed by Agree	EF

We will demonstrate the derivational process of *wh*-movement and *wh*-agreement in Korean in more detail later. Although the language we mainly deal with in this dissertation is Korean, many results may be applied to a range of other languages with SOV order, in particular with regard to scrambling (Ch.3), word order (Ch.4), headedness (Ch.5) and feature movement (Ch.6).

1.3 The Organization

The rest of the thesis is organized as follows. Chapter 2 offers the basic assumptions and theoretical framework of the Minimalist Program that I rely on in this dissertation. Chapter 3 provides a descriptive overview of long distance scrambling, and examines two types of movement of *wh*-phrases in Korean in more detail in compliance with the theoretical framework. Chapter 4 accounts for the difference between English and Korean *wh*-movement in multiple *wh*-constructions, and develops an analysis of Korean *wh*-movement with respect to superiority effects. Chapter 5 deals with the role of head movement and its effect on the presence and absence of superiority effects in long *wh*-movement from a micro-comparative

perspective. Chapter 6 deals with *wh*-scope interpretation of in-situ *wh*-phrases in Korean *wh*-interrogatives, focusing on long distance scope agreement. It is suggested that the analysis of the Korean facts can be applied to other languages with in-situ *wh*-phrases in *wh*-interrogatives. Chapter 7 provides concluding remarks, which briefly summarize the major issues and ideas mapped out in this thesis.

CHAPTER 2

THE THEORETICAL BACKGROUND

2.1 Introduction

The main purpose of this chapter is to introduce some of the minimalist notions that I assume as the theoretical apparatus for the analysis of the left and right peripheries in SOV languages with free word order including Korean with respect to movement and scope of *wh*-phrases presented in this dissertation. In doing so, section 2.2 gives an overview of the economy conditions and locality constraints that have been proposed in the syntax literature and motivate the recent Agree-based phase theory (Chomsky 2001 et seq.). Section 2.3 presents basic syntactic operations, such as Merge, Agree and Move, upon which the thesis is based. Section 2.4 is the summary.

2.2 Locality Constraints in Early Minimalism

In the Principles and Parameters (P&P) approach in the GB era, operations such as Move- α apply freely and grammatical well-formedness is evaluated by the S-structure and LF representations. For instance, locality constraints on movement are covered by the Subjacency condition, which is defined in (1).³

(1) **Subjacency Condition** (Chomsky 1986)

If (α_i, α_{i+1}) is a link of a chain, then α_{i+1} is subjacent to α . β is n -subjacent to α iff there are fewer than $n+1$ barriers for β that exclude α .

As shown in (2a) and (2b), overt syntactic movement is restricted by Subjacency in which bounding nodes are CP and DP.

³ The term ‘island’, originating with Ross (1967), refers to a phrase out of which another phrase cannot be extracted.

- (2) a. ?*What do you remember [why we bought t]? (Wh-island)
 b. ?*Who do you like [books that criticize t]? (Complex NP Island)
 c. ?*Who do you think that [pictures of t] are on sale? (Subject Island)
 d. *Who did you get jealous [because I talked to t]? (Adjunct Island)

The Minimalist Program, which replaced Principles and Parameters, takes a different stand with respect to the nature of movement. In MP, movement is considered an operation that takes place as a last resort (not the Move- α operation), and Economy principles of movement are introduced to converge derivations in a minimized, optimal and natural principle.

As an effort to reduce the number of stipulated constraints on movement, economy principles have drawn a great deal of attention within the generative framework⁴. Economy conditions rule out ungrammatical forms, or costly derivations, and instead derive less expensive and computationally optimal forms according to some criterion at the narrow syntax. Since early minimalism there have been several economy principles that generate optimal derivational forms. The primary economy principles introduced in syntactic theory include Greed, Procrastinate, and Shortest Move, such as Relativized Minimality (Rizzi 1990) and the Minimal Link Condition (Chomsky 1995).

The economy principle Greed states that a constituent must move to satisfy its own requirements; it may not move to satisfy the requirements of some other constituent or target since Greed is mover-oriented. However, in Chomsky (1993), Greed is abandoned in favour of the argument that it is the features of the target that must be checked, not the features of the lexical items.⁵

According to Chomsky (1995), movement was considered to be a computational operation to check and delete uninterpretable features of functional heads. Thus, lexical

⁴ The essential idea of minimalism is that a syntactic theory should make use of as few principal notions as possible. In the Government and Binding (G&B) theories that were developed on the basis of works such as Chomsky (1981, 1986), many notions were proposed, such as s-structure, d-structure, the X bar schema, government, ECP, etc. Postulating something that is not identified morpho-phonologically and is not an economical derivation, e.g. the over/covert movement distinction, is not compatible with the minimalist spirit, although it is argued that feature movement cannot be entirely dispensed with (Lasnik 2002). In the current minimalist program the notions are no longer used, since it tries to reduce these notions to a small set of more basic principles. The idea to minimize various principles to a simpler one are in line with the scientific view popularly known as Occam's razor: the idea that superfluous postulates are not preferred, assuming all else is equal.

⁵ Mover-oriented and target-oriented feature checking seem to be two sides of the same coin, but they implicate a symmetric checking relation and an asymmetric checking relation respectively, in that in successive cyclic movement, the feature of a moving element is not deleted.

categories move to the specific position of functional heads in order to check their features. If the features of functional categories are strong, the lexical categories move prior to Spell-Out; if the features of functional categories are weak they move after Spell-Out. In this respect, covert movement obeys the Procrastinate principle, which allows the delay of an operation until LF whenever possible, since delaying would not cause the derivation to crash.

In the early 1990's, Rizzi (1990) proposed Relativized Minimality (RM), a locality constraint, to capture the idea that a movement operation cannot involve X and Y over Z which is relatively identical to Y in the configuration.

(3) Relativized Minimality

X governs Y iff there is no Z such that

...X...Z...Y... if Z c-commands Y

- i. Z is a typical potential governor for Y,
- ii. Z c-commands Y and does not c-command X
- iii. α governors: heads, A Spec, A' Spec.

Consider the following examples: (4a) is a Head Movement Constraint violation; therefore, 'have' cannot skip the position occupied by 'will' to move to a higher head position; (4b) is a super-raising violation; therefore, 'John' cannot skip the subject argument position occupied by it; and (4c) is a superiority violation; therefore, 'what' cannot skip an intervening A'-position.

- (4) a. *Have John will t left by the time we get there?
- b. *John is likely for it to seem t to have left.
- c. *What did you persuade who to buy t?

While the Relativized Minimality analysis captures the intuition of a local structural relation, and attains considerable descriptive accuracy, it lacks generality, as Chomsky and Lasnik (1995:82) point out that "these observations have a wide range of descriptive adequacy, but fall short of a satisfactory explanatory principle." This has caused the authors to propose the Minimalist Chain Link Condition by discarding these three classes of interveners. In addition, since RM is

based on the notion of government, it is not compatible with current minimalism.⁶

In recent minimalist approaches, Relativized Minimality has been held to be subsumed by economy conditions, such as the Minimal Link Condition (MLC) (Chomsky 1995; Kitahara 1997) or Closest Attract/Shortest Move, so that the closest category can enter into a checking relation with its triggering head.⁷

(5) **MLC** (Chomsky 1995:311)

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

The MLC forces an embedded or matrix C, with a strong feature triggering *wh*-movement, to attract the closest category that can enter into a checking relation with its sub-label, the *wh*-phrase (Kitahara 1997:67). The MLC straightforwardly accounts for the island effects in (2a) and (4). Note, however, that the rest of the island effects involving CNPS (cf. 2b), subject islands (cf. 2c), and adjuncts-islands (cf. 2d) remains unexplained even though there is no clear element that blocks movement of the *wh*-phrase and leads to an MLC violation.⁸

In more recent syntactic theoretical frameworks, Uriagereka's (1999) theory of Multiple Spell-Out (MSO) accounts for subject and adjunct islands effects (see also Huang's (1982) Condition on Extraction Domain)⁹, effects according to which subjects and adjuncts are formed separately from other elements in a clause, and the complete syntactic objects, subjects and adjuncts are spelled out before they are merged with other elements in a syntactic structure. This mechanism accounts for subject and adjunct island effects.

With the introduction of derivation by phrase, the MLC has been replaced by a local constraint called the Phase Impenetrability Condition (PIC), which takes derivational

⁶ In recent work, Rizzi (2005) proposes a more elaborate typology of specifiers based on different classes of features they license, such as argumental (person, number), quantificational (Wh, Neg), etc. Besides, Rizzi argues that there are further factors involved in the extractability of elements from weak islands.

⁷ Kitihara noted that the MLC condition is a strong global Economy principle in that global derivational economy looks at an entire derivation as a whole and the number of derivations. Kitihara proposes the Shortest Derivation Requirement, stating that "Minimize the number of operations necessary for convergence."

⁸ The nonuniform island effects in Korean will be dealt with in chapter 6.

⁹ (i) Condition on Extraction Domain(Huang 1982:506)
A phrase A may be extracted out of a domain B only if B is properly governed.

operations to be strictly local. In this sense, all economy principles discussed above except for the PIC are quite representational, which is exactly what the current MP attempts to avoid.

Thus far, I have briefly offered an overview of economy principles and locality constraints such as Greed, Procrastinate, and Shortest Move in MP.

2.3 Chomsky's Agree-based Phase Theory

Chomsky (1995) assumes that feature checking takes place in Spec-head relations. For example, the view was that a *wh*-phrase undergoes overt movement to check [uQ] on C. Chomsky (2000) dispenses with feature movement and proposes a theory of Agree, a mechanism to simplify the complexity of syntactic operations. That is, current minimalism makes use of Agree as a syntactic feature-checking mechanism. Before launching into a discussion on the Agree-based phase theory, in the following section I shall first outline the so-called primitive grammatical operations, Merge and Move.

2.3.1 Structure Building: Merge, Move and Agree

This computational system which maps lexical information into interfaces (i.e. PF and LF), involves two operations: Merge and Move. Numeration consists of the lexical items (LI). The LIs in the numeration undergo the ‘Select’ process for insertion into a derivation. The cyclic lexical selection is assumed to be from the numeration rather than from lexicon since lexical selection from numeration is simpler and may reduce operative complexity.

An LI that is selected is inserted into a derivation via the operation Merge, which combines two elements to form a single unit. In the Merge operation, the values of α and β are not identical, and thus the concept of intersection is excluded. This induces asymmetrical projection of one of the two constituents. Chomsky (2005, p.11-12) writes:

“An elementary fact about the language faculty is that it is a system of discrete infinity. Any such system is based on a primitive operation that takes n objects already constructed, and constructs from them a new object. Call that operation Merge...”

There are two types of Merge. Merge by movement in the existing structure is called internal merge (Move), and merge by a combination with an external argument is called external merge¹⁰. Chomsky (2005:12-13) writes:

“Unless some stipulation is added, there are two sub-cases of the operation Merge. Given A, we can merge B to it from outside A or from within A; these are internal and external Merge, the latter operation called “Move”, which therefore also “comes free”, yielding the familiar displacement property of language. That property had long been regarded, by me in particular, as an “imperfection” of language that has to be somehow explained, but in fact it is a virtual conceptual necessity; some version of transformational grammar seems to be the null hypothesis and any other mechanisms, beyond internal Merge, carry a burden of proof”.

Merge is a binary structure-building operation that applies cyclically in a bottom-to-top fashion. Since only asymmetrical merge and lexical information are needed, the information of projectional categories used in X-bar theory is not necessary¹¹.

With respect to the two operations Merge and Move, Chomsky (1995) argues that Merge is preferred over Move. For instance, in the case of two derivations arising from an identical numeration, the Merge over Move preference rules out examples like (6b) because the operation Move is considered to be complex, involving Merge and Agree. Thus, Move is a last resort operation.

(6) a. There seems to be **someone** in the room

b. There seems **someone** to be in the room

¹⁰ In current work in the Minimalist Program, movement is generally thought to involve copying of an element from one position to another new position rather than leaving behind trace (Chomsky 1995a).

¹¹ Chomsky (1995b) suggested the ‘Bare Phrase Structure’ with a view to eliminating the X-bar theory. In a bare phrase structure approach, there are no projection levels anymore, meaning that a node can be a head and a maximal projection at the same time. The reasoning of the Bare Phrase Structure hypothesis is that structure building is a function of merge and movement alone.

The Merge over Move preference, however, has been challenged in several recent works (see Epstein and Seely 1999; Grohmann et al. 2000; Shima 2000; Bošković 2002 for detailed discussion).

Once an element has been merged into a derivation, it can form an Agree relation with another syntactic object in a structure. Agree is a syntactic operation that checks uninterpretable features of two elements called probe and goal. In order for an Agree relation between a probe α and a goal β to be established, both α and β must be active, and the α must have a complete set of ϕ -features matching those of β in order to delete its uninterpretable features. Feature matching between α and β is restricted to ‘c-command’, to satisfy locality conditions. Agree, coupled with the matching conditions of the probe-goal system, is stated as follows.¹²

(7) **AGREE** (Chomsky 2000)

$\alpha > \beta$ AGREE (a, b), where α is a probe and β is a matching goal, and ‘>’ is a c-command relation.

(8) **MATCH** (Chomsky 2000:122)

- a. Matching is feature identity
- b. D(P) is the sister of P
- c. Locality reduces to ‘closest c-command’

In Chomsky’s (2001) Agree system, uninterpretable features are identified as unvalued and unvalued features are identified as uninterpretable features. Morphological properties, such as uninterpretable ϕ -features of the probe α and the uninterpretable structural Case of the goal β , are valued and deleted for interface convergence, and movement of β is triggered by an EPP feature.

(9) **Valuation/Interpretability Biconditional** (Chomsky 2001)

- a. Uninterpretable features are unvalued.

¹² The structural relationship of c-command is defined as follows.

c-command : α c-commands β if α does not dominate β and every γ that dominates α dominates β (Chomsky 1986a, p. 8; Chomsky & Lasnik 1995:35)

Epstein et al. (1998) argue for arguments that c-command results from Merge and Move. Chomsky (2006) discusses of eliminating the notion of c-command.

- b. Interpretable features are valued.
- c. Uninterpretable features must be valued and deleted.

Feature matching between probe and goal may be blocked. According to Chomsky (1998, 1999), checked (i.e., valued) features remain visible to narrow-syntactic derivations within their own phase until they are sent to Spell-Out, even though the features are deleted by the cyclic computation at the phase level. This makes it impossible to enter further Agree relations at a distance over these checked features and gives rise to intervention effects.

(10) **The Defective Intervention Constraint** (DIC: Chomsky 2000:123)

$\alpha > \beta > \gamma$ ('>' stands for c-command)

Locality condition yields an intervention effect if probe α matches inactive β which is closer to α than matching γ , barring AGREE (α, γ).

A typical example of a defective intervention effect (Chomsky 2000) can be found in the raising construction in (11). The 'it' between T and 'John' is already inactive because its case feature has been deleted, but functions as an intervener to interfere with long distance agree between T and John.

(11) *T appear [it is likely [John to won]]

The intervener 'it's inactive state can be explained by the Inactivity Condition, described in (12).

(12) **Inactivity Condition** (Chomsky 2008:154)

If a nominal element DP or NP is inactivated, with all its uninterpretable features valued by Agree, then it cannot enter into further computations.

2.3.2 Phase, Transfer and the Phase Impenetrability Condition

Chomsky (2000:106, 2001:12, 2008:143) suggests that CP and v*P are strong phases, whereas passive and accusative v is a weak phase: v*P corresponds to full argument structure, and CP

is the full clause including tense and force.¹³ The reason that Chomsky (2000:106) set v*P and CP as phases is described in the following.

“A natural syntactic object SO, an object that is relatively independent in terms of interface properties. On the ‘meaning side’, perhaps the simplest and the most principles choice is to take SO to be the closest syntactic counterpart to a proposition: either a verb phase in which all θ -roles are assigned or a full clause including tense or force. Call these objects propositional. Call these objects propositional. Considerations on the sound side support the choice given properties of the kind mentioned earlier distinguishing CP from TP, which extends to vP (fronting, extraposition, pseudoclefting, response fragments, etc.).”

A sub-numeration is part of a numeration that consists of lexical subarrays (LSAs) to form a phase. Once LSAs that constitute phases are exhaustively selected, the component of a phase is sent off to the interface components for phonological and semantic components through the operation Transfer (Chomsky 2004) before the derivation proceeds to the next phase (cf. (13)). Spell-out is cyclically applied at the phase level (cf. fig1). Transfer is an operation that strips off a certain domain of an already formed phase to the conceptual-intentional (C-I) system and articulatory-perceptual (A-P) system. Crucially, valuation and transfer must occur simultaneously for a derivation to converge.

(13) a. [vP v° [VP]]

The transfer domain of the phase head v°

b. [CP C° [TP T° [vP v° [VP ...]]]]

The transfer domain of the phase head C°

¹³ According to Chomsky (2006:143), CP “is shorthand for the region that Rizzi (1997) calls the ‘left-periphery’.”

Such cyclic numeration leads to Multiple Spell-Out (cf. Uriagereka 1999).

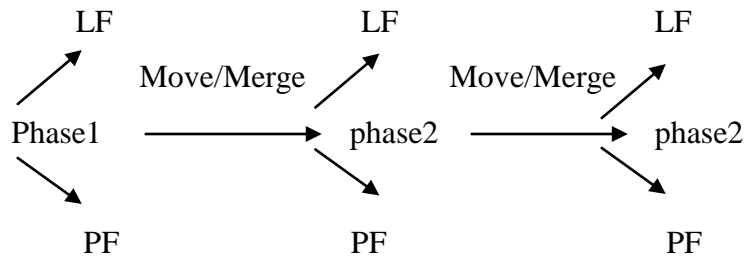


Figure1. Phase Model based on Multiple Spell-Out

Only elements at the edge of phases are visible from outside of the phase; thus, in order for movement to be possible the potential mover must move to the edge of a head, obeying the PIC, which is stated in (14).

(14) **Phase Impenetrability Condition** (PIC; Chomsky 2001:14)

The domain of a head X of a phase XP is not accessible to operations at ZP (the next phase); only X and its edge are accessible to such operations.

The inaccessibility to a higher structure is captured by the Phase Impenetrability Condition (PIC), which is in line with the spirit of recent minimalism in that the locality of movement minimizes the computational complexity. The head of a phase, C and ν may be assigned an EPP feature that provides an “escape hatch” to ensure successive-cyclic movement through the edge of a phase (Chomsky 2001:12). Successive cyclic movement by phase implies that there is no boundary between overt (strong) and covert (weak) (cf. Groat and O’Neil 1996; Uriagereka 1999; Chomsky 2000).

2.3.3 Edge Feature

In ‘Derivation by phase’ (Chomsky 2001), probe, head T ϕ -agrees with the goal, the subject that has the interpretable ϕ -features and the uninterpretable nominative case, and probe ν ϕ -agrees with the goals, the objects that have the interpretable ϕ -features and the uninterpretable dative and accusative case, eliminating the uninterpretable ϕ -features of T and ν and the

uninterpretable structural nominative, dative and accusative Case of goal, in order to satisfy Full Interpretation. Given this, all movements are triggered by EFs, and the optional operations can apply only if they have an effect on outcome (Chomsky 2001:34).¹⁴ Since Agree under the probe-goal system enable in-situ checking of features, displacement for feature-checking is unnecessary. It is the EPP that is responsible for dislocation for feature checking (Chomsky 1995).¹⁵

Recently, Chomsky (2008) introduced an edge feature (EF) by reformulating the EPP¹⁶. The EF raises an XP to the phase edge without feature matching. Chomsky (2008: 139) states as follows.

“For an LI to be able to enter into a computation, merging with some SO (and automatically satisfying SMT), it must have some property permitting this operation. A property of an LI is called a feature, so an LI has a feature that permits it to be merged. Call this the edge-feature (EF) of the LI.”

Chomsky (2001) argues that Internal Merge (i.e. remerge) induced by the edge-feature is motivated by scope and discourse-related (informational) properties. Hence, this edge feature raises an XP to the phase edge without feature matching (Chomsky 2005: 19).

The phase heads (PH) have Agree-features as well as EF; therefore, an internal merge (IM) is triggered by the phase heads (i.e. C and v*). T does not have ϕ -features in and of itself; rather, ϕ -features on C may percolate down from C to T because T lacks such features in the lexicon.¹⁷ This is tantamount to saying that T cannot inherit ϕ -features until C is merged, and hence derivatively serves as a probe at the phase level CP. In a similar manner, the phase head v* transmits its Agree-feature to V, and the probe of an object with a structural case raises the

¹⁴ Similar to object scrambling, Object Shift (OS) is known to have a semantic interpretation such as that it encodes new information, specificity/definiteness, topic, focus, etc., called interpretive complex (Holmberg 1999).

¹⁵ Traditionally it was thought that the EPP was the result of feature checking such as a strong Case feature or a strong D-feature of T (Chomsky 1995a), which trigger either subject-raising or the expletive insertion in Spec of T.

¹⁶ According to Chomsky, EPP-features are equal to P (peripheral)-features (2000) or OCC (urrence)-features (2004) or Edge-features (2005).

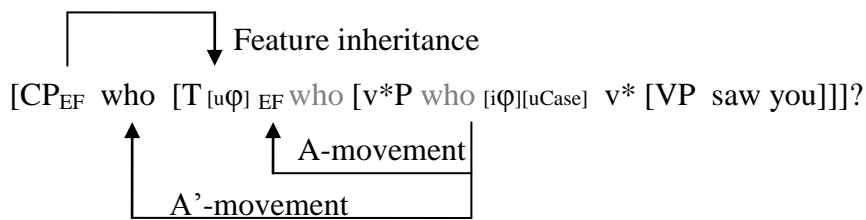
¹⁷ Similarly, v* transmits its Agree feature to V.

object to Spec-V. This is a mechanism of feature inheritance.¹⁸ What is significant in the notion of feature inheritance is that A- and A'-movement are derived by C-T in a parallel fashion (Chomsky 2008), implying that there is no direct relation established between the *wh*-phrases in Spec-CP and in Spec-TP.

Let us take a case of *wh*-movement. Similar to the A-movement system in which the probe is a set of uninterpretable ϕ -features, and the goal is a set of interpretable ϕ -features and uninterpretable case features, in the *wh*-movement system the probe is an uninterpretable Q-feature of C and the goal *wh*-phrase contains a set of interpretable Q-features and uninterpretable *wh*-features. An uninterpretable case feature and an uninterpretable *wh*-feature play a role in activating the NP and *wh*-phrase in each movement.

In (15), T and the *wh*-subject 'who' in its base position enter the Agree relation, deleting the ϕ -features of T and the nominative Case feature of 'who'. Similarly, T and the *wh*-subject 'who' in its base position enter the Agree relation, deleting the Q-features of C and the *wh*-feature of 'who'. The edge feature of T, inherited from C, and the edge feature of C raise the *wh*-phrase 'who' to Spec-TP and Spec-CP, respectively.

(15) A/A'-movement



Once an element has A-moved to the place where its features are valued, it cannot raise further to Spec-C, and consequently there is no A'-movement from Spec-T. That is to say, the A-chain becomes invisible to further computation when its uninterpretable features are valued. Accordingly, *wh*-movement goes through successive-cyclic A'-movement via Spec-v*P and Spec-CP, not through Spec-TP.

2.4 Summary

In this chapter we reviewed major economy principles which minimize the computational

¹⁸ See Richards 2007 for a detailed analysis for feature inheritance.

complexity in a derivation and locality constraints which ban superfluous steps in a derivation in early and recent minimalism.

Moving onto recent minimalist theory, we reviewed the Agree-based Phase theory according to which after completion of a given phase, the domain of the phase is transferred to the interface and then becomes impenetrable to further syntactic operations (Chomsky (2000, 2001)). All syntactic operations involving Move and Agree are subject to locality such as the Phase Impenetrability Condition (PIC) and Defective Intervention Constraints (DIC).

Based on the theoretical framework I offer in this chapter, I will explain movement and interpretation of *wh*-phrases in Korean. Before doing so, in the next chapter I provide some basic background for long distance scrambling.

CHAPTER 3

LONG DISTANCE (*WH*-) SCRAMBLING

3.1 Introduction

In this chapter I offer a descriptive overview of long distance scrambling (LDS) including general characteristics and various views on scrambling with empirical evidence. The organization of this chapter is as follows. Section 3.2 describes previous analyses of long distance scrambling, and section 3.3 discusses Korean long distance scrambling. Section 3.4 focuses on Korean long distance *wh*-scrambling, and section 3.5 is the summary.

3.2 An Overview of Long Distance Scrambling

The so-called “scrambling phenomenon” refers to free movement of arguments without altering the propositional meaning of a sentence. There have been two views on scrambling¹⁹: one is to view scrambling as movement (Mahajan 1990; Muller and Sternfeld 1994; Miyagawa 1997 et seq.; Bailyn 2001 among others), and the other is to view scrambling as a base-generation (Bošković and Takahashi 1998; Fanselow 2001 among others).

3.2.1 Scrambling as a Base-Generation

In compliance with the last resort principle of move- α , Bošković and Takahashi (1998) suggests that scrambled phrases are in fact base-generated in their surface positions, and undergo obligatory covert (LF) lowering for θ -feature checking, thereby satisfying Full Interpretation (FI). Bošković and Takahashi’s arguments are based on several crucial assumptions: first, that lowering is possible; second, that theta-roles are features and thereby scrambled elements can be lowered to their theta position; and third, that in contrast to long distance scrambling, local scrambling allows the scrambled phrase to remain in its surface

¹⁹ Scrambling used to be viewed as a stylistic movement that is independent of syntactic movement (Ross 1967, Chomsky & Lasnik 1977).

position at LF because V-to-I movement makes it possible for the verb to θ -mark its object in the IP-adjoined position, allowing it to stay at LF.

By viewing scrambling as a non-movement operation, Bošković and Takahashi's analysis dispenses with the problem of optionality of scrambling, but their analysis also suffers from some conceptual and empirical problems.

From a conceptual view, Bošković and Takahashi's analysis postulates a lowering analysis that is not compatible with the current theoretical framework in which covert movement does not exist but rather a strictly cyclic and derivational system works (Epstein et al., 1998). Also, in light of the Agree operation, a θ -role feature in the lower clause cannot establish Agree with any element in the higher clause (Kim 2002). Thus, a scrambling construction involving a lowering analysis is theoretically problematic.

From an empirical view, in contrast to Bošković and Takahashi's analysis, some long distance scrambled adjuncts to a matrix clause can be associated with an embedded clause in Korean (Shields 2007). Given this, it is hard to see how Bošković and Takahashi's analysis can accommodate adjunct lowering which is not involved in θ -feature checking. Consider the Korean example in (1).

- (1) Amwu iyu epsi_i Mary-ka [John-i t_i ku iron-ul misnun_ta ko] sangkakhanta.
 Reason-even without Mary-Nom John-Nom that theory-Acc believes that thinks
 'Without any reason_i, Mary thinks that John believes that the theory t_i.'

Another empirical problem with Bošković and Takahashi's analysis is that they cannot account for why an embedded subject may not be scrambled to a matrix clause, unlike object scrambling (Saito 1985:192). Consider the Japanese example in (2).

- (2) *[Kono giron]_i-ga [Mary-ga John-ni [t_i okasii to] itta]
 This argument Nom Mary Nom John-Dat strange that told
 'This argument, Mary told John that t_i is strange'

In his recent paper, Bošković (2007b) takes scrambling to be a PF phenomenon from the copy theory of movement according to which either the head or the tail can be pronounced.

3.2.2 Scrambling as Movement

As opposed to a base-generation approach, in a movement approach one word order is derived from one basic word order. It has been well documented in the literature that clausal internal scrambling can be A/A'-movement, while long distance scrambling in which a DP is dislocated over a clause is an A'-movement (Mahajan 1990, Saito 1992 among others); Anaphor binding by a scrambled antecedent, the amelioration of the Weak Crossover(WCO) effect and the change of quantifier scope relation display the A-property of clausal internal scrambling, while reconstruction of a scrambled element reflects the A'-property of local and long distance scrambling.²⁰ Unlike clausal internal scrambling, long scrambling cannot serve as an A-binder (Saito 1992), nor ameliorate WCO effects, nor affect scope.

With respect to motivation for movement, traditionally there have been two views for scrambling as a movement: feature-based optional movement and non-feature-based optional movement. To be specific, the former view is to assume that scrambling is derived by an obligatory feature-checking requirement (Lee 1993; Miyagawa 1997, 2003.; Kitahara 2002). Kitahara, based on Chomsky's (1995) claim that Case is an uninterpretable feature, proposes that once Case is deleted the element is interpretable. Kitahara's analysis predicts that long-distance scrambling will always be reconstructed, since the Case-checking site is located in the clause from which the scrambling element moves.

As Saito (2004) reports, Kitahara's Case-based analysis is unable to capture the fact that clause-internal scrambling can have A-properties even when the moved phrase is not the object but a PP (Takano 1998). Consider the Japanese example in (3).

- (3) ?[Taroo-to Hanako]-kara_i [otagai -no hahaoya]-ga t_i hon -o karita] (koto)
 Taroo and Hanko-from each other-Gen mother-Nom book-Acc borrowed fact
 'From Taroo and Hanako_i, [each other's mother borrowed books t_i']

Since the EPP feature on T is universal (Chomsky 1995), Miyagawa (1997, 2003) proposes that local scrambling is triggered by the EPP-feature on T, whereas long distance scrambling is motivated by something like focus.²¹ To be concrete, Miyagawa's assumptions are as follows: first, both the SOV and the OSV word orders result from a single obligatory movement. This

²⁰ WCO means that a *wh*-phrase may not move over a coindexed pronoun.

²¹ Focus is generally understood as a most important and prominent element in a sentence (cf. Jackendoff 1972, Horvath 1986 among others).

movement is triggered by the EPP. Second, the object raising into Spec, TP to meet the EPP requirement is made possible by V-to-T. Third, all morphological case markings agree with and thus are licensed by T. Consider the Japanese example in (4).

- (4) a. Zen'in-no-gakusei-ga san-satu-no-hon-o yoma-nakta-ta
 All-Gen-student-Nom 3-CL-book-Acc read-Neg-Past (all>not)
- b. San-satu-no-hon-o zen'in-no-gakusei-ga t_i yoma-nakta-ta
 3-CL-book-Acc all-Gen-student-Nom read-Neg-Past (Not>all, all>not)

In the SOV order of (4a), the subject takes only wide scope with respect to negation, meaning that it moves to Spec, TP, outside the c-command domain of negation. In the OSV order (4b), there are two possible derivations: if the subject stays in its merged position, and the object moves to Spec, TP, a partial negation is obtained because the subject is in the c-command domain of negation. If the subject moves to Spec, TP, and the object move to an A'-position above TP for focus, a whole negation is obtained because the subject is outside the c-command domain of negation.

Despite the articulated EPP-based scrambling analysis, Miyagawa's analysis is faced with several linguists' arguments against the EPP-motivated approach to scrambling (Lee and Cho 2003; Kang 2005; see also İşsever 2008 for Turkish). With respect to his second assumption on V-raising, Kang (2005) claims that the possibility of V-to-T movement in Korean and Japanese with poor verbal inflectional morphology should be excluded based on a correlation between rich verbal inflectional morphology and verb raising. With respect to his third assumption on morphological case marking, Korean multiple subject constructions do not seem to be accommodated by his analysis because the OSV order is not well-formed. See the Korean example in (5) (Choi, 1988, cited in Lee and Cho 2003).

- (5) a. Mary-ka emeni-ka sensayngnim-eykey ton-ul cwu-ess-ta
 Mary-Nom mother-Nom teacher-Dat money-Acc give-Past-Dc
 'As for Mary, his mother gave the teacher money.'
- b. *Ton-ul Mary-ka emeni-ka sensayngnim-eykey t_i cwu-ess-ta
 Money-Acc Mary-Nom mother-Nom teacher-Dat give-Past-Dc

Following Chomsky (2000), Miyagawa (2005:2) recently argues that focus and agreement are parameterized according to language types. The T inherits the agreement feature and EPP feature from C in agreement-prominent languages such as English, and the EPP on T raises an agreeing phrase to [Spec, TP]. Alternatively, the T inherits the focus feature and EPP feature from C in focus-prominent languages such as Japanese, and the EPP on T raises a DP with focus to [Spec, TP].

Let us now turn to the other view: a non-feature-based optional movement according to which scrambling is an adjunction operation derived by a non-feature-checking free movement. Some researchers (Saito 1985, 1989, 1992, 2003, Fukui and Saito 1998, see also Sauerland & Elbourne 2002) claim that long distance scrambling is a strictly optional movement operation and can be freely undone at LF as the operation does not induce semantic effects. (6b) has also the same interpretation as (6a) via what Saito calls ‘radical reconstruction’ even though the *wh*-phrase is outside the embedded clause. According to Saito’s analysis, scrambling does not bring about any semantic effect.²²

(6) a. John-ga [Taroo-ga nani-o kattta ka] siritagatteiru
 John -Nom Taro -Nom what-Acc bought Q knows
 ‘John wants to know what Mary bought.’

b. Nani-o_i John-ga [Tarro-ga t_i kattta ka] sirigagatteirul
 What-Acc John -Nom Taro -Nom bought Q knows

Note that if the scrambled *wh*-phrase in (6b) can move back to its original position in the embedded clause at LF, the scrambling sentence violates the Proper Binding Condition in the sense of Fiengo (1974, 1977). Faced with this problem, Saito suggests that PBC can be exempted by not leaving a trace. This way, the LF undoing effect explains that scrambling has no semantic consequence.

Recently Saito (2003, 2005) suggested an approach to unify the properties of local and long distance scrambling by adopting Chomsky’s (1993) Copy and Deletion theory of movement and assuming Epstein et al. (1998) and Kitahara’s (2000) derivational model. Saito

²² See Tsoulas (2007) for an analysis of Saito (2003).

The ungrammaticality of (10b) is due to there being no point in the derivation in which the D-feature of *karera-o* c-commands the lexical anaphor *otagai*, as shown in (10c).

- (10) a. [CP Karera-o [TP ... karera-o ...]]
 (P, D) (P, D)
- b. [CP Karera-o [TP ... karera-o ...]]
 (P) (D)
- c. [TP Karera-o [... otagai ... [CP karera-o [TP ... karera-o ...]]]
 (P) (P) (D)

Among the various views on scrambling discussed so far, we will take the position that scrambling is a movement operation, examining Korean long distance scrambling in what follows.

3.3 Properties of Korean Long Distance Scrambling

It seems that the view that long distance scrambling is optional and thus is semantically vacuous is quite strongly-held, although it is not the case that LF undoing does not exist (Mayagawa 2005). Adopting the view that scrambling is driven by a certain driving force, I offer some relevant Korean LDS showing that LF undoing is not obligatory and thus is semantically non-vacuous.

3.3.1 No Radical Reconstruction

We reviewed that Saito's unified approach to A/A-bar scrambling based on chain interpretation thoroughly accounts for the contrast between local scrambling and long scrambling in terms of binding. Through the approach, his position that LDS in Japanese (and Korean) involves radical reconstruction and is semantically vacuous is maintained, even though Saito (2004:338) states that scrambling affects interpretation at least in some cases, e.g. binding, and is to be distinguished from PF movement.

Although Saito assumes that Korean long distance scrambling also gets the same analysis as the Japanese counterpart, there is ample evidence showing that local scrambling

and LDS are not entirely different with respect to binding and scope in the sense that not all instances of LDS obligatorily undergo radical reconstruction.

In Korean, the mono-morphemic reflexive *caki* can be bound by a pronominal *kutul*, which is scrambled from the embedded clause to the matrix IP-adjoined position, indicating that the LDS in Korean can also exhibit A-properties. This suggests that principle A can be satisfied at any stage of derivation (Kang 2005).

- (11) a. *Caki-tul-uy_i chinku-ka [Minki-ka kutul-ul_i pinanhessta-ko] malhessta
 Self-PL-gen friends-nom Minki-nom they-acc criticized C said
 *Self-pl's friends said that Minki criticized them_i'
- b. Kutul-ul_i caki-tul-uy chinku-ka [Minki-ka e_i pinanhessta-ko] malhessta
 They-acc self-pl-gen friends-nom Minki-nom criticized C said
 'Their friends said that Minki criticized them_i'

With respect to anaphoric binding of a scrambled element, the sentence (12a) does not have the same coreferential interpretation as (12b); this shows that LF lowering does not involve a phrasal category, a conclusion against the LF-undoing analysis (Son 2009).

- (12) a. John_i-un [Mary_j-ka casin_{i/j}-ul pinanhaysstako] syngkakhanta
 John-Top Mary-Nom self-Acc. blamed think
- b. casin_{i/*j}-ul John_i-un [Mary_j-ka *t* pinanhaysstako] syngkakhanta
 Self-Acc John.-Nom Mary-Nom blamed think

Long-distance scrambling in Korean remedies the WCO effect, indicating that scrambling is an A-movement.

- (13) Nwukwu_i-lul [casini-uy emma-ka [sensangnim-i t_i ttayliessta-ko] mit-ni
 Who-Acc self-Gen mother-Non teacher-Nom hit-PAST-C believe-Q
 'Who does self's mother believe that teacher hit?'

Moreover, long-distance scrambling may affect scope interpretation. If the universal quantifier is a matrix subject, the moved existential quantifier cannot take scope over the universal quantifier; hence a new quantifier relation does not obtain, as in (14a). Conversely, if the universal quantifier is an embedded subject, the moved existential quantifier can scope over the universal quantifier.²³

(14) a. Moduni-ul_i nwukunka-ka [Mary-ka t_i saranghanta-ko] malhassta.

Everyone-Acc someone-Nom Mary-Nom love-C said

‘Everyone, someone said that Mary loves’

Everyone > someone, *someone > everyone

b. Moduni-ul_i Mary-ka [nwukunka-ka t_i saranghanta-ko] malhassta.

Everyone-Acc Mary-Nom someone-Nom love-C said

Someone > everyone, ?everyone > someone

A similar observation can be made in *wh*-scrambling. According to Saito (1989, 1992), *wh*-scrambling in Japanese is not a real A'-movement in that it does not establish a semantically significant operator-variable relation. From this perspective, scrambling is a non-operator movement that is obligatorily reconstructed at LF. However, *wh*-scrambling at LF is not always undone.

Adopting Fox's (2000) Scope Economy, Miyagawa (2005) suggests that a long distance scrambled quantifier may be interpreted in its surface position if the movement from the lower clause leads to a new scope possibility, as in (14b). Put it differently, radical reconstruction occurs when scopally vacuous movement does not change scope. Given this, radical reconstruction violates Scope Economy (Fox 2000). Thus, it seems plausible to assume that radical reconstruction of long distance scrambling in Korean also follows Scope Economy.

Saito's undoing analysis also makes an incorrect prediction in condition C environments. Nishigauchi observed that a LDS *wh*-phrase-containing adjunct with R-expression does not induce Condition-C. According to Lebeaux (1988), adjunct merges late in the derivation, while an argument must merge at the point when the head merges. In (15) below, the entire *wh*-phrase ‘*John-eh-kwanhan etten chayk-ul*,’ ‘John-about which book’ does

²³ (14a) appears that scrambling is a PF movement in favour of Saito in that apparently, the dislocated universal quantifier does not scope over the existential quantifier in the matrix.

not reconstruct because the antecedent is contained in an adjunct. If the phrase is reconstructed, we would incorrectly predict a Condition C violation (cf. Nishigauchi 2002).

- (15) [John_i-eh-kwanhan etten chayk-ulj ku_i-ka [Mary-ka t_j chohahanun-ci] anta.
 John-about which book-Acc he-Nom Mary-Nom like-Q know
 'He wants to know which book about John Mary likes.'

Contrary to Saito's proposal, we have shown that LDS in Korean exhibits both A and A' properties just like the case of CIS. It seems that the A–A-bar distinction based on local and long distance scrambling is no longer as clear as it used to be in GB syntax, as the dichotomy does not fully capture binding relations involving reconstruction (e.g. Fox 1999, 2000 among others). Let us turn to semantic aspects in Korean LDS.

3.3.2 Semantic Effects

In Korean, constituents with a semantic effect (e.g. topicalization, focus) obligatorily undergo movement. In (16b), unlike (16a) with an accusative object, the contrastive topic, *chayk-un*, must move to the edge of the phase vP out of VP (Yang & Kim 2005).

- (16) a. John-i [VP chayk-ul ilk]-ess-ta.
 John.nom book.acc read-PAST-DEC
 'John read the book.'
- b. ??John-i ppalli [VP chayk-un ilk]-ess-ta.
 John.nom quickly book.CT read.past.dec
 'John read the BOOK.'
- c. John-i [v*P chayk-un_i ppalli [VP t_i ilk]]-ess-ta.
 John.nom book.CT quickly read.past.dec
 'John read the BOOK.'

In (17) too, the movement of the ECMed subject to the edge of the phase vP of the matrix clause in the causative construction has a focus effect (Yang & Kim 2005), as can be seen in

the English gloss.

(17) a. Wuli-ka [CP sensayngnim-i o-si-key] ha-ess-ta.
 We.nom teacher.nom come.hon.comp do.past.dec
 ‘We let the teacher come.’

b. Wuli-ka [vP sensayngnim-ul_i [CP t_i o-si-key] ha]-ess-ta.
 We.nom teacher.acc come.hon.comp do.past.dec
 ‘We made the teacher come.’

A focus effect is also found in constructions with Non-Genitive Possessor (NGP). In (18b), we can see that the dislocated NGP is positioned between VP and TP, i.e., Spec, vP given that *seykey* ‘hard’ is a VP-adjoined manner adverb (Lee 2005)²⁴. The object NGP can involve further movement to Spec, CP, as in (18c). Successive cyclic A'-movement of the NGP to spec,vP and spec, CP is induced by the edge feature of the phase head v and C, respectively, and focus interpretation is given in each edge position.

(18) a. ??Mary-ka seykey [VP [DP John-ul son-ul] ttayli]-ess-ta.
 Mary-Nom hard John-Acc hand-Acc hit-Past-Dec
 ‘Mary hit John's hand hard.’

b. Mary-ka [vP John-ul_i seykey [VP [DP t_i son-ul] ttayli]]-ess-ta.
 Mary-Nom John-Acc hard hand-Acc hit-Past-Dec

c. [CP John-ul_i [TP Mary-ka [vP t_i seykey [VP [DP t_i son-ul] ttayli]]-ess]-ta]
 John-Acc Mary-Nom hard hand-Acc hit-Past-Dec

Therefore, these above Korean facts including contrastive topics, ECMed subjects and constructions with Non-Genitive Possessor accord with Chomsky's (2001:35) argument that v* is assigned an EPP-feature only if that has an effect on outcome (Chomsky 2001: 35).

It is observed that *wh*-scrambling in Korean also create semantic interpretations. In-situ

²⁴ I refer the reader to Cinque (1999) and Ernst (2002) for classes of adverbs.

wh-phrases in Korean such as *nwukwu* ‘who’ are ambiguous between a *wh*-question and an indefinite NP interpretation in interrogative contexts, as shown in (19). They are also ambiguous between a specific and a nonspecific interpretation (Yoon 1997; Choi 1999; Son 2006)²⁵. In contrast to in-situ *wh*-phrases with two readings, scrambled *wh*-phrases are unambiguously interpreted as a *wh*-question with a contrastive focus or a specific reading. Consider (19) and (20)²⁶.

(19) a. Tom-un [Mary-ka mwuess-ul mekessnun ci] alkosipeha-ni?
 Tom.top Mary-Nom what-Acc ate Q want-to-know Q
 ‘Does Tom want to know whether Mary ate something? (Yes/no question)
 ‘?What does Tom want to know that Mary ate?’ (*Wh*-question)

b. Mwues-ul_i Tom-un [Mary-ka t_i mekessnun ci] alkosipeha-ni?
 What.acc Tom-Top Mary-Nom ate Q want-to-know Q
 ‘What does Tom want to know that Mary ate?’
 ‘??Does Tom want to know whether Mary ate something?’

(20) a. John-un [Mary-ka nwukwu-lul coahanun-ci] alko-sipeohanta
 John-Nom Mary-Nom who-Acc like-Q want-to-want
 ‘John wants to know who Mary likes.’ (specific or nonspecific who)

b. Nwukwu-lul John-un [Mary-ka coahanun-ci] alko-sipeohanta
 Who-acc John-Nom Mary-Nom like-Q want-to-want
 ‘Who, John wants to know who Mary likes t.’ (specific who only)

Further consider the following discourse context in which Korean LDS is also considered to be a kind of focus movement (Jung 2002; Kim 2002; Lee 2005 among others). For instance, the answer to the *wh*-question in (21) below is not appropriate as the LDSed element is not the constituent that corresponds to the constituent that is *wh*-questioned in the question.

²⁵ It is claimed that local *wh*-scrambling has also an effect on interpretation in Korean and Japanese (Lee 2005; Miyagawa 2005).

²⁶ The matrix reading of *mwuess-ul* ‘what’ in (19a) is slightly degraded. It is due to the *wh*-island condition. We will discuss *wh*-interpretation in chapter 6.

Conversely, the answer to the *wh*-questions in (22) is correct as the LDSed element is the constituent that corresponds to the constituent that is *wh*-questioned with contrastive focus in the question.

(21) Q: John-un [CP nwu-ka ku chack-ul sassata ko] sangkakha ni?
 John-Top who-Nom the book-Acc bought C think Q
 ‘Who does John think bought the book?’

A: ?? Ku chack-ul John-un [Mary-ka sassata ko] sangkakhanta.
 The book-Acc John-TOP Mary-Nom bought C think

(22) Q: John-un [CP Mary-ka mwuess-ul sassata ko] sangkakha ni?
 John-Top Mary-Nom what-Acc bought C think Q
 ‘What does John think Mary bought?’

A: chack-ul John-un [Mary-ka sassata ko] sangkakhanta.
 Book-Acc John-TOP Mary-Nom bought C think

So far now, we saw a large amount of empirical evidence against reconstruction and semantically non-vacuous movement in Korean. Given the facts, it is arguable that scrambling is truly optional but may not be ‘undone’ at LF due to semantic effects. Rather, as many researchers argue, Korean *wh*-movement can be an instance of focus movement.²⁷ One thing to be noted is that there is no strict correspondence between a syntactic position and its interpretation. As discussed in (19) and (20), the same interpretation is available in the base position and derived position. The difference between the moved elements and the unmoved elements is that the moved elements are unambiguously interpreted, unlike the unmoved elements which are ambiguously interpreted (cf. Diesing 1992).²⁸ Given this, scrambling, seemingly a superfluous derivation, is an operation which does not in fact violate the economy

²⁷ The *wh*-movement in Korean is not obligatory, unlike other languages, such as Hungarian, in which *wh*-phrases undergo obligatory movements to a designated position. In Korean, in-situ *wh*-phrases can become focused elements by getting a pitch accent.

²⁸ According to Diesing, specific objects occur in a higher position than nonspecific objects.

of the derivation. The operation is plausible if we assume that optional focus movement is motivated by an edge feature, which is optionally selected in the lexical array, and that all the optional operations can apply only if they have an effect on outcome (Chomsky 2001:34).²⁹

Before closing this section, I would like to briefly mention functional categories. One might still wonder whether we need to postulate functional categories, say, Focus Phrase (FocP) for hosting *wh*-phrases in Korean, as in many other languages focused constituents are positioned immediately before the verb (e.g. Hungarian) or a FocP above vP is found (e.g. Malayalam). Movement of *wh*-phrases to a designated position is instantiated by Rizzi's (1997) articulated CP structure in which *wh*-phrases land into Spec, FocP situated between a higher TopP and lower TopP. Optional movement of a *wh*-phrase in Korean seems to force us to generate an optional FocP in Korean. However, let us consider multiple *wh*-fronting. In Korean multiply fronted *wh*-elements are not necessarily adjacent to each other but can be split by an intervening element such as an adverb (Nishiyama, Whitman, & Yi 1996). If we assume that the fronted *wh*-elements land in multiple Specs of FocP, which position does the adverb occupy? We would wrongly expect that the adverb, which is not a focused element, is also present within the FocP. Then, do they move to Specs of CP? In what follows, I will deal with the issue in more detail.

3.4 A Non-uniform Analysis of *Wh*-movement

In this section, I examine Korea LDSed *wh*-phrases in more detail. There is no unanimity among researchers working on Korean as to whether or not the language has *wh*-movement of the English type, i.e. whether a *wh*-phrase undergoes (*wh*-) feature-driven movement to CP in overt syntax, noted by Takahashi, or whether a *wh*-phrase undergoes *wh*-scrambling to Spec, IP, noted by Saito.

As mentioned in Chapter 2, in recent versions of the minimalist program, Agree is the most economical mechanism to check features. Nonetheless, I will demonstrate that in some derivations movement of *wh*-phrases takes place to the left periphery in Korean and that left periphery movement in Korean is not uniform in that Korean exhibits both an operator movement and a non-operator movement. Despite the Korean *wh*-phrase's dual

²⁹ Similar to object scrambling, Object Shift (OS) is known to have semantic interpretation such as that encodes new information, specificity/definiteness, topic, focus, etc., called interpretive complex (Holmberg 1999).

characteristics, I employ the minimalist approaches to movement of the Korean *wh*-phrase, and propose that both *wh*-movement and *wh*-scrambling are uniformly motivated by an edge feature.

3.4.1 Korean as a Non-operator Movement

The example in (23a) is scopally ambiguous. The in-situ object *wh*-phrase can take embedded or narrow scope, being interpreted as an existential quantifier or matrix or wide scope, being interpreted as an interrogative *wh*-phrase. On the other hand, (23b), where the *wh*-phrase moves to the matrix clause, there is only one reading according to Takahashi (1993). That is, the *wh*-phrase takes matrix scope.

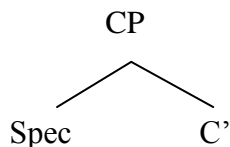
- (23) a. John-wa [_{CP} Mary-ga nani-ka-o tabeta-ka] siritagatteiru-no?
 John-Top Mary-Nom what-Acc ate-Q wants to know-Q
 ‘Does John want to know whether Mary ate something?’
 ‘What does John want to know whether Mary ate?’

- b. Nani-o John-wa [_{CP} Mary-ga t tabeta-ka] siritagatteiru no?
 ‘What does John want to know whether Mary ate?’

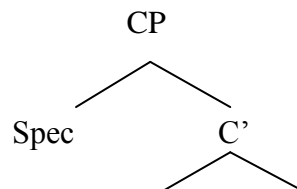
On the basis of this observation, Takahashi concludes that long-distance scrambling of a *wh*-phrase to a clause initial position of a clause headed by a [+wh] COMP in Japanese is *wh*-movement, and thus long-distance scrambling of *wh*-phrases brings about a scope fixing effect.

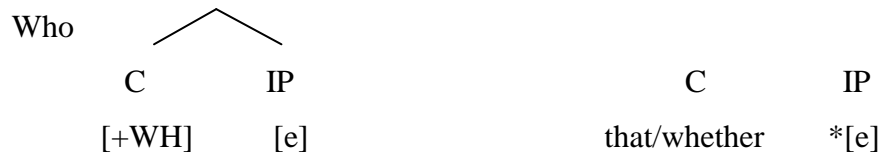
However, there seems to be no evidence that a *wh*-word moves to a dedicated functional head that is endowed with [wh], or [Q], a feature relevant for clause typing. Nishiyama, Whitman, and Yi (1996:347) state that it is difficult to assume that all long distance scrambled *wh*-phrases in Japanese and Korean are in Spec, CP.

(24i)



(24ii)





Takahashi (1993; references therein) assumes that the empty IP in Sluicing contexts is licensed by an agreeing head. That is, *who* in Spec CP agrees with C regarding its *wh*-feature specification, as in (24i), but there is no element in Spec CP in (24ii), hence the head does not agree and cannot license the empty IP. However, as is well known, ‘whether’ induces *wh*-island effects as shown in (25) below.

(25) *How do you wonder whether John fixed the car?

This shows that Spec CP is occupied either by ‘whether’ or by a null operator. In either case, there is something in Spec CP and this element should agree with the C head. But then there is no account for the unacceptability of (25). That is, since the C in (24ii) is agreeing, (24) should be good, contrary to fact.

Let us consider the *wh*-licensing position with respect to adverbials. *Wh*-phrases can be fronted with an adverb that is positioned between them (Nishiyama, Whitman, & Yi 1996).

(26) Nwuku-lul_k, gegi-eyse_j nwuku-eykey_i John-un [Mary-ka t_i t_j t_k sokayhayssta-ko]
 Who-Acc there-at whom-Dat John-Top Mary-Nom introduced C
 malhayss-no?
 said Q
 ‘Lit. who, there, to whom, did John say that Mary introduced?’

The fact that *wh*-phrases can be fronted with an adverb that is positioned between them implies that the *wh*-phrases are not in CP specifiers of the matrix C. Thus, it is unclear how Takahashi’s claim that the long distance scrambled *wh*-phrases are positioned in CP specifiers can be tenable. As Nishiyama, Whitman, and Yi (1996) point out, under the assumption that each CP specifier position triggers *wh*-agreement with the matrix C, it is hard to account for the second element, which is a [-*wh*] element.

Furthermore, a *wh*-phrase moved by long-distance scrambling can occur to the right of the scrambled non-*wh*-phrase, as in (27).

(27) Tom-eykey_i **mwuess-ul**_j John-um [Mary-ka t_i t_j cwuessta-ko] sangkakha-ni?
 Tom-Dat what-Acc John-Top Mary-Nom gave C think Q
 'What does John think that Mary gave to Tom?'

In (27), a scrambled non-*wh*-phrase precedes a scrambled *wh*-phrase. Since long-distance scrambling moves a *wh*-phrase into Spec,CP under Takahashi's analysis, a scrambled non-*wh*-phrase and *wh*-phrase should be in Spec,CP position. However, that would be inconsistent with a general property of *wh*-movement. In particular, if a non-*wh*-phrase together with a *wh*-phrase in (27) were in Spec,CP, the presence of a non-*wh*-phrase should cause a feature mismatch with the [+wh] feature in C. Thus, (27) suggests that a scrambled *wh*-phrase, which is not in the clause initial position of a clause headed by a [+wh] COMP, remains at the surface position at LF, which goes against Takahashi's claim.

Let us consider Korean multiple scrambling. The lack of an RM or MLC effect also indicates that *wh*-phrases do not move to Spec, CP. If scrambling is A-bar movement, the grammaticality cannot be expected. The Korean examples in (28) contrast with the English examples in (29) in which the RM/MLC is violated. In English, the marginality of multiple topicalization shows that multiple applications of A-bar movement is banned (data from Saito and Fukui 1998).

(28) a. [IP Nwukwu-ekey [nwukwu-lul John-un [Mary-ka t_i t_j sogaehasstako] malhassni]]?
 Who-Dat who-Acc John-Top [Mary-Nom introduced C] said Q
 'Whom did John say that Mary introduced who?'

b. [IP Nwukwu-lul [nwukwu-ekey John-un [Mary-ka sogaehassnun ci] ani]]?
 Who-Acc who-Dat John-Top [Mary-Nom introduced C] said Q

(29) a. ??What_i, to whom_j, did Mary hand t_i t_j ?
 b. ??To whom_j, what_i, did Mary hand t_i t_j ?

Taken together, it seems that the difference between languages with in-situ and languages with overt *wh*-movement comes from the presence and absence of a question morpheme (i.Q-morpheme). For instance, *wh*-phrases in English and German that have no Q-morpheme move

to Spec, CP to satisfy the EPP-feature on C. In contrast, *wh*-phrases in Korean and Japanese that have Q morphemes remain in their base position. If we assume that in Korean and Japanese, the EPP-feature on C is satisfied by the presence of the Q-morpheme, overt *wh*-movement to Spec, CP is not necessary. In the next section, nonetheless, we demonstrate that the link between Q-morphemes and *wh*-movement is not that strong.

3.4.2 Scrambling as Operator Movement

In this section we note that some overt *wh*-movement in Korean may be considered operator movement. The *wh*-element is taken to be an operator that must scope over the entire sentence at LF, and the topmost projection in the clause, CP, is the position where operator-variable chains are created and thus wide scope can be established.

Moon (1996; see also Kim 2006) asserts that *wh*-movement takes place overtly in Korean, as in English, in favour of Takahashi's claim that long-distance scrambling of a *wh*-phrase to a clause headed by a [+wh] COMP in Japanese is a *wh*-movement. Sentence (30a) is ambiguous with respect to the scope of the *wh*-phrase; it can be interpreted as either a yes-no questions or a *wh*-question. However, as in (30b), if the *wh*-phrase is fronted to the matrix clause, it is interpreted as a *wh*-question, thus taking only matrix scope. As noted by Moon, if (30b) simply involves scrambling, it would be expected to have ambiguity. (Moon 1996:371).

- (30) a. John-un [CP Mary-ka muwess-ul mekessnun-ci] alkosipeha-ni?
 John-Top Mary-Nom what-Acc ate -Q wants to know Q
 'Does John want to know what Mary ate?'
 'What does John want to know whether Mary ate?'

- b. Mwuess-ul John-un [CP Mary-ka t_i mekessnun-ci] alkosipeha-ni?
 What-Acc John-Top Mary-Nom ate-Q wants to know Q
 'What does John want to know whether Mary ate?'

Moon provides data from the Korean Kyungsang dialect as another piece of evidence of syntactic *wh*-movement in Korean. The Kyungsan dialect shows an agreement phenomenon of

wh-phrases and *wh*-question morphemes. As shown in (31), *-ka* appears only in yes/no questions, whereas *-ko* appears only in *wh*-questions (Suh 1991, cited in Moon 1996)

(31) a. Swuni-ka haksang-i-**ka**/*ko?

Swuni-Nom student-be-Q?

‘Is Swuni a student?’

b. Wuncey-ka ni sayngil-i-k***ka**/**ko**?

When-Nom you birthday-be-Q

‘When is your birthday?’

Likewise, the matrix clause question morpheme ‘*-na*’ appears only in yes-no questions, and ‘*-no*’ appears only in *wh*-questions, as shown in (32), (Suh 1989:518-519).

(32) a. Swuni-ka edey kass-**na**/***no**?

Swuni-Nom where went-Q

‘Did Swuni go somewhere?’

b. Swuni-ka edey kass-**no**/***na**?

Swuni-Nom where went-Q

‘Where did Swuni go?’

With this in mind, let us then take a look at an example of long distance scrambling in Kyungsang dialect. As shown in (33b), when a *wh*-phrase is moved to the sentence-initial position, only *-no* morphemes are allowed, and thus the moved *wh*-phrase takes only a matrix scope. If movement of a *wh*-phrase is scrambling, the scrambled sentence in (33b) should be interpreted as a yes/no questions as well as a *wh*-question. This means that the movement of (33b) is not an instance of scrambling but of a *wh*-movement with a contrastive focus interpretation; hence no covert movement can proceed from phrases that have already been moved to Spec, CP. If this argument is on the right track, the data of (33b) imply that the *wh*-phrase is in a Spec-head configuration with the Q-morpheme, ‘*-ni*’ in *wh*-questions (data from

Moon 1996:372).³⁰

(33) a. Ni-nun [CP Swuni-ka edey kassta-ko] sayngkakha-**na/no**?

You-Top Swuni-Nom where went- C think Q

‘Do you think Swuni went somewhere?’

‘Where do you think Swuni went?’

b. Edey ne-nun [CP Swuni-ka t_i kassta-ko] sayngkakha-***na/-no**?

Where you-Nom Swuni-nom went- C think Q

‘Where do you think Swuni went?’

Based on the above data, we can confirm that a kind of focus movement optionally takes place in *wh*-questions, not yes/no questions, and that the focus movement can be licensed by a certain Q-morpheme, *-no*, as an agreement phenomenon of a matrix C head and the *wh*-phrase. That is, unlike sentences with *-ni* (cf. (30)), interrogatives containing the Q-morpheme, *-no* are unambiguously interpreted as *wh*-questions, although *wh*-words such as *edey* ‘where’, *mwuess* ‘what’ and *nwukuw* ‘who’ are considered referentially undetermined words, unlike *way* ‘why’ and *wencey* ‘when’.

We can therefore say that both the agreement phenomenon between a *wh*-phrase and the yes/no-question morpheme *--na*, and the agreement phenomenon between a *wh*-phrase and the *wh*-question morpheme *-no* are an instance of Agree in the sense of Chomsky and that

³⁰ Moon claims that Korean is not different from English in that *wh*-movement takes place in overt syntax. With respect to the driving force for movement of a *wh*-phrase, based on the notions of Abeny’s (1987) DP, operator movement (Watanabe 1992) and strong/weak feature (Chomsky 1995), she argues that Korean exhibits both invisible *wh*-operator movement in the case of *wh*-in-situ and visible *wh*-operator movement in the case of long distance scrambling, which allows Korean to involve seemingly optional syntactic *wh*-movement, unlike English. In this respect, *wh*-in-situ languages also manifest *wh*-movement as an obligatory operation before Spell-out (Moon 1996:378). Moon (see also Takahashi 1003) further claims that in addition to the lack of ambiguity, the superiority effect is another piece of evidence that long distance *wh*-scrambling is syntactic *wh*-movement. According to recent studies, however, unlike in English *wh*-movement, in Korean and Japanese *wh*-fronting, the sentence initial *wh*-phrase can be construed as a yes/no question as well as a *wh*-question (cf. Ishihara 2003; Sachiko Aoshima et al. 2003 on Japanese; Hwang 2006 on Korean) due to the effect of prosody. (recall that ambiguity in *wh*-in-situ constructions is resolved by prosody). Accordingly, *wh*-movement in these languages cannot be a pure syntactic *wh*-movement, unlike in English, in terms of its landing site and interpretation (Shim 2011). I, therefore, restrict syntactic *wh*-movement to the Korean Kyungsang dialect, in which agreement phenomena of *wh*-phrases and *wh*-question morphemes are found. I discuss the derivation of syntactic *wh*-movement in chapter 4. As for the superiority effect, I discuss it in chapter 5.

movement of a *wh*-phrase takes place only in *wh*-questions with the Q-morpheme, *-no*. Recall, however, that there is no agreement phenomenon between a *wh*-phrase and the question morpheme *--ni*. Thus, prosody plays a role in resolving the ambiguity between *wh*-questions and yes/no questions. I will term the former movement of *wh*-phrases *-na*, *-no* by an agreeing question morpheme and the latter movement of a *wh*-phrase *-ni* by a non-agreeing question morpheme. Three types of sentence-final Q-morphemes as a language internal variation are given in (34).

(34) Two Types of Sentence-Final Q-morphemes in In-situ Interrogatives

- | | |
|--|---|
| <p>a. WH na (Q-morpheme)</p> <div style="border: 1px dashed black; width: 80px; height: 20px; margin: 5px auto;"></div> <p>Wh-Q Agreement in yes-no question</p> | <p>b. WH no (Q-morpheme)</p> <div style="border: 1px dashed black; width: 80px; height: 20px; margin: 5px auto;"></div> <p>Wh-Q Agreement in <i>wh</i>-question</p> |
| <p>c. WH ni (Q-morpheme)</p> <div style="border: 1px dashed black; width: 80px; height: 20px; margin: 5px auto;"></div> <p>Wh-Q Agreement in yes-no/<i>wh</i> question</p> | |

From the above discussion, I propose that the choice between *wh*-in-situ and movement of a *wh*-phrase is correlated with discourse function and that, although left periphery movement in Korean is not uniform in terms of their dislocated positions, both the two types of movement of a *wh*-phrase are uniformly motivated by an optional edge feature that marks specificity or definiteness when present.

In connection to this I further propose that there are two types of *wh*-movement in morphologically (in)visible question agreeing languages. Korean falls under the type of a morphologically visible question agreeing language, whereas English falls under the type of a morphologically invisible question (i.e., a null question morpheme) language. It can be said that English *wh*-movements are motivated by an obligatory edge feature as a default value. The comparison between Korean and English is given in (35).

(35) Single Wh-Constructions

- a. English-obligatory *wh*-movement
 (Movement of a *wh*-phrase by an agreeing null Q-morpheme)

b. Korean

Optional *wh*-movement (Movement of a *wh*-phrase by an agreeing Q-morpheme)

Optional *wh*-srcambling (Movement of a *wh*-phrase by a non-agreeing Q-morpheme)

If the above analysis of Korean *wh*-movement is on the right track, it is against the view of Kayne (1994:54), who argued that languages which have a clause-final complementizer never show question movement into COMP because Korean has a clause-final complementizers and can also move a *wh*-phrase interpreted as a *wh*-question ((cf. (33)).

The data discussed thus far support the view that the left periphery movement of *wh*-phrases in Korean is not a uniform operation: one as an operator movement and the other as a non-operator movement: in *wh*-constructions with the Q-morpheme *-ni*, *wh*-phrases can freely undergo leftward movement, whereas in *wh*-constructions with the Q-morpheme *-no*, only *wh*-phrases interpreted as a *wh*-question can undergo leftward movement. In this respect, Korean employs strategies, where *wh*-elements undergo movement to the CP domain or they undergo movement to the IP domain, although the two functional heads encode the same discourse information. It is argued that both *wh*-movement and *wh*-scrambling are uniformly reduced to one single syntactic relation directly resulting from the internal Merge operation induced by an edge feature (Chomsky 2008) that marks specificity or definiteness when present.

Concerning functional categories which a *wh*-phrase moves to, Jayasleen (2004) posits that English moves its *wh*-phrase into a clause-peripheral Focus position while some SOV languages such as Malayalam move their *wh*-phrases into a clause-internal (IP-internal) Focus position. Jayaseelan's idea is based on Rizzi's (1997) proposal that *wh*-phrases in English move to the specifier of a focus projection cross-linguistically. Supposing that the idea is on the right track, in our theoretical perspective, (leftward) movement in languages is uniformly focus movement, regardless of whether the *wh*-phrase moves to the CP domain or IP domain, with the only difference coming from the syntactic distributions of *wh*-phrases.³¹ That is, it can be said that both *wh*-scrambling (i.e non-operator movement) and *wh*-movement (i.e. operator movement) in Korean are driven by optionally present edge features to a focus position, and *wh*-movement in English is driven by obligatory present edge feature to a focus position.

³¹ If we assume that FocP projects its functional category in the C-system in Korean, a *wh*-phrase in *wh*-in-situ interrogative constructions with the Q-morpheme *-no* would involve movement to Spec FocP and then to Spec CP to due to scope agreement in a Spec-head configuration. For the time being, it is not clear to me about the mechanism. I hope to return to the issue in future work.

3.5 Question Morpheme, Scope and Movement

In the previous section, we looked into movement operations of *wh*-phrases in Korean, a *wh*-in-situ language with Q-morphemes. In this section, I shall briefly mention the relationship in question morphemes, scope, and movement in Korean *wh*-phrases.

For the correlation between the Q-morpheme and movement, Cheng (1991) suggested the Clausal Typing saying that a language may choose to mark interrogative clauses by the presence of a Q-morpheme in C, or by the movement of a *wh*-expression to a spec, CP, from where C can be marked [+wh] via Spec-head agreement. This indicates that languages with a Q-morpheme in C differ from those without a Q-morpheme with respect to whether a *wh*-phrase involves a movement operation. Put differently, the presence of a Q-morpheme seems to render movement of *wh*-phrases unnecessary, in compliance to a Last Resort Principle.

Interestingly, however, according to a recent study on the issue, we see that there is no correlation between Q-morphemes and *wh*-movement. Bruening (2007) observes through a typological survey that the Clausal Typing Hypothesis (Cheng 1991) has nothing to do with the use of a question particle (i.e Q-morpheme). That is, *wh*-in-situ languages without question particles exist, and *wh*-in-situ languages that do not use *wh*-words as indefinites also exist (Bruening 2007:3). As one piece of evidence supporting the argument, we already observed through the Korean Kyungsang dialect that an in-situ *wh*-phrase can involve an operator movement via agreement between a Q-morpheme and a matrix C head, although the movement is optional.

3.6 Summary

In this chapter, I examined three traditional approaches to scrambling: a base generation approach, optional movement approaches, and obligatory movement approaches. And then, I reviewed Korean long distance (*wh*-) scrambling with respect to reconstruction and semantic effects, and considered that Korean long distance (*wh*-) scrambling is motivated by discourse properties such as contrastive focus; hence long distance scrambling in Korean is not a purely optional movement but follows Scope Economy. The discussion leads us to a

conclusion that Korean LDS is also as triggered by something like an edge feature, and thereby moving elements that do not undergo radical reconstruction.

In addition, I noted that left periphery movement of *wh*-phrases in Korean is not a unitary construction: there is movement of a *wh*-phrase by an agreeing question morpheme and movement of a *wh*-phrase by a non-agreeing question morpheme. In the Korean Kyungsang dialect, for instance, there is evidence from question morphemes (e.g., *-no*, *-na*) that scope agreements exist between a question morpheme and the relevant head. In this case, only a *wh*-phrase of interrogatives ending with *-no*, not *-na*, can be scrambled. In the other dialects in which interrogatives have a question morpheme *-ni*, there no restriction on movement of a *wh*-phrase. The distribution of *wh*-phrases in the left periphery suggests that *wh*-phrases might not target the same position, depending on which Q-morpheme *wh*-constructions agree with. However, the two types of *wh*-interrogative constructions involving distinct heads (Spec, CP and Spec, IP) dislocate a *wh*-phrase optionally from an (embedded) clause-internal position to a position at the left edge of the (main) clause. The proposed view in this chapter was that the choice between *wh*-in-situ and movement of a *wh*-phrase is correlated with discourse function and that although left periphery movement in Korean is not uniform in terms of their dislocated position, both *wh*-movement and *wh*-scrambling are uniformly motivated by an optional edge feature that marks specificity or definiteness when present. With these in mind, in the next chapter we turn to the issue of movement of a *wh*-phrase in multiple *wh*-constructions. We will note similarities and differences across languages, offering analyses of interrogative *wh*-constructions, focusing Korean and English.

CHAPTER 4

SUPERIORITY IN MULTIPLE WH-CONSTRUCTIONS

4.1 Introduction

This chapter discusses superiority effects, focusing on Korean and English with the objective of pointing out the syntactic similarities and differences between the languages, addressing questions such as how movement of *wh*-elements in *wh*-in-situ languages differ from that of *wh*-elements in overt *wh*-movement languages. This chapter comes in three parts. Section 4.2 provides a set of cross-linguistic data, and section 4.3 overviews previous accounts of *wh*-movement in multiple *wh*-constructions. Section 4.4 discusses Chomsky's Agree and Haraiwa's Multiple Agree in multiple *wh*-constructions, and section 4.5 offers an analysis of the presence and absence of superiority effects in multiple *wh*-constructions based on Agree-based phase theory. Section 4.6 discusses the ordering of a *wh*-arguments and a *wh*-adjuncts, and section 4.7 contains the summary.

4.2 Data

Languages differ concerning the strategies they apply to form multiple *wh*-interrogatives. For instance, in languages such as English and German, one *wh*-phrase obligatorily undergoes fronting, leaving the rest in situ. In languages such as Bulgarian and Serbo-Croatian, all *wh*-phrases obligatorily undergo fronting, and in languages such as Korean and Japanese, all *wh*-phrases remain in situ (Rudin 1988; Richards 1997, 2001; Bošković 2000, 2002; Pesetsky 1982, 2001; Grewendorf 2001, 2002 among others). A rough schematization of the facts is provided below:

- (1) a. [CP WH1 C WH2 C [TP . . . t . . . t . . .]] (Bulgarian, Romanian, . . .)
b. [CP WH1 C [TP . . . t . . . WH2]] (English, German . . .)
c. [CP [TP WH1 . . . WH2]] (Korean, Japanese . . .)

Although Korean is considered to be a *wh*-in-situ language, in the previous chapter we observed that *wh*-movement as well as *wh*-scrambling is available in Korean. In this chapter, I will deal with movement of *wh*-phrases in Korean in the context of the first and second type, and compare it with English involving overt *wh*-movement.

Let us first consider the English *wh*-constructions. In (2) below, when more than two *wh*-phrases are present, the structurally highest *wh*-phrase undergoes *wh*-movement. This phenomenon is called the superiority effect. Kuno and Robinson (1972) were the first to observe superiority effects, and the effect was explained by Chomsky (1973; see also Lasnik and Saito 1992).^{32 33}

- (2) a **Who**_i did you think t_i would meet **whom**?
 b ***Whom**_j did you think **who** would meet t_j?
 c ***Who**_i **whom**_j did you think t_i would meet t_j?
 d ***Whom**_j **who**_i did you think would t_i meet t_j?

In contrast to English, Korean *wh*-elements can optionally undergo leftward scrambling of constituents singly and multiply, and movement of *wh*-phrases can be observed both within and across clauses in this language.

- (3) **Mwuess-ul**_i John-un [t_i **nwu-ka** t_i mekessnun ci] alkosp-ni?
 What-Acc John-Top who-Nom ate-Q want to know
 ‘Who does John want to know ate what?’

- (4) **Mwukwu-eykey**_i **mwuess-ul**_j John-un [t_i t_j Mary-ka t_i t_j cwuessta ci] alkosp-ni?
 Whom-Dat what-Acc John-Top Mary-Nom gave-C want to know
 To whom, what does John want to know whether Mary gave?’

³² (i) Superiority Condition (Chomsky 1973)
 No rule can involve X, Y in the structure
 ... X ... [α ... Z ... _ XYV ...] where the rule applies ambiguously to Z and Y and Z is superior to Y.

³³ Lasnik and Saito explain the superiority effect in a way that the trace of the moved *wh*-phrase to COMP must c-command the other *wh*-phrase in-situ.

Like English, however, Korean *wh*-constructions exhibit superiority effects when two *wh*-phrases are non-clause-mate arguments, although superiority effects do not appear when *wh*-phrases are clause-mate arguments (cf. Takahashi 1993 for Japanese; Kim 2006 for Korean among others). That is, long distance *wh*-scrambling displays superiority effects when a *wh*-phrase moves across over another *wh*-phrase in a higher clause. Contrast (5) with (6).

(5) ***Mwuess-ul**_i John-un **nwuku-eykey** [Mary-ka t_i mekessta ko] malhass-ni?
 What-Acc John-Top whom-Dat Mary-Nom ate -C said-Q
 ‘Whom did John tell that Mary ate what?’

(6) **Mwuess-ul**_j **nwukwu-eykey**_i John-un [t_i t_j Mary-ka t_i t_j cwuessta ko] malhssni?
 What-Acc whom-Dat John-Nom Mary-Nom gave -C said-Q
 ‘Lit. To whom, what did John tell that Mary gave?’

Conversely, in Slavic languages such as Bulgarian short and long *wh*-movement, all *wh*-phrases move. When there are two *wh*-phrases, the fronted order must be the same as the base order, whereas when there are more than two *wh*-phrases, there is no restriction on the ordering for the rest of the *wh*-phrases³⁴ (Bulgarian data from Pesetsky 2000).

- (7) a. **Koj na kogo kakvo s kakvo** napisa?
 Who to whom what with what wrote
 ‘Who wrote what to whom with what?’
 b. ?Koj na kogo kakvo napisa s kakvo?
 c. ???Koj na kogo napsa kakvo s kakvo?
 d. **Koj napisa kakvo na kogo s kakvo?

4.3 Previous Analyses

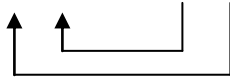
Several accounts of multiple *wh*-fronting have been proposed in the theoretical linguistics literature. Among various proposals, I introduce Richards (1997), Pesetsky (2000) and Bošković (1997 and subsequent works) in the following sections.

³⁴ In Bulgarian too, fronted *wh*-elements exhibit a relative freedom of order if they are D-linked or constitute echo questions (Rudin 1988; Boskovic 1995; Comorovski 1988; Richards 1997).

4.3.1 Richards (1997, 2001)

A GB analysis of superiority effects observed in Bulgarian was dealt with first in detail by Robin (1988) and an early minimalist analysis of superiority was developed in some detail later in Richards (1997). Richards observes that the two versions of cyclicity make two different predictions in the cases of movement to multiple specifiers of a single head (1997:59).³⁵ One is that the higher *wh*-phrase moves to the nearest inner Spec, CP first, and the lower *wh*-phrase moves to the outer Spec, CP. The other is that a higher *wh*-phrase moves to the outer spec of CP, and a lower *wh*-phrase lands in an inner spec of CP, in a tucking-in manner, as schematized in (7a) and (7b).

(7) a. *[BP AP C [[ta tb]]] (nesting)



b. [AP BP C [ta tb]]] (crossing)



Base on the cyclicity suggested by Chomsky (1995) and the economic principle of an early version of minimalism, Richards (1997) proposes that (7a) may be preferred due to Featural Cyclicity in (8), along with a certain conception of Shortest Move in (9), although either derivation should in principle be possible since Chomsky's cyclicity fails to distinguish between the two derivations (Richards 1997:60).

(8) Featural Cyclicity

A strong feature must be checked as soon as possible after being introduced into the derivation

³⁵ When it comes to separate heads, the two specifiers involve nesting paths in compliance with Chomsky's cyclicity, stating that a strong feature must be checked as soon as possible after being introduced into the derivation (1995). Such movement has been noted by Pesetsky's (1982) Path Containment Condition, and Kitahara's (1997) cyclic derivation along with Shorted Move. Accordingly, (ia) is the well-formed derivation in that it obeys both Shortest Move and Cyclicity, while (ib) is ruled out by Shortest Move and Cyclicity.

(ia) [BP AP C [[ta tb]]] (nesting) (ib) *[AP BP C [ta tb]]] (crossing)

(9) **Attract** (Richards 1997: 113)

An attractor K attracts a feature F , creating a copy α of an element a containing F , and Merging α' with K . The relations between α' , K , F must all obey Shortest.

The crucial point to be drawn from Richards' analysis is that specifiers to a single head are not "equidistant," such that the lower specifier will have to be closer to a moving element than a higher specifier. Crossing derivations via tucking-in are compatible with equidistance, which renders the *wh*-phrases free to move without ordering restriction. Following work on multiple *wh*-movements in Bulgarian (cf. Rudin 1988; Bošković 1997; 1999), Richards (1997, 2001) suggests that the order of the moved *wh*-phrases reflects the base c-command relations between *wh*-phrases; if the base position of the *wh*-phrase α c-commands that of *wh*-phrase β , then α precedes β . When the *wh*-phrases are a subject and an object, for instance, the subject must precede the object (Rudin 1988, 472-473).³⁶

Interestingly, such patterns, i.e. order preserving movement, are not kept when there are more than three *wh*-phrases, even in Bulgarian. Rudin (1988) discusses the difference among these languages with respect to multiple *wh*-questions. Based on the differences among the behaviour of the *wh*-phrases in each of these constructions, she divides the languages into two types which she terms +Multiply Filled Specifier (+MFS) and –Multiply Filled Specifier (–MFS) languages. According to her, in the +MFS languages, such as Bulgarian and Romanian, all of the *wh*-phrases move to Spec of CP overtly. In the –MFS languages, such as Polish, Czech, and Serbo-Croatian, only one *wh*-phrase is in Spec of CP and the others are adjoined to IP. Richards adopts this and formulates it as Principle of Minimal Compliance (PMC), as defined in (10).

(10) **Principle of Minimal Compliance** (PMC, Richards 2001:199)

If the tree contains a dependency headed by H which obeys constraint C , any syntactic object G which H "immediately c-commands" can be ignored for purposes of determining whether C is obeyed by other dependencies.

³⁶ Preserving c-command relations does not necessarily guarantee multiple *wh*-fronting, given that English allows only one application of overt *wh*-movement.

Given (10), PMC makes the second *wh*-phrase free from a “tucked in” derivation. Consider the Bulgarian example below.

- (11) a. **Koj** **kogo** **kak** udari?
 Who whom how hit
- b. **Koj** **kak** **kogo** udari?

The Principle of Minimal Compliance also accounts for so-called additional-*wh* phenomena with respect to island effects that occur overtly in languages such as Bulgarian and covertly in languages such as Japanese (Richards 1997: 242; see also Grewendorf 2001).

- (12) a. ***Koja knjigai** otreč'e senatora t̄ [ma~lvata c'e iska da zabrani ti]?
 Which book denied the-senator the-rumour that (he)-wanted to ban
 ‘Which book did the senator deny the rumour that he wanted to ban?’

- b. ? **Koj senator koja knjiga_i** otreč'e [ma~lvata c'e iska da zabrani t_i]?
 Which senator which book denied the-rumour that (he)-wanted to ban
 ‘Which senator denied the rumour that he wanted to ban which book?’

- (13) a. ?? John-wa [Mary-ga **nani-o** katta ka dooka] siritagatte-iru no?
 John-Top Mary-Nom what-Acc bought whether know-want Q
 ‘What does John want to know whether Mary bought?’

- b. John-wa [Mary-ga **nani-o** katta ka dooka] **dare-ni** tazuneta no?
 John-Top Mary-Nom what-Acc bought whether who-Dat asked Q
 ‘What does John want to know whether Mary bought?’

In what follows, we review Pesetsky’s (2000) discussion of multiple *wh*-question formation.

4.3.2 Pesetsky (2000)

Pesetsky (2000), taking a typological view of *wh*-movement, argues that languages differ as to how many specifiers are allowed in CP. That is, the derivation of *wh*-phrases in multiple *wh*-

constructions is attributed to properties of C. Rejecting the assumption that the Bulgarian *wh*-phrases in a multiple question are related to distinct heads (Rudin 1988), Pesetsky assumes that *wh*-phrases all bear the specifier relation to the same interrogative head, a multi-specifier complementizer, which he abbreviates as Cm-spec.

(14) **Specifier potential of Cm-spec**

Cm-spec requires more than one *wh*-specifier.

According to Pesetsky, Korean and Japanese belong to the C0-spec where overt movement does not occur, and German belongs to the C1-spec where only one *wh*-phrase moves to C. English and Bulgarian belong to the Cm-spec, in which C has more than two *wh*-phrases. The difference between English and Bulgarian is that in English all *wh*-phrases move to Spec, CP, but all *wh*-phrases except for the first are pronounced in trace positions; whereas in Bulgarian all *wh*-phrases are pronounced in their moved positions. The pronunciation rules of English and Bulgarian are as follows.

(15) **Pronunciation rule** (English)

a. The first instance of *wh*-phrase movement to C is overt, in that *wh* is pronounced in its new position, and unpronounced in its trace positions.

b. Secondary instances of *wh*-phrase movement to C are covert, in that *wh* is pronounced in its trace position, and is unpronounced in its new position.

(16) **Pronunciation rule** (Bulgarian)

All *wh*-phrase movement to C is overt, in that *wh* is pronounced in its new position, and unpronounced in its trace positions.

In what follows, we review Bošković's (1999) discussion of multiple *wh*-fronting.

4.3.3 Bošković (1999)

Bošković (1999) claims that *wh*-movement, driven by the need to check *wh*-features, does show superiority effects, while *wh*-fronting, driven by the need to check focus features, does not, and attributes the difference between Bulgarian and Serbo-Croatian in multiple *wh*-

interrogatives to functional categories, such as C and Foc. Bošković suggests that individual languages have various properties such as attract-nothing, attract-1, attract-2, and attract-all with respect to multiple *wh*-questions.

- (17) a. Superiority: Attractor with Attract-1-*wh* property
 b. No Superiority: Attractor with Attract-all-Focus option

Given (17), in Bulgarian, only one *wh*-phrase moves to Spec, CP, and in Serbo-Croatian, all *wh*-phrases moves to Spec, FocP. According to Bošković, *wh*-movement is target-driven while focus-movement is mover-driven. (recall that when there are more than two *wh*-phrases, Bulgarian shows selective superiority effects, hence *wh*-phrases can be ordered freely as long as the highest *wh*-phrase in the merge position moves.

- (18) a. [C **koj** [T koj dade kakvo no kogo]] (Bulgarian)
 b. [Foc **ko sta gdje** [T ko kupuje sta gdje]] (Serbo-Croatian)

Bošković (1999) further argues that in French, Japanese and Korean, functional categories such as CP and FocP are not selected; hence *wh*-phrases remain in-situ, as in (19).

- (19)a. [C[T Il a donne **quoi a qui**]] (French)
 b. [C[T John-wa **dare-ni nani-o** ageta ka]] (Japanese)
 c. [C[T John-nun **nwukwu-ekey mwuess-ul** cuwess ni]] (Korean)

So far, we have briefly reviewed previous analyses of *wh*-phrases in multiple *wh*-questions. Despite their fine-grained analyses, their accounts seem to be problematic to apply to Korean. First, Richard's account based on c-command wrongly predicts that word order permuting *wh*-fronting is banned, which is not true for Korean. Bošković and Pestsy's analysis captures the presence and absence of superiority effects in various languages concerning functional categories. However, it is not obvious why strict or free orders of fronted *wh*-phrases are attributed to certain functional categories. Moreover, in Bošković and Pestsy's analysis, Korean is considered to be a *wh*-in-situ language that does not involve overt movement at all, and hence semantic differences in *wh*-scope between in-situ *wh*-phrases and fronted *wh*-

phrases cannot be expected. With this in mind, in the next section, I would like to offer an analysis of Korean *wh*-movement in Agree-based phase theory.

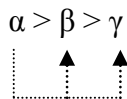
4.4 Agree in Multiple *WH*-Constructions

As noted in Chapter 2, the Agree operation does not cause lexical items to move to a certain position for feature checking; hence it is an economical operation. The operation Agree requires the relation between a probe and a goal to be a closest c-command relation. In a strict sense, Chomsky's Agree is a single Agree operation in which a probe enters an Agree relationship with only one goal. What seems to be problematic with Chomsky's Agree system is that if a head enters into a single Agree relation with the highest *wh*-element, the uninterpretable features of the remaining *wh*-phrase remain unchecked. This point leads us to consider a mechanism for multiple feature checking using Hiraiwa's (2000) Multiple Agree.³⁷

38

(20) MULTIPLE AGREE/MOVE (Hiraiwa 2000)

MULTIPLE AGREE as a single simultaneous operation



(AGREE (α, β, γ), where α is a probe and both β and γ are matching goals for α .)

Hiraiwa assumes that a probe bearing [+multiple] seeks all matching goals within its c-command domain and agrees with them simultaneously. It then naturally follows that the lower *wh*-phrases must move to the edge of phases in order to apply multiple Agree under the PIC. Specific implementations in languages concerned in this thesis are given below.

4.5 The Ordering of *Wh*-arguments in *Wh*-interrogatives

³⁷ In his later work, Chomsky (2004) adopts Hiraiwa's (2000) multiple Agree.

³⁸ Whether or not feature checking of multiple *wh*-phrases simultaneously occurs has significance in that (non-)simultaneity would amount to (non-)derivationality with respect to rule application. As argued by Epstein and Sealy (2002:83), "delay is computationally inefficient because applying an operation O1 at point P1 of a derivation, the syntax "waits" until phrase structural descriptions are all met, apply simultaneously." Although such issue seems important, I will leave it open. See Epstein and Sealy (2002) for a detailed discussion.

In this thesis, in compliance with Chomsky's (2004) Uniformity Principle, defined as (21), I assume the feature valuation mechanism based on Chomsky (2000), as given in (22).³⁹

(21) Uniformity Principle

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

(22) Feature Valuation in *Wh*-movement

(22a) Agree:	C	WH	
	[uQ:___]	[iQ]	
		[uwH:___]	
(22b) Move:	WH	C	<WH>
	[iQ]	[uQ:iQ]	[iQ]
	[uwH:iwH]	[EPP]	[uwH:iwH]

(Here, the underspecified or unvalued Q and wh are represented as [uQ:___] and [uwH:___] and specified or valued Q are represented as [uQ:iQ] and [uwH:iwH]). According to (22), C has an [uQ] feature, and the *wh*-phrase has an [uwH] feature and both of which must be checked and deleted via Agree, through feature valuation, respectively. And we adopt three syntactic notions, Agree, Move and PIC introduced by Chomsky (2000, 2001) in (23) for the analysis developed here.

(23) a. The operation Agree takes place in narrow syntax between an uninterpretable feature on a Probe and the same interpretable feature on a Goal in its c-command domain, which results in the valuation of the uninterpretable feature of the Probe.

b. Move is a complex of Agree+pied-piping+Merge

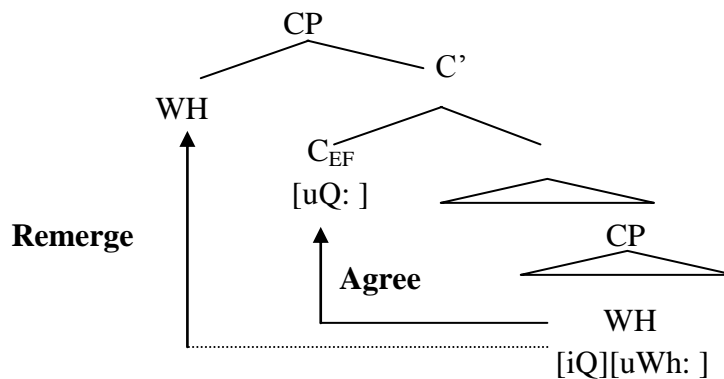
c. The Phase Impenetrability Condition (PIC) constrains the internal parts of syntactic domains (i.e. complements) of phases that cease to be accessible for further syntactic

³⁹ In English relative clauses and intermediate clauses, the Q feature is not necessary. Thus, we may assume that the unvalued *wh*-feature on the goal enters into an Agree relation with the unvalued Q feature of a complete probe (i.e. matrix probe) in its c-command domain through successive cyclic movement.

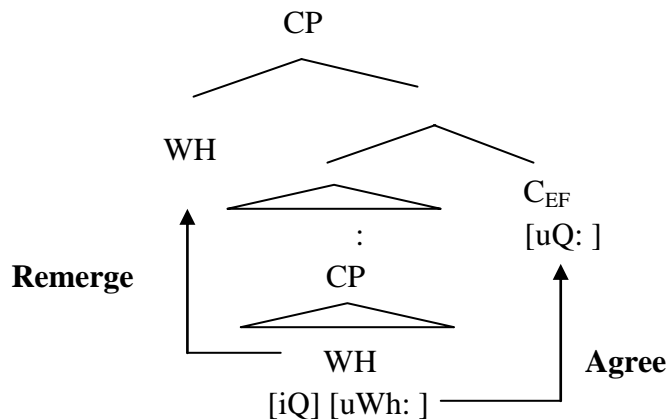
computation.

With (23) I assume the following three things: languages differ in terms of optional/obligatory movement of *wh*-phrases, and the (un-)availability of multiple specifiers. (i) As for optional and obligatory movement, in our current view, edge features, optionally selected in the lexicon, are responsible for the different types of movement. (ii) As for the (un-)availability of multiple *wh*-fronting, we simply assume that the (un-)availability of multiples specifiers is a language variation. (iii) As for the multiple *wh*-fronting, as suggested by Hairaiw, Multiple Move, a single simultaneous syntactic operation, applies to all the AGREED goals. According to these assumptions, the tree structure of English long single *wh*-movement and Korean long single *wh*-movement are shown (24) and (25), respectively.

(24) English Long Single *WH*-movement



(25) Korean Long Single *WH*-movement



Let us now consider first English *wh*-movement in multiple *wh*-constructions in more detail.

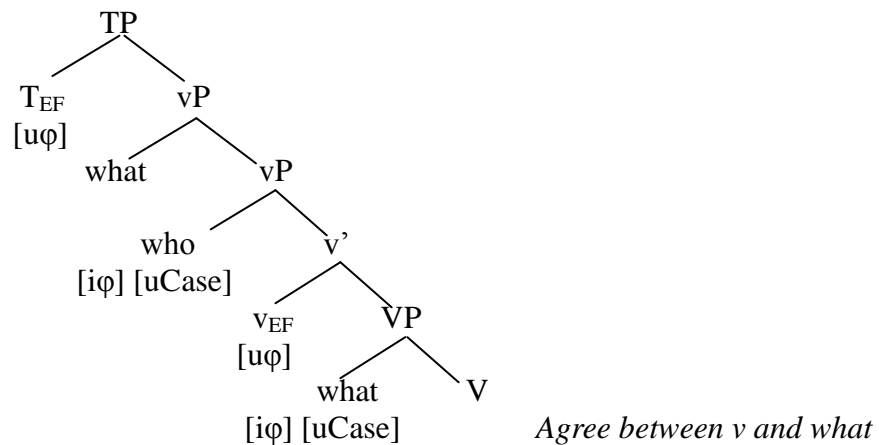
4.5.1 English

In English *wh*-movement, an interrogative C has an uninterpretable Q-feature that acts as a probe for an element that bears an interpretable Q-feature. If the interrogative C finds such an element, C agrees with it, and the *wh*-phrase obligatorily moves to the Spec-CP position of the matrix clause in a successive cyclic manner for the satisfaction of the EF through the edges of the phases in compliance with the PIC. With this in mind, let us consider each step of the derivation in (26) through the relevant trees below.

(26) Who bought what?

I adopt standard assumptions about the verbal domain: the internal argument of the verb is base generated within VP and the external argument is generated in specifier position of a functional projection, vP. In (27), the *wh*-object is initially merged in the VP-internal position, and subsequently the *wh*-subject is externally merged at the inner spec of v*P. And then the uninterpretable Case feature is checked via Agree with the v head, and then the lower *wh*-object must move to the outer spec of v*P in order to make it visible for further operations, and have the uninterpretable Q feature of the lower *wh*-phrase to be checked.

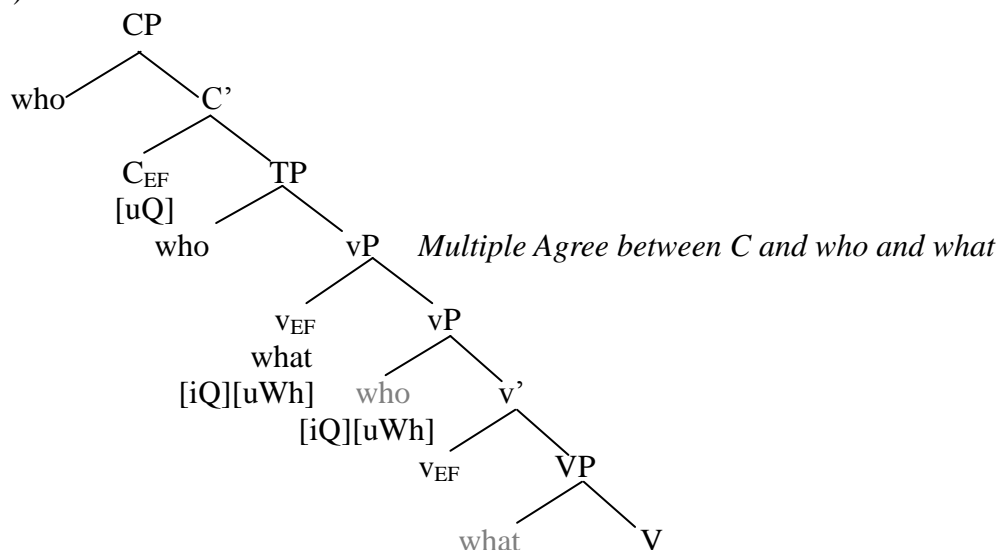
(27) English *WH*-Movement



In (28), once C is merged, a kind of multiple Agree relation applies between C, serving as a probe, and its two *wh*-phrases, serving as goals. That is, the [uwh] of the whs-in-situ can be valued by the reflex of agreement between [uQ] in C and [iQ] in *wh*-phrases. Then finite T and C attract the *wh*-subject *who* simultaneously. After both uninterpretable φ-features in T and C attract the *wh*-subject *who* simultaneously.

uninterpretable Case features of the *wh*-subject are valued the *wh*-subject the moves to the spec of TP position, being triggered by EF in T.⁴⁰ At the same time, it moves to the matrix Spec, CP position, being triggered by EF in C, obeying Shortest Move, in compliance with Chomsky’s idea that A and A’-bar operations can apply in parallel in the same phase. Note that the *wh*-object does not cause an intervention effect when the *wh*-subject moves to T because it already has ϕ -features-agreed with the v head in-situ. Thus, we get the grammatical sentence ‘who bought what?’ Hence superiority is respected.

(28)



One thing that should be noted is that it is not always the case that the matrix scope-taking *wh*-elements must overtly move to the matrix Spec, CP in English. In sentences with more than two *wh*-phrases, like in Korean, the English *wh*-element can take matrix scope in an embedded position (as for *wh*-in-situ phenomena, we will discuss them in chapter 6). Thus, I take the position that overt *wh*-movement does not occur, neither for the *wh*-feature checking (Chomsky 1995), nor for the scope marking of a *wh*-phrase, nor for clause typing, but rather a purely syntactic movement driven by EF (cf. Yoshida 1999).^{41 42}

⁴⁰ Chomsky assumes that ϕ -features and edge features in T are inherited from C (cf. Chapter 2).

⁴¹ Yoshida (1999) also notes that the difference between languages with and without overt *wh*-movement is simply attributed to the EPP feature.

⁴² There are several ways of inducing local movement. Rizzi (2004) proposes that all movement is feature-driven; hence movement to the intermediate positions is feature-driven as well. Movement to the final (criterial) positions is driven by criterial features, such as *wh*-features, which have purely formal counterparts located at the intermediate movement positions (like the “pseudo” *wh*-features of (McCloskey, 2002). Another view based on feature-checking is expressed in Pesetsky and Torrego

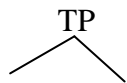
4.5.2 Korean

Let us now turn to the derivation of Korean *wh*-movement. I analyze Korean in a manner that is similar to our analysis of English; an interrogative C has an uninterpretable Q-feature that acts as a probe for an element that bears an interpretable Q-feature. If the interrogative C finds such an element, C agrees with it, and the *wh*-phrase obligatorily moves to the Spec, CP position of the matrix clause in a successive cyclic manner for the satisfaction of the EF through the edges of the phases in compliance with the PIC. However, recall our discussion from chapter 3 that the movement of a *wh*-phrase in Korean is not obligatory but rather optional, due to optionally present edge feature. Hence, the only difference between the two languages is reduced to the optionality of the edge feature. With this in mind, let us consider each step of the derivation in (29) through the relevant trees below.

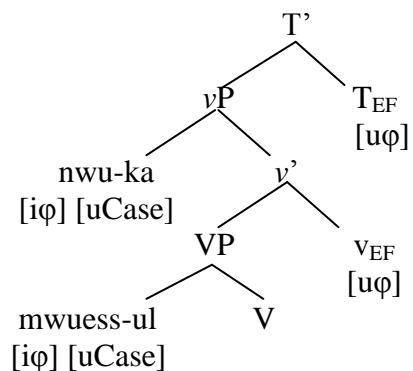
- (29) Nwu-ka mwuess-ul sass-ni?
Who-Nom what-Acc bought
‘Who bought what?’

In (30), the *wh*-object is initially merged in the VP-internal position, and subsequently the *wh*-subject is externally merged at the inner spec of v*P. And then the uninterpretable Case feature of the lower *wh*-object is checked via Agree with the v head, and then the *wh*-phrase moves to the outer Spec of vP in order for it to be visible for further operations and have the uninterpretable Q feature of the lower *wh*-phrase checked.

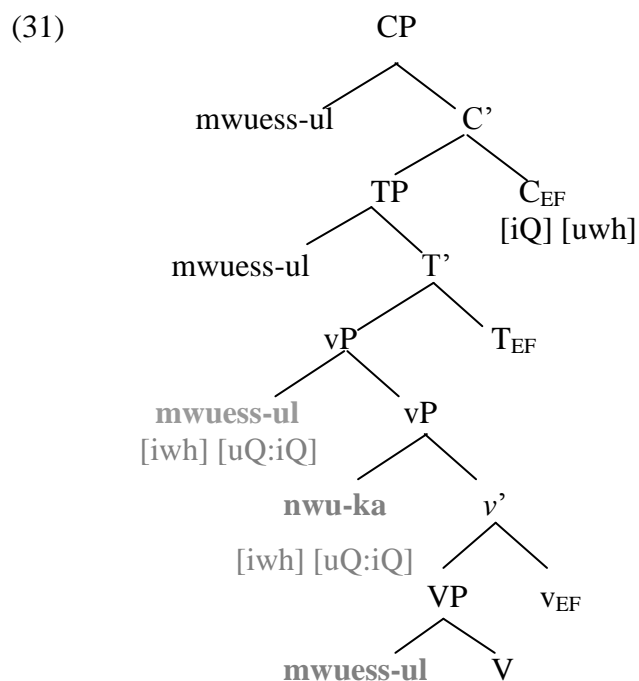
- (30) Korean WH-Movement



(2004b) who argue that the target C head of the *wh*-movement bears an interpretable/unvalued instance of a *wh*-feature (which they term “Q feature”), while the intermediate Cs bear uninterpretable/unvalued instances of the same feature (the Q feature on the *wh*-phrase itself is uninterpretable but valued). This ensures that the *wh*-phrase is attracted into an intermediate position by an unvalued feature but cannot stop there since the attracting feature is still uninterpretable. Conversely, Bošković (2002) argues that successive cyclic *wh*-movement is required by a property of the movement itself, not by a property of the C head, supporting Takahashi’s (1994) claim that successive cyclic *wh*-movement is a result of the requirement that all chain links be as short as possible, not a result of feature checking.



In (31), once C is merged, a kind of multiple Agree relation applies between C, serving as a probe, and its two *wh*-phrases, serving as goals. That is, the [uwh] of the whs-in-situ can be valued by the reflex of agreement between [iQ] in C and [iQ] in *wh*-phrases. Then finite T enters an Agree relation with the *wh*-subject, thereby both uninterpretable φ-features in T and uninterpretable Case features of the *wh*-subject are valued. A crucial point here is that the *wh*-subject does not need to be in the spec of TP position, but remains in its base position. Consequently, it is the *wh*-object that moves to T (i.e., A-movement) or C (i.e., A'-movement), obeying Shortest Move. This makes the derivation converge, in which superiority may not be respected.



A similar pattern is found in Malayalam, as can be seen in (35), where the *wh*-adjunct is closer to the verb than the arguments. Jayaseelan (2003, 2004) explains that in the ordering of *wh*-argument and *wh*-adjunct in the Focus Position, if the adjunct is merged first and the argument ‘tucks in,’ as we observed in a multiple *wh*-fronting language like Bulgarian, the wrong order results in Malayalam. Thus, in order to get the desirable order, nested paths are required in Malayalam when *wh*-arguments and non-arguments move out of the vP.

- (35) **aar6 aar-e eppooT entin6** talli?
 Who-nom who-acc when why hit
 ‘Why did who hit whom when?’ (Malayalam)

This approach seems to be true of Korean, although *wh*-phrases in Malayalam move into the Spec position of FocPs above vP/VP by nested movements (Jayaseelan 2003, 2004), while *wh*-phrases in Korean can move further to the Spec position of CP (cf. chapter3).

It is not always the case that *wh*-adjuncts must be closer to the verb than the arguments in Korean (and Japanese), however. As can be seen in (36), if there is an additional *wh*-phrase preceding *way*, ‘why,’ the *wh*-adjunct does not need to be adjacent to the verb.

- (36) **Nwu-ka way nwukwu-lul** ttariess-ni?
 Who-Nom why whom-Acc hit-Q
 ‘Why did who hit whom?’

It seems to me that considering that all *wh*-phrases are the most prominent, namely, the focused elements, they must move to multiple specifier positions of functional categories. Thus, if we assume that ‘why’ is base generated in Spec, then CP and the rest of the *wh*-phrases end up moving to multiple specs of CP, with ‘whom’ involving ‘tucking-in. This phenomenon is reminiscent of Richards’ Principle of Minimal Compliance that accounts for so-called additional-*wh* phenomena (see 4.3.1).

4.7 Summary

In this chapter, I dealt with *wh*-movement in multiple *wh*-constructions from the cross-linguistic and the typological perspective, as well as the parametric variations, and offered

accounts of the different behaviours of movement of the *wh*-phrase in Korean and English from the recent minimalist view. I noted that from a cross-linguistic view, English and Korean overt *wh*-movement does not occur for either the *wh*-feature checking or the scope marking of a *wh*-phrase, but a purely syntactic movement driven by EFs. The difference between the two languages is that in Korean, *wh*-subjects do not obligatorily move to Spec, TP; whereas in English, *wh*-subjects simultaneously move to Spec, TP and Spec, CP, in compliance with Chomsky's idea that A and A'-bar movement can apply in parallel in the same phase. The different derivation brings about the absence of superiority effects in Korean (i.e., OSV) and the presence of superiority effects in English (i.e., SOV). For multiple *wh*-movement in Korean, I adopted the Multiple Agree operation.

In the next chapter I will deal with the role of head movement and its effect on the presence and absence of superiority effects in long *wh*-movement from a micro-comparative perspective.

CHAPTER 5

LONG DISTANCE SUPERIORITY AND VERB MOVEMENT

5.1 Introduction

In this chapter, I examine the role of head movement and its effect on the presence and absence of superiority in long *wh*-movement cross-linguistically. The main goal of this chapter is to describe a relationship between superiority and verb movement in head-final languages such as Korean and Japanese, which has so far received no mention in the literature. The organization of the chapter is as follows. Section 5.2 shows the cross-linguistic data, and section 5.3 provides various arguments for the assumptions that head movement is the result of PF movement or syntactic movement. Section 5.4 addresses issues of (non-)head movement in Japanese and Korean to determine if the distinction affects the superiority effects, and provides an analysis of the presence and absence of superiority effects in all the languages under consideration. Section 5.5 analyzes the relation between superiority, verb movement and phase domain from a cross-linguistic perspective. 5.6. is the conclusion.

5.2 Cross-linguistics Data

In Chapter 4, we noted that in Korean LDS, superiority effects are displayed when a *wh*-phrase moves to cross over another *wh*-phrase in a higher clause, unlike clause initial scrambling (cf. Takahashi 1993 on Japanese, Kim 2006 on Korean). The relevant data are given in (1).

(1) a. **Mwuess-ul_i nwu-ka t_i mekess ni?**

What-Acc who-Nom ate Q

‘What ate what?’

b. **?*Mwuess-ul_i John-nun nwukwu-eykey [Mary-ka t_i mekessta ko] malhassni?**

What-Acc John-Top who-dat Mary-Nom ate C said Q

‘Lit, What did John ask whom that Mary ate t?’

A similar pattern can be observed in Spanish and German. Frank (2007) argues, on the basis of data on Spanish and German, that superiority effects correlate with verb-raising, by showing that verb movement to C suppresses superiority effects. As can be seen below, the monoclausal sentences (2-3) in which V-to-C occurs are grammatical, whereas the bi-clausal sentences (4-5), in which V-to-C is blocked, are not (Spanish data from Jaeggli 1982, German data from Heck and Müller 2000).

(2) a. Wer hat **wen** getroffen?

Who has whom met

‘Who met whom?’

b. **Wen** hat wer getroffen?

Whom has who met

(German)

(3) a. Quién dijo **qué**?

Who said what?

‘Who said what?’

b. **Qué** dijo Quién ?

What said who

(Spanish)

(4) a. Wer hat gesagt dass Maria **wen** liebt?

Who has said that Maria whom loves

‘Who said that Maria loves whom?’

b. ***Wen** hat wer gesagt dass Maria liebt?

Whom has who said that Maria loves

(German)

(5) a. Quién dijo que Juan Cra **qué**?

Who said that Juan bought what?

‘Who said that Juan bought what?’

b. ?***Qué** dijo Quién que Juan Cra ?

What said who that Juan bought what

(Spanish)

On the other hand, in Bulgarian, the movement of the lower *wh*-phrase is blocked in both short and long movement, which implies lack of verb movement (Rudin 1986 and Bošković 2002).

(6) a. **Koj kogo** e vidjal?

Who whom saw

'Who saw whom?'

b.***Kogo koj** e vidal?

(7) a. **Koj kogoto** obica, toj za nego i govori

Who whom loves he about him even talks

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

(Bulgarian)

Similarly to Bulgarian, sentences disobeying superiority result in ungrammaticality; hence the RM effect is observed in Rizzi's sense (1990), or the intervention effect in the sense of Chomsky (2001). Nonetheless, the grammaticality of the mono-clausal sentences is judged slightly better than that of the bi-clausal sentences. Consider the English examples below.

(8) a. ??/?* What did who buy?

b.*What did Mary say that who bought *t*?

In Japanese and Korean too, it has been argued that object raising to Spec, TP is made possible by subsequent verb-raising (Miyagawa 2003). That is, verb movement into functional projections in an embedded clause makes subject and object equidistant. Thus, as with Spanish and German, we might expect that the presence and absence of superiority in Korean and Japanese are also related to head movement.

Concerning verb movement, however, there is still an ongoing debate over whether verb movement exists in head-final languages such as Korean and Japanese (see Otani and Whitman 1991; Yoon 1994; Fukui & Yuji 1998; Hoji 1998 among others). Since, unlike in Spanish and German, verb movement in Korean and Japanese does not change word order in relation to arguments, it is hard to detect whether the verb raises or not in these languages.

Although the superiority effect is observed in certain *wh*-constructions, the fact that the superiority effects do not appear both in local-/long distance scrambling in general in Korean and Japanese, and the fact that verbs occupy a sentence-final position, lead us to speculate that verb movement may not take place at narrow syntax in these languages.

This relation between superiority effects and head movement in head final languages has never been systematically pursued, to the best of my knowledge. Thus, cross-linguistic variations need to be taken into consideration in order to answer questions concerning the relationship between long distance superiority and head movement. Thus, the questions I would like to ask are the following.

(9) a. Is there verb movement in Korean and Japanese at narrow syntax?

b. Is there a correlation between verb movement and superiority effects crosslinguistically?

In this chapter, I refer to the issue of accounting for the presence or absence of superiority as the syntax-morphology interface problem, and analyze of the presence and absence of long distance superiority effects by involving (non-) phase head movement.

5.3. Previous Analyses: Head Movement

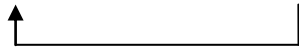
The property of head movement has been one of the controversial issues within the framework of MP (see Chomsky 1995, 2000, 2001)⁴³, and there are two major trends concerning head movement (i) head movement as a PF movement (Chomsky 1995, 2001; Boeckx & Stjepanović 2001; Harley 2004), (ii) head movement as a part of the derivation (Mahajan 2000; Koopman 2005; Matushansky 2006; Citko 2008).⁴⁴

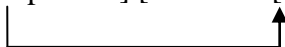
5.3.1 Head Movement as a PF phenomenon

⁴³ The issue of head movement goes back as far as Chomsky (1957).

⁴⁴ Mahajan (2001) and Koopman (2005) suggest remnant movement to obviate the violation of the Extension Condition. Matushansky (2006) argues that verb movement involves head-to-spec rather than head-to-head in accordance with the Extension Condition. Although the approaches of the authors differ, all take head movement to be a syntactic operation in that they attempt to unify head movement and XP movement. However, their approaches seem to be problematic; remnant movement cannot be applied to non-OS languages, and head-to-spec movement violates the Principle of Structure Preservation. Also, it is doubtful how it can apply to head-final languages.

As is well known, French involves verb movement while English does not (cf. Pollock 1989). A typical analysis of the French and English in the early 1980s is that the former involve verb-raising (i.e. V-to-I), while the latter involves Affix Hopping (i.e. I-to-V). Sentences (10) and (11) show that French and English have the different word order with respect to the inflected verb and adverbial.

- (10) a. Jean **embrasse** souvent Marie
 b. *Jean souvent **embrasse** Marie
 c. Jean [T-present] [VP souvent [VP embrasse Marie]]
- 
- Raising of V to T (French)

- (11) a. John **often** kisses Mary
 b. *John kisses **often** Mary
 c. John [T-present] [VP often [VP kiss Mary]]
- 
- Lowering of T to V (English)

In the checking theory, such a difference between French and English has been based on strong/weak morphology: In the case of French, since the V-feature of INFL is strong, the lexical verb must raise before Spell-Out, whereas in case of English, since the V-feature of INFL is weak, verb movement occurs at LF though *have* and *be do* raise overtly. Since Pollock's (1989) and Chomsky's (1993) Split-Infl hypothesis, the task has been how to combine inflection with verb, and the view that the extension of local syntactic relations is made possible by head movement (Chomsky 1995) naturally followed.

In recent work, however, Chomsky (1995, 2000) points out some problems with head movement: head movements such as V-to-T and T-to-C may happen at PF in that a raised (or adjoined) verb does not c-command its trace and sister (e.g phrase DP) nor abides by the Extension Condition (Chomsky 1995) and Least Tampering Condition (Chomsky 2000). Moreover, Chomsky claims that head movement does not have semantic effects.

On the other hand, Chomsky (2000) claims that V-to-v movement plays a syntactic role in every language, although he takes the lexicalist approach that elements come out of the lexicon in full inflection and raise them to check their features. However, it should be noted

that, unlike verb movement, phrase movement brings about semantic effects and satisfies the extension condition and c-command relations. Thus, it follows that if head movement is a syntactic operation, it must behave in a similar manner to NP movement, which obeys the above conditions.

In connection to this, Lasnik (2007) proposes that verbal morphology varies in languages, arguing that there are two forms of verbs in the lexicon: fully inflected verbs and bare form verbs. He suggests that the difference between French and English resides in the choice of the mechanism as follows:

(12) French and English:

- a. French verbs are fully inflected in the lexicon (there are no bare forms).
- b. 'Have' and 'be' are fully inflected in the lexicon.
- c. All other English verbs are bare in the lexicon.

Looking into Lasnik's analysis of verbal morphology specifically, French requires the verbs to undergo overt syntactic head movement to the feature Infl to check their own features, since they are fully inflected forms. Hence, they do not need to meet the adjacency requirement to check their features. This means that intervening elements such as adverbs, negations and floated quantifiers do not interfere with the feature checking between Infl and the verb. There is no reason for the intervening element to block the head movements because the intervener and head do not have the same feature class as the heads (cf. Rizzi 2004).

On the other hand, English main verbs as bare forms are introduced into the derivation, which requires them to merge with the affixal Infl at PF under adjacency⁴⁵. Hence, intervening elements such as adverbs, negations and floated quantifiers interfere with the PF merger between the affixal Infl and the bare verb. Meanwhile, English 'have' and 'be' can apparently move like French main verbs across the intervening elements.

Although some motivations for head Movement as PF movement have been put forward, there are reasons to consider head movement a syntactic operation. In the next subsection, we will offer some speculations on a possibility that head movement is not treated as a PF operation and that head movement has effects on long distance superiority effects.

⁴⁵ Similarly, Embick and Noyes (2001) claim that verbal inflection in French is the result of head raising in the overt syntax, while that in English it is the result of head lowering as a PF adjacency requirement.

5.3.2 Head Movement as a Syntactic Operation

As noted in 5.3.1, the reason that head movement is seen as a PF operation lies in the violation of the Extension Condition (1), and the lack of semantic effects (2) (Chomsky 2001). In this subsection, I will consider whether the above conditions are proper criteria for head movement to be a PF operation.

First, Chomsky (1993: 22) states that the Extension Condition is applied to overt substitution, and thus is not applied to verb movement. Put differently, head movement involves counter-cyclic movement in that it moves into the existing structure rather than extending a structure. However, on closer examination, there exist some exceptions, although the Extension Condition is a condition which must be obeyed at narrow syntax. The reasons are these: first, as we saw in chapter 4, certain languages utilize a tucking-in derivation in multiple *wh*-fronting, which is against the Extension Condition. Second, even NP movement may not follow the Extension Condition, given that Chomsky's view that T has no EPP, but C and *v*, and thus subject raising from Spec, *v*P to Spec, TP is made possible by EPP feature inheritance from C to T.

Second, it seems to be obvious that head movement has a semantic impact⁴⁶. To see this, consider English NPIs (Cf. Roberts). Based on the standard assumption that NPIs must be c-commanded by their licensers at LF, Robert points out that the NPI anybody in subject position in (13b) is licensed by negation along with the auxiliary raised to C, which affects LF by altering c-command relations (or by being within the scope of the licensing negation, not).

- (13) a. *Which one of them does anybody like?
b. Which one of them doesn't anybody like?
c. *They succeeded in finding out which one of them anybody liked.
d. *They succeeded in finding out which one of them anybody didn't like.

⁴⁶ The well-know example is Holmberg's generalization as formulated by Chomsky (1993). What HG states that in Swedish, objects cannot move without verb movement, as in (ib).

- (i) a. Jag kysste henne inte [VP *t_v* *t_o*] (Swedish)
I kissed her not
b. *Jag har hene inte [VP kysste *t_o*] (Swedish)
I have her not kissed

e . They succeeded in finding out which one of them wasn't liked by anybody.

It therefore appears from the above discussion that the Extension Condition and the lack of semantic effect cannot be critical reasons for the argument that head movement is a non-syntactic operation.

Nonetheless, we may further conjecture that the property of head movement is subject to language variation, given that verb endings in Korean cast doubt on head movement. From a theoretical point of view, head movement as a non-syntactic operation seems problematic. First, according to the PIC, elements which are not on the edges of phases cannot be accessed for further derivations. The question is, then, how head movement which is the complement of VP can happen at narrow syntax. Chomsky's suggestion that phases consisting of vP and CP are spelled out cyclically is a problem for V to I, a core case of head movement. Because a verb in situ is within vP, it should be spelled out and consequently frozen and unavailable for movement when v is introduced into the derivation.

Second, in the framework of Chomsky (1995), head movement is treated as an adjunction X to Y in order to check some feature of Y. In Chomsky (1999), it is pointed out that it is not clear why a feature can be checked via adjunction given the assumption that features are checked only in a spec-head relation. Recent theoretical developments make a syntactic treatment of head movement even more problematic. According to Chomsky (1998; 1999), all kinds of features such as ϕ -features and Case features are checked in situ, via the operation Agree. Movement occurs only in order to 'check' an idiosyncratic feature, the EPP that requires a spec-head configuration. Within this framework, there is no motivation for head movement, unless the EPP feature is assumed.⁴⁷

Up to now, we have examined the view that verb movement does not necessarily occur at narrow syntax based on the empirical and theoretical perspectives, although it has semantic and syntactic effects like NP movement⁴⁸. In the next subsection, I will review the existing discussions of head movement in head final languages such as Korean and Japanese in more

⁴⁷ Zwart (2001) argues that head movement may be implemented by a feature-checking with a view to a unitary theory of head and phrasal movement. Given this, head movement is also an instance of generalized feature checking movement.

⁴⁸ Some (Donati 2006; Suranyi 2005) argue that head movement involves head-to-spec like NP movement. Donati, taking an example of the English free relative clause, shows that the moved head can project. Although head-to-spec movement complies with the Extension Condition, in head-final languages, such movement cannot occur. Thus, it seems that head-to-head as an adjunction operation should be maintained as a language parametric variation.

detail and then see how head movement affects the presence or absences of long distance superiority in comparison with other languages. It will be shown that there is no correlation between verb movement and superiority effects in head-final languages, unlike verb-initial or verb-second languages.

5.4 String Vacuous Head Movement

Let us now turn to the properties of verbs in Korean and Japanese. It is argued that the raising of the object is rendered possible by subsequent verb-raising, namely V-to-v-to-T (Miyagawa 2003). That is, equidistance via verb movement makes possible for an object to move over to a subject in an embedded clause. Thus, verb-raising seems to support the fact that in Korean and Japanese, superiority effects are lacking in an embedded clause, as in other languages. The examples of (1) and (2) are repeated as (14) and (15) below.

(14) **Mwuess-ul** nwu-ka ti mekess-ni?

What-Acc who-Nom ate- Q

‘What ate what?’

The key issue that arises is whether the ungrammaticality of (15a) below is due to the lack of v-raising in the embedded clause. This seems to be not the case, as (15b) shows. Intuitively, we can not say that the ungrammaticality of (15a) is the lack of v-raising, while the grammaticality of (15b) is the presence of v-raising.

(15) a. ?***Mwuess-ul** John-nun **nwukwu-eykey** [Mary-ka t_i mekessta-ko] malhass-ni?

What-Acc John-Top who.dat Mary-Nom ate-C said-Q

‘To whom did John ask what Mary ate?’

b. **Mwuess-ul** John-un [**nwu-ka** ti mekessnun-ci] alkosipeha-ni?

What-Acc John-Top who-Nom ate-Q want to know-Q

‘What does John want to know whether Mary ate?’

As mentioned earlier, there is still a debate as to whether verb movement exists in head-final languages with SOV word order such as Korean and Japanese. Unlike French and English,

since the Korean/Japanese verb comes at the end of the sentence, verb movement does not change word order in relation to arguments(i.e right-headed string-vacuous verb movement), which makes it hard to detect whether the verb raises or not, as indicated in (16b) and (16b).

(16) a. Minsu-ka pab-ul mek-ess-ta.
 Minsu-NOM rice-ACC eat-PAST-DECL
 ‘Minsu ate rice’

b. [CP [TP Minsu-ka [VP [NP pab-ul] tV] [V mek]-ess]-ta].
 [CP [TP Minsu-ka [VP [NP pab-ul] tV] [V mekessta].

In an aspect of verb morphology in Korean, it appears that various verbal affixes head their own projections in the syntax. As shown in (17), functional morphemes such as ‘ta (modal)’, ‘ess (tense), ‘si (honorification)’ can fulfil their syntactic functions (data (18-19) adapted from Lee 2004).

(17) a. [Uemeni-ka piyenci-lul ssu-si-ess-]-ko [apeci-ka sinmun-ul iku-si-ess-]-**ta**
 b. [Uemeni-ka piyenci-lul ssu-si]-ko [apeci-ka sinmun-ul iku-si]-**ess-ta**
 c. [Uemeni-ka [piyenci-lul ssu]-ko [apeci-ka sinmun-ul iku]-**si-ess-ta**
 ‘Mother wrote a letter and father read a newspaper.’

Although functional morphemes occupy their own position hierarchically, they cannot be separated one another, as shown in (18) since the functional morphemes are bound morphemes. Thus, in order for sentences in (18) to be grammatical, there must be a process that verbal affixes are combined each other. This process seems to imply v-raising in Korean.

(18) a. *[Uemeni-ka piyenci-lul **ssu-si-ess-ta**]-_i Mary-ka [t_i **-ko**] malssta.
 Mother-nom letter-acc write-hon-pst Mary-nom C said
 b. *[Uemeni-ka piyenci-lul **ssu-si-ess**]-_i Mary-ka [t_i **tako**] malssta.
 c. *[Uemeni-ka piyenci-lul **ssu-si**]-_i Mary-ka [t_i **esstako**] malssta.
 d. *[Uemeni-ka piyenci-lul **ssu**]-_i Mary-ka [t_i **siessko**] malssta.

There is further evidence in the syntax literature that in Korean and Japanese a verb raises to higher functional head T. Let us review some of them. In Korean, there are two types of negation, short form negation (SFN) and long form negation (LFN), as shown in (19). In SFN, the negative morpheme, *an*, comes immediately before the verb, while in LFN, the negative morpheme, *-ci ani ha*, appears between a special form of the verb stem and the dummy verb *ha* ‘do’ (Hagstrom 1997).

- (19) a. Chelswu-ka ppang-ul **an** -mek-ess-ta (SFN)
 Chelswu.nom bread.acc neg.eat.past.dec an-V
 ‘Chelswu didn’t eat the bread.’
- b. Chelswu-ka ppang-ul mek-**ci ani** hay-ss-ta” (LFN)
 Chelswu.nom bread.acc eat-CI neg do.past.dec V-ci ani ha-
 ‘Chelswu didn’t eat the bread.’

It is argued that the reason for the different behaviour of the two forms of negation is due to the availability of verb-raising to T in SFN. That is, in SFN we get scope ambiguity, whereas in LFN there is no scope change (data based on Sohn 1995, cited from Park & Lee, 2006).

- (20) a. Nwukwunka-ka **manhun saram-ul** an cohahay-ss-ta
 Someone.nom many people.acc neg. like.past.dec
 (Some > many)
- b **Manhun saram-ul** nwukwunka-ka t_i an cohahay-ss-ta
 Many people.acc someone.nom neg. like.past.dec
 (Some>many, many >some)
- c **Manhun saram-ul** nwukwunka-ka ti cohaha-ci ani hay-ss-ta
 Many people.acc someone.nom neg. like.past.dec
 (Some > many)

Similarly, in the Japanese emphatic construction, the verb stem is separated from the tense marker by an emphatic particle such as *mo* ‘even’. (Data taken from Miyagawa 2001). That is, a scope fixing effect occurs due to the lack of v-raising.

(21) a. Normal construction

Sensei-o_i zen'in-ga t_i seme-nakat-ta (yo/ to omou)
 Teacher-Acc_i all-Nom t_i blame-Neg-Past
 ‘The teacher, all didn't blame.’
 Not >> all, all >> not

b. Emphatic construction

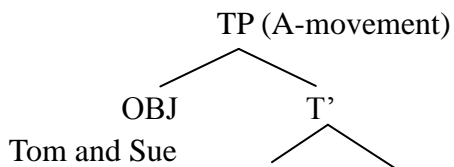
Sensei-o_i zen'in-ga t_i seme-**mo** si-nakat-ta (yo/ to omou)
 Teacher-Acc_i all-Nom t_i blame-even do-Neg-Past
 ‘The teacher, all did not even blame.’
 *not >> all, all >> not

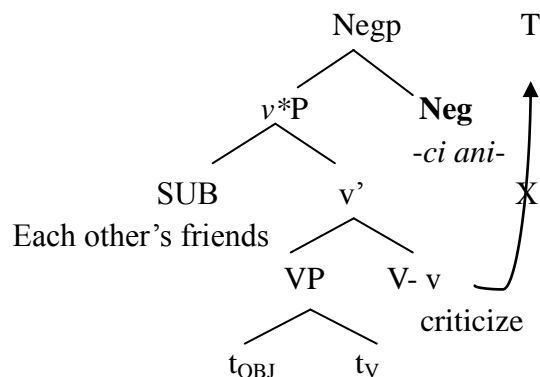
However, it is not always the case that V-raising is obligatorily necessary to cause semantic effects. For instance, a binding relation (hence A-movement) via object raising can be established although the Neg blocks the raising of v to T, as shown (22) (data based on Sohn 1995, cited from Park & Lee, 2006). The relevant configuration is given in (23).

(22) a *Seoro_i -uy chinkwu-ka [Tom-kwa Sue]_i-lul pipanha-**ci ani** hayssta
 Each other's friends-Nom [Tom and Sue]-Acc criticize-neg-did

b [Tom-kwa Sue]_i-lul seoro_i -uy chinkwu-ka pipanha-**ci ani** hayssta
 [Tom and Sue]-Acc each other's friends-Nom criticize-neg-did

(23b) Korean object raising





Similarly, Japanese control constructions of (24) in which the scrambled object in the control complement can A-bind the matrix subject even when embedded predicate is not overtly raised to the matrix (Nemoto 1993).

(24) [John-to Mary]_i -o [otagai-no oya]-ga [PRO t_i sikaru-yoo-ni] Tom-ni
 J-and M.acc each other.gen parents-Nom scold-to Tom-Dat
 tanoma-nakat-ta.
 ask-NEG-PST

‘John and Mary_i, each other’s parents did not ask Tom [PRO to scold t_i].’ (Japanese)

Moreover, it is observed in the literature that scope judgments are not uniform: it is reported that while sentences with short negation only exhibit a surface scope reading, sentences with long negation exhibit both surface and reverse scope readings. It is also reported that sentences with long or short negation allow both the ‘all>neg’ and ‘neg>all’ reading (Han, Jeffrey & Julien 2003; references therein). Thus, it is unclear how the ambiguity of (25) can be captured in Miyagawa’s analysis in which V-raising induces different scope reading.

(25) a. Ta **an** o-ass-ta.
 All-neg come-pst-decl
 ‘All didn’t come’ (short negation, all>neg’ and ‘neg>all’)

b. Ta **o-ci ani** ha-yess-ta.
 All come-ci NEG do-PST-DECL
 ‘All didn’t come.’ (long negation, all>neg’ and ‘neg>all’)

Obviously the correlation between V-raising and head-final languages with poor agreement is not easily captured. Interestingly, however, it is reported that there is a strong correlation between rich agreement and verb movement according to many researchers (Bobaljik, 1995; Holmberg & Platzack 1995; Collins and Thrainsson 1996 among others). For instance, in German, Icelandic and French and Danish verbs are inflected according to person, resulting in rich inflection, while English, verbs are not, resulting in poor inflection. Such difference is derived from the presence and absence of verb movement, (cf. 26). According to Rohrbacher(1999), from the point of view of Agree theory, verb movement takes place when agreement features between v and T are checked, otherwise it does not.

- (26) a. Ich werfe nicht (*werfe) die kugel. (German)
 b. Mig kastar ekki (*kastar) bókina. (Icelandic)
 c. Je (ne) jette pas (*jette) laboule. (French)
 d. Jeg kaster ikke (*kaster) bogan. (Danish)
 e. I do not throw the ball. (English)

From a crosslinguistic view, we may conjecture that (un-) availability of V-raising in Korean is due to weak agreement. The above discussion leads us to potentially conclude that superiority effect is not closely related to V-raising in Korean even if V-raising occurs. We will discuss the issue with respect to a Q-morpheme in 5.5.3.

5.5 Proposed Analyses

5.5.1 English (Head Initial language)

In the English multiple *wh*-construction, there exists a subject/object asymmetry in both main and embedded clauses (cf. Kuno & Robinson 1972; Chomsky 1973, in the sense that the structurally higher *wh*-phrase is always superior. However, it is said that in English superiority violations in matrix multiple questions are better, as in (27b), than superiority violations in embedded questions, as in (28b).⁴⁹

⁴⁹ It has long been noted that not all superiority violations are unacceptable. D-Linked' expression like (i) are standardly assumed, which lacks superiority effect (Pesetsky, 1987).

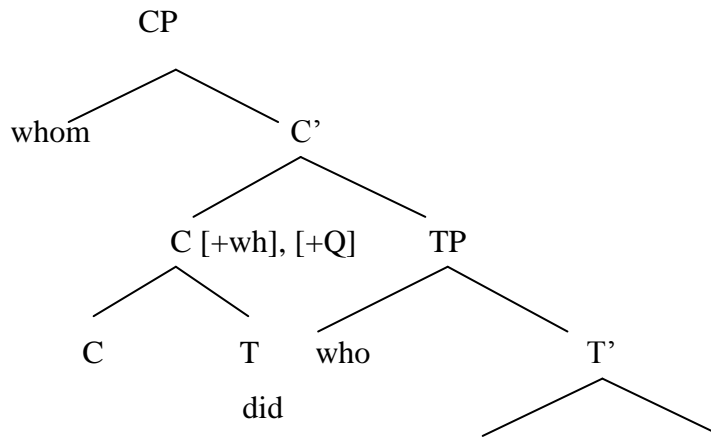
- (27) a. Who will bring what?
 b. ??/?*What will who bring?

- (28) a. Mary wonders who brought what.
 b. *Mary wonders what_i who brought t_i. (English)

To account for the cause of the asymmetry we can suggest that verb movement such as T-to-C occurs with subject-auxiliary inversion in the matrix interrogatives, not the embedded ones. Thus, the decrease of the superiority effect seems to be captured by T-to-C movement (Grebenyova 2004).

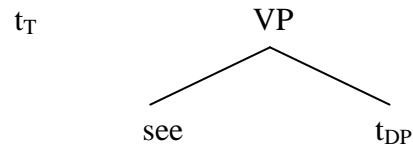
According to the Equidistance Condition suggested by Chomsky (1995), α and β are equidistance from c if α and β are in the same minimal domain of a chain CH. In (29), T-to-C movement makes the Spec, TP and Spec, CP equidistant from the subject position in Spec, VP, allowing for the object to move over the subject in Spec, TP, meaning that they are both within the minimal domain of the chain⁵⁰.

- (29) [CP whom [C-[T did]_i [TP who t_i [v*P [V see t]]]]



- (i) Which book did who see ___?

⁵⁰ From the diachronic view, the early Old English of Beowulf had a system of scrambling very similar to that of modern German or West Flemish at a time when a sizeable proportion of Old English clauses were still OV and Tense-final (Pintzuk 1996). It seems that the loss of word order freedom is related to the loss of m-case (Allen 1995). Then, we might expect that in the Old English era, superiority effects did not emerge.



Thus, the absence of T-to-C movement predicts superiority effects. This is borne out in Bulgarian, as in (30). Unlike English, in Bulgarian superiority effects emerge in the matrix clause, which is suggestive of the lack of absence of T-to-C movement (Izvorski (1993). Thus, the setting of the verb-raising parameter within English and between English and Bulgarian accounts for the observed variability.

(30) a. **Koj kakvo** kupuva?

Who what buys

‘Who is buying what?’

b. ***Kakvo koj** kupuva? (Bulgarian)

Note that in both English and German *wh*-interrogatives, one *wh*-phrase moves to Spec, CP leaving other *wh*-phrases in situ. However, they differ in that English *wh*-multiple questions show Superiority effects, while in German counterparts, the Superiority effect is absent, as seen in (2) (Grewendorf 2001; Muller 1997). In what follows, we will see what factor is involved in the difference.

5.5.2 German and Spanish (V2 Languages)

We have seen that the superiority effect does not appear in German and Spanish matrix interrogatives. The data we have seen in (2-3) is repeated in (31-32). Adapting den Dikken (2006), Frank (2007) proposes that the verb in the Spanish and German embedded clause raises as high as T, and thereby the lower phase extends as far as TP to which the object *wh*-phrase will adjoin, and in turn raising of the lexical verb to C in the Spanish matrix clause results in the extension of the phase to that level.⁵¹

⁵¹ Den Dikken (2006) claims that syntactic movement of the head H of a phase α up to the head X of the node β dominating α extends the phase up from α to β . Given phase theory, V-to-C movement is associated with the extension of a domain, phase extension plays a role in suppressing superiority effects.

(31) a. Wer hat wen getroffen?

Who has who met?

‘Who met whom?’

b. Wen hat wer getroffen?

Who has who met (German)

(32) a. Quién dijo qué?

Who said what?

‘Who said what?’

b. Qué dijo Quién?

What said who (Spanish)

Note, however, that the expanded minimal domain brought about by verb movement in the matrix clause will not include the lower *wh*-phrase within CP (Frank 2007). This is borne out in German and Spanish. Contrast (33-37) with (38).

(33) a. **Wer** hat gesagt dass Maria **wen** liebt?

Who has said that Maria whom loves

‘Who said that Maria loves whom?’

b. ?***Wen** hat **wer** gesagt dass Maria liebt?

Whom has who said that Maria loves

(German)

(34) a. **Quién** dijo que Juan compra **qué**?

Who said that Juan bought what?

‘Who said that Juan bought what?’

b. ?***Qué** dijo **Quién** que Juan compra ?

What said who that Juan bought what

(Spanish)

(35) a. Maria hat gesagt dass **wer** **wen** liebt?

Maria has said that who whom loves

‘Lit. Maria has said that who loves whom?’

b. ok/?***Wen** hat Maria gesagt dass **wer** liebt?

Whom has Maria said that who loves

(German)

(36) a. Maria dijo que **quién** compra **qué**?

Maria said that who bought what?

‘Lit. Maria said that who bought what?’

b. ok/?***Qué** dijo Maria que **quién** compra ?

What said Maria who that bought

(Spanish)

(37) a. John-un [nwu-ka **mwuess-ul** mekessta-ko] malhass-ni?

John-Top who-Nom what-Acc bought-C said-Q?

b. ok/?***Mwuess-ul**_i John-un [t_i nwu-ka t_i mekesstao] malhass ni?

‘Lit. What did John say who ate t?’

(Korean)

On the other hand, like in Korean, the German and Spanish embedded CP fronting in (38-40) does not give rise to superiority effects, even though a second *wh*-phrase is in a higher position than a first *wh*-phrase. This implies that the CP fronting is a PF phenomenon (Data in (38-40) come from native speakers of German and Spanish that I consulted)

(38) a. Wer hat gesagt **dass Maria wen liebt**?

b. **Dass Maria wen** liebt wer hat gesagt ?

(German)

(39) a. Quién dijo **que Juan compra qué**?

b. **Que Juan compra qué**, quién dijo?

(Spanish)

(40) a. Nwu-ka [**Mary-ka mwuess-ul sassta-ko**] malhass-ni?

Who-nom Mary-Nom what-Acc bought-C said-Q?

b. [**Mary-ka mwuess-ul sasstako**] nwu-ka malhass ni?

‘Who did John say t ate what?’

(Korean)

It should be noted that not all V2 languages show the same phenomenon observed above. In the case of Icelandic, a V2 language, V-to-T movement occurs in both matrix and embedded clauses (Grebenyova 2004) suggesting that there is no superiority effect. Consider Icelandic below.

(41) a. Hver bauð **hverjum** í veisluna?

Who invited whom in the dinner
‘Who invited who to the dinner?’

b. **Hverjum** bauð hver í veisluna?

Whom invited who in the-dinner

(42) a. Jón veit ekki **hver** bauð **hverjum** í veisluna.

John knows not who invited whom in the-dinner
‘John does not know who invited who to the dinner.’

b. Jón veit ekki **hverjum** bauð **hver** í veisluna.

John knows not whom invited who in the-dinner

So far, we observed that in head-initial languages and V-2 languages, verb movement correlates with superiority-(dis-)obeying derivations. Let us now turn to head-final languages such as Korean.

5.5.3 Korean (Head-Final Languages)

In 5.4 we speculated that verb movement may not take place at narrow syntax in languages like Korean. Relevant to our purpose, a question that arises is that how the Q morpheme is dealt with. In Korean, a Case morpheme can be omitted, but a Q morpheme cannot.⁵²

(43) a. nwu-ka mwuess-(ul) mekess-ni?

Who-Nom what-acc ate Q

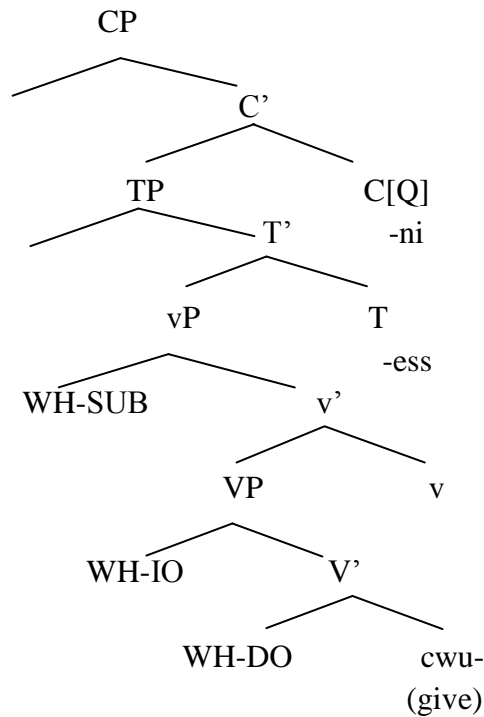
⁵² Some *wh*-in-situ languages lack question particle (see Bruening 1997).

‘What ate what?’

b. nwu-ka mwuess-ul mekess (*ni)?
 Who-Nom what-acc ate Q
 ‘Who ate what?’

Korean Q morphemes, *-ni/-no/-na* are responsible for the interrogative reading of a sentence, i.e. whether it is used as a yes/no question or a *wh*-question. It is argued that it occupies a certain position of functional categories, perhaps, CP-Spec, which forces us to postulate that verb endings in other functional categories such as T and v undergo movement to C in Korean. The configuration is below. (The irrelevant functional projections have been omitted.)

(44) Matrix Clause



At this point let us reconsider prefinal morphemes in Korean (cf. (17)). It seems that every formal feature between a probe and a goal does not need to enter into an Agree relation. Suppose that T-to-C movement is due to a tense feature of the C head, and thereby movement of ‘-ess’ is triggered. However, the absence of the tense morpheme ‘-ess-’ does not affect grammaticality. Then, the motivation for verb movement cannot be a tense feature of the C head. In the same vein, suppose that v-to-T movement must be due to a v feature that the T

head carries, and thereby v movement is triggered. Again, there is no phonological form in v. Similarly, V-to-v movement is not due to a V feature that the v head carries.

With respect to V-to-T-to-C movement, it is worth noting functional categories that accommodate Q-morphemes that occur clause-finally in more detail. There have been studies showing that the position of the Q-morpheme can vary cross-linguistically, in contrast to a widely held view (see Cheng 1991, Joo 1989, among others). For instance, in Korean it is argued that the Q morpheme heads IP or CP (Kim 1991). To be more accurate, Q-morphemes and COMP are in a complementary distribution relation, as show in (45), but they can coexist when there is a C - I agreement, which allows them to occupy Spec of IP and CP, respectively. As seen in the tree in (46) below, if Q-morphems such as *-ni/-ci/-eyo* are used with the declarative complementizer, *-hako*, they occupy a position below the Spec CP (data from Choi 2007).

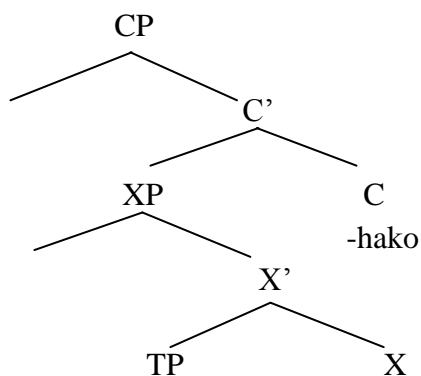
(45) a. *John-i [CP Mary-ka wass-(ni/ci/eyo)-**ko**] mwulessta.

John-Nom Mary-Nom came-QM-COMP asked
 ‘John asked whether Mary came.’

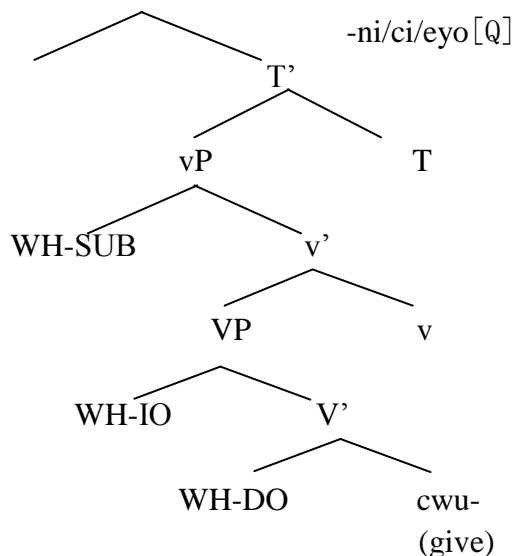
b. John - i [CP Mary-ka wass-(ni/ci/eyo)-**hako**] mwulessta.

John-Nom Mary-Nom came-QM-COMP asked
 ‘John asked whether Mary came.’

(46) Subordinate Clause⁵³



⁵³ In the tree, I call XP an unspecified functional category. I will leave the issue as to whether the fixed sequence of XP-CP in a subordinate clause applies to a matrix clause as well in the sequence of null XP in Korean.



In addition to Korean, there are more empirical data supporting the view that the question morpheme and the complementizer realize different posits. The facts discussed for Korean are quite similar to those reported for Japanese and Burmese (Bhattacharya & Simpson 2003), Malayalam (Jayaseelan 2001) and Sinhala (Kishimoto 2005). As shown in examples (47) below, Q-morphemes are generated at a position below CP. If Q is not necessarily generated in C we may expect that C may not have a Q-feature.

(47) a. Jaan [Mary vannu-oo enn6] coodiccu

I Mary came-Q comp asked

‘I asked whether Mary came.’

(Malayam)

b. Taroo-wa [CP dare-ga kuru ka to] kikimashita.

Taroo-Top who-Nom come Q C asked

‘Taroo asked who was coming.’

(Japanese)

c. U-Win-Win-ka [beh thwaa-th leh lo] mee teh.

U-Win-Win-Non where go-Non-Fut Q C ask Non-Fut

‘U-Win-Win asked where (you) went.’

(Burmese)

Considering all these aspects, it is questionable whether the C head carries a tense feature or a Q-feature. Without further stipulation, it seems quite plausible that verb movement in Korean may not take place at the narrow syntax (cf. Fukui and Sakai 2003 among others), even though

we do not entirely exclude head movement from narrow syntax. These discussions leads us to speculate that there is no direct correlation between verb movement and superiority effects in head-final languages, unlike verb-initial or verb-second languages. Alternatively, we suggest that the superiority effect can be explained from the perspective of derivation by phase, according to which a *wh*-phrase at the edge of a phase can remain until the derivation finishes for the purpose of successive cyclic A'-movement, whereas the *wh*-phrase in the complement of a phase head cannot undergo further movement because it is transferred to Spell-Out, in accordance with Full Interpretation (FI). With the suggested solution in mind, let us first look at the data in (1b), which are repeated as (48).

- (48) ?***Mwuess-ul**_i John-nun **nwukwu-eykey** [Mary-ka t_i mekessta ko] malhassni?
 What-Acc John-Top who.dat Mary-Nom ate C said Q
 ‘Lit, What did John ask whom that Mary ate t?’

Recall from chapter 4 that the Spec, TP position may not be occupied by a subject; thus, either the subject or object is triggered by an edge feature on T. Specifically, if the *wh*-subject moves to Spec-TP, the *wh*-object moves to the embedded Spec-CP via the outer spec of v*P, and ends up landing in the matrix Spec-CP. However, if the *wh*-subject remains in its base position, the *wh*-object moves to Spec-TP, and consequently ends up being sent to Spell-Out during the course of the derivation. Thus, one strategy to avoid superiority effects is to extract the *wh*-object from Spec, v*P, and raise it to Spec-CP, skipping the Spec-TP position. In order to do so, the *wh*-subject must occupy the Spec-TP position. Let us then first suppose that the *wh*-object moves to the Spec-TP position. The derivation of (48) proceeds as follows.

- (49) (a) [_v*P Mary-ka [_{VP} mwuess-ul mek-]]
 (b) [TP muwess-ul [_v*P tOB Mary-ka mek-]essta]
 (c) [CP [_v*P John-un [_{VP} nwuku-eykey [CP [TP muwess-ul [_v*P tOB Mary-ka mek-]essta]ko] malhayss]]ni] → *Derivation converges at this point.*
 (d) * [CP [TP **muwess-ul** [_v*P John-un [_{VP} nwuku-eykey [CP [TP <**muwess-ul**> Mary-ka t mek-]essta]ko] malhayss]]ni]
 → *Derivation crashes.* (Superiority effect)

In (49a), the *wh*-object is initially merged in the VP-internal position, and subsequently the *wh*-subject is externally merged at the inner spec of v*P. At the stage of the derivation of (49b), the subject *wh*-phrase remains in Spec-v*P and the *wh*-object moves to the edge of TP via the outer spec of v*P. In (49c), *nwukwu-eykey* ‘whom’ is merged in the matrix clause, and then the matrix subject, *John-un* ‘John’, is externally merged at the inner spec of v*P. At this stage, the derivation converges. In (49d), the *wh*-direct object *nwukwu-lul* ‘whom’ cannot raise to the matrix Spec-TP because it is in the complement of the embedded CP, which has already undergone Spell-Out when the embedded C head is merged. Thus, superiority is respected in the derivation. Let us now suppose that the *wh*-subject moves to the Spec-TP position. The derivation of (48) proceeds as follows.

- (50) (a) [_{v*P} Mary-ka [_{VP} mwuess-ul mek-]]
 (b) [CP mwuess-ul [_{TP} Mary-ka [_{v*P} _{TOB} tsu mek-]essta]ko]
 (c) [CP [_{TP} John-un [_{v*P} tsu [_{VP} nwuku-eykey [CP mwuess-ul [_{TP} Mary-ka [_{v*P} _{TOB} tsu mek-]essta]ko]mal-]hays]]ni]
 → *Derivation converges at this point.*
 (d) * [CP **mwuess-ul** [_{TP} John-un [_{v*P} tsu [_{VP} nwuku-eykey [CP <**mwuess-ul**> [_{TP} Mary-ka [_{v*P} tsu mwuess-ulmek-]essta]ko]mal-]hayss]]ni]
 → *Derivation crashes at this point.* (Superiority effect)

In (50a), the *wh*-object is initially merged in the VP-internal position, and the *wh*-subject is externally merged at the inner spec of v*P. At the stage of (50b), the subject *wh*-phrase moves to the spec of TP, and subsequently the *wh*-direct object moves to the edge of CP via the outer spec of v*P. In (50c), *nwukwu-eykey* ‘whom’ is merged as in matrix clause, and then *John-un* ‘John’, occupies the matrix Spec-TP via the inner spec of v*P. At this stage, the derivation converges. (50d) the *wh*-direct object *nwukwu-lul* ‘whom’ cannot raise to the matrix Spec-CP, because it is not accessible to operations at v*P. The superiority effect of (48) can therefore be captured regardless of which argument moves to Spec-TP. In a nutshell, movement from a nonphase- edge to a phase-edge gives rise to superiority effects, but movement from a phase-edge to a phase-edge overrides superiority effects. We may therefore say that superiority effects do not necessarily mean that a language involve *wh*-movement.

To sum up sections 5.5.1, 5.5.2., and 5.5.3, in German and English, V-to-C movement decreases the superiority effect, although the degree may be different. In Bulgarian, on the

other hand, the absence of V-to-C movement does not allow for the extension of the syntactic domain to CP, resulting in the superiority effect. Although head movement can be considered to be a syntactic operation in head-final languages such as Korean and Japanese, when it comes to the superiority effect it seems that there is no correlation between verb movement and superiority effects in head-final languages, unlike verb-initial or verb-second languages in which there is a direct correlation between head movement and long-distance superiority. The generalization therefore seems to be that superiority effects are dependent on headedness (i.e. head-final, head-initial, V2).

5.6 Summary

Based on the observation that there is an interaction between superiority and head movement in Indo-European languages, this chapter aimed to account for the absence of long distance superiority with respect to verb movement found in head-final languages such as Korean and Japanese. In conclusion, the superiority effect is dependent on headedness (i.e. head-final, head-initial, V2); in head-final languages such as Korean and Japanese, head movement may not occur at narrow syntax, whereas in other languages it obligatorily takes place, hence V-to-C is very closely related with the presence or absence of superiority. Having dealt with aspects of movement of *wh*-phrases across languages so far, in the next chapter, we investigate *wh*-scope interpretations of in-situ *wh*-phrases in *wh*-interrogatives.

CHAPTER 6

WH-SCOPE INTERPRETATION IN INTERROGATIVES

6.1 Introduction

In this chapter I deal with scope interpretation of *wh*-phrase(s), in particular, focusing on long distance *wh*-scope agreement in Korean. The organization of the chapter is as follows. Section 1.2 presents the core data about the scope of in-situ *wh*-phrases in Korean single and multiple *wh*-constructions, and section 1.3 lays out previous analyses of the interpretation of in-situ *wh*-phrases. Section 1.4 addresses the issue of the asymmetry between *wh*-arguments and *wh*-adjuncts, long distance *wh*-scope agreement in Korean, and proposes a scope licensing mechanism that takes a phase-theoretic approach to *wh*-scope (Chomsky 2001) for the purpose of offering a principled explanation of the uniform mapping relation between syntactic structure and semantic interpretation that satisfies the economy of interpretation requirement. Section 1.5 extends our proposals to the scope interpretation of multiple *wh*-phrases and additional *wh*-effects. Section 1.6 provides a brief summary of our conclusion.

6.2 *Wh*-Scope and Intervention Effects

6.2.1 Scope of In-situ *wh*-phrases

In *wh*-moving languages, such as English and French, a *wh*-phrase generally marks its scope by movement to C. In *wh*-in-situ languages, such as Hindi and Korean, however, a *wh*-phrase does not undergo *wh*-movement; it marks its scope in-situ.

Descriptively, interrogative questions in Korean are indicated by the addition of a question-morpheme such as ‘-*ci*’ or ‘-*ni*’/ ‘-*nya*’. The only difference is that ‘-*ci*’ is located in a subordinate clause-final position and is used in yes/no questions, whereas ‘-*ni*’/ ‘-*nya*’ is located in a matrix clause-final position and is used in both *wh*-questions and yes/no-questions.⁵⁴ In other words, in a *wh*-interrogative, when a Q-morpheme is contained in an

⁵⁴ There are other sentence-final morphemes such as ‘-*ko*’ and ‘-*ka*’, which are used in the Korean Kyeungsan dialect. The interrogative morpheme ‘-*ka*’ is used in yes/no questions and ‘-*ko*’ is used in *wh*-questions (Suh 1989).

embedded clause, the embedded *wh*-element takes a narrow scope by being licensed in a c-command domain of a Q-morpheme *-ci*, as in (1).⁵⁵

- (1) John-un [Mary-ka **mwuess-ul** sassnun-**ci**] kiyeokha-ni?
 John-Top Mary-Nom what-Acc bought-Q remember=Q
 ‘Does John remember what Mary bought?’

When a Q-morpheme is contained in the matrix clause, embedded *wh*-elements can take matrix scope by being licensed in a c-command domain of a Q-morpheme *-ni*, as in (2).

- (2) John-un [Mary-ka **mwuess-ul** sassnun-ko] malhass-**ni**?
 John-Top Mary-Nom what-Acc bought -C said -Q
 ‘What did John say that Mary bought what?’

Some in-situ *wh*-phrases in Korean are ambiguous between a *wh*-question and an indefinite NP in interrogative contexts. The focused in-situ *wh*-phrases in a subordinate clause in (3) and (4) can take wide scope on a par with scrambled *wh*-phrases.⁵⁶

- (3) a. John-un [Mary-ka **mwuess-ul** sassnun-**ci**] alkosipeha-ni?
 John-Top Mary-Nom what-Acc bought-Q want to know-Q

⁵⁵ In Korean (and Japanese), bare *wh*-words can be either universal quantifiers by adding *-ka* as in (ia), or indefinites by adding *-na*, as illustrated in (ib).

- (i) a. Nwkuwn-ka-ga wassni?
 who-ka-Nom come-Q
 ‘Who came?’
 b. Nwkuwn-na-ga Kim-ul cohahanta.
 who-na-Nom Kim-Acc like
 ‘Everyone likes Kim’

⁵⁶ The matrix predicates that select the complement clause containing the *wh*-phase also plays a role in determining the possibility of wide/narrow scope. These long-distance readings are allowed when the matrix verb is *malhata* ‘say’ type which introduces the embedded clause. If the matrix verbs are *alta* ‘know,’ *kiyeokhata* ‘remember,’ *muttsa* ‘ask’, long distance readings are marginal or unavailable.

- (i) John-un [Mary-ka **mwuess-ul** sassnun ci] alkoiss **ni**?
 John-Top Mary-Nom what-Acc bought -Q know-Q
 ‘Does John know what Mary bought?’

‘Does John want to know whether Mary bought something?’

‘What does John want to know whether Mary bought?’

- b. **Mwuess-ul**_i, John-un [Mary-ka t_i sassnun-ci] alkosipeha-ni?
What-Acc John -Top Mary-Nom bought-Q want to know-Q
‘For which y, does John want to know whether Mary bought y

- (4) a. John-un [Mary-ka **nwukwu-ekey mwuess-ul** cwuessnun-ci] alkosipeha-ni?
John-Top Mary-Nom who-Dat what-Acc gave-Q want to know-Q
‘Does John want to know whether Mary gave something to someone?’

‘??To whom does John want to know whether Mary bought what?’

- b. **Nwukwu-ekey mwuess-ul** John-un [Mary-ka t_i t_j cwuessta-ci] kiekha-ni?
Who-Dat what-Acc John-Top Mary-Nom gave-Q remember-Q?
For which x, y does John want to know Mary gave x y

6.2.2 Island (In-) Sensitivity

Many *wh*-in-situ languages exhibit sensitivity to island constructions (see French Cheng & Rooryck, 2000 for French; Bruening & Tran, 2006 for Vietnamese; Wahba, 1992 for Iraqi Arabic; Srivastav, 1991 for Hindi)⁵⁷.

Unlike those languages, in-situ-*wh*-phrases in Korean (and Japanese) do not trigger island effects (cf. Shin 2005 for Korean; Watanabe 1992 for Japanese) in general. As can be seen (5), argument *wh*-phrases in complex NP Islands and adjunct islands can take matrix scope.

- (5) a. Mary-nun [[John-ekey **mwuess-ul** cwun] saram-ul] manness-ni?
Mary-Top John-Dat what-Acc gave man-Acc met-Q

⁵⁷ With respect to analyses of island effects, Watanabe (1992) proposes a syntactic null operator movement analysis for Japanese. We shall look at some of the analyses later. Cole and Hermon (1994) suggest a possibility that LF movement obeys Subjacency, based on in Ancash Quechua, Cheng and Rooryck (2000) analyze island-sensitive French example as involving feature movement at LF.

‘For what x, Mary met the man who gave John x?’ (Complex NP Island)

- b. Mary-nun [John-i **mwuess-ul** sasski ttamune] coahass-ni?
Mary-Top John-Nom what-Acc bought because liked-Q
‘For what x, Mary liked because John bought x?’ (Adjunct Island)

As many researchers (Huang 1982 among others) have noted, there is an asymmetry between an argument *wh*-word and an adjunct *wh*-word with respect to island constraints in *wh*-in-situ languages.⁵⁸ Although Korean *wh*-phrases are immune to islands in general, islands effects are observed when *wh*-words are adjuncts, like *way* ‘why’. In (6), for example, when a complex NP island and a *wh*-adjunct island contain a why-form, the Subjacency effect is found. Thus the illegitimacy of the examples (i.e, the presence of island violations) implies that the why-form escapes from an island.

- (6) a. *Mary-nun [[John-ekey i chayk-ul **way** cwun] saram-ul] manness-ni?
Mary-Top John-Dat this book-Acc why gave man-Acc met-Q
‘What did Mary meet the man who gave (it) to John?’ (Complex NP Island)
- b. *Mary-nun [John-i i chayk-ul **way** sasski ttamune] coahass-ni?
Mary-Top John-Nom this book-Acc why bought because liked-Q
‘What did Mary leave because John liked (it)?’ (Adjunct Island)

In certain cases, *wh*-island effects can be remedied. The status of (7a) improves if there is an additional *wh*-phrase in the matrix clause, and thereby the *wh*-phrase in the embedded clause can take the matrix *wh*-scope, as shown in (7b).

- (7) a. ??John-un [Mary-ka **mwuess-ul** sassnun-ci] Tom-ekey mules-ni?
John-Top Mary-Nom what-Acc bought-Q Tom-Dat asked Q
‘What did John ask Tom whether Mary bought t?’

⁵⁸ The asymmetry occurring between the *wh*-arguments and the *wh*-adjunct ‘why’ in the islands was explained by the Empty Category Principle (ECP) based on the notion of government, which is no longer employed in recent minimalism.

- b. John-un [Mary-ka **mwuess-ul** sassnun-ci] **nwukwu-ekey** mules-ni?
 John-Top Mary-Nom what-Acc bought-Q whom-Dat asked-Q
 ‘Whom did John ask t whether Mary bought what?’

Thus far, I have briefly looked at the core data set concerning *wh*-scope interpretation of *wh*-phrases in multiple *wh*-constructions, noting that Korean in-situ argument *wh*-phrases can remain in an island (i.e. lack of island effect), whereas in-situ adjunct *wh*-phrases cannot (i.e. presence of island effect).⁵⁹ I have also looked the additional *wh*-effect. At this point, questions that naturally arise regarding island effects are as follows; what keeps a *wh*-phrase in an island from moving to C, and what allow a *wh*-phrase in an island to move to C when an additional *wh*-phrase is present?

Before answering those questions, in what follows, I briefly review previous approaches to the interpretation of in-situ *wh*-phrases. I then offer an account for wide *wh*-scope interpretation of in-situ *wh*-phrases observed in Korean by adopting Chomsky’s (2000, 2001, 2004) view that the syntactic operation Agree is subject to locality. I also offer an account of the asymmetry between *wh*-arguments and *wh*-adjuncts with respect to island effects by partly adopting Uriagereka’s (1999) view that adjuncts clauses, complex NP, etc. are formed separately from other elements in a clause.

6.3 Previous Analyses

There have been a number of proposals in the syntax literature to account for scope readings of in-situ *wh*-phrases, albeit at a different level of representation from either a view of movement (Huang 1982, Choi 1987; Nishigauchi 1990; Watanabe 1992 2003; Lasnik and Saito 1992 among others) or non-movement (Baker 1970; Pesetsky 1987; Nishigauchi 1990; Aoun and Li 1993, Tsai 1994; Chomsky 1995; Reinhart 1998).

To be specific, one is that *wh*-in-situ undergoes movement at LF to a clause-initial position where the scope is marked. Under the LF movement view, languages differ only in the level at which movement takes places. Another is that in-situ *wh*-phrases do not undergo movement at LF, and instead are unselectively bound by the Q-operator. The other is that an

⁵⁹ Since *wh*-phrases can remain in island on the surface the legitimacy of the examples above can be explained by either the movement approach in which a *wh*-phrase moves out of island or the non-movement approach in which a *wh*-phrase does not move out of island. We shall discuss this issue later.

Operator or Q moves for scope marking. I will first look at LF *wh*-movement approach, and then turn to the Unselective Binding approach and the Operator or Q movement approach.

6.3.1 LF Phrasal Movement

The scope of *wh*-phrases is determined by the position of the *wh*-phrases themselves. In Chomsky (1976)'s analysis (8a) is represented as (8b).

- (8) a. Who bought what?
 b. [C Wh_j Wh_i [... t_i... t_j...]] (LF)

The traditional view has been that the LF structure involves a quantifier or a *wh*-in-situ element that is transformationally derived from S-structure in the sense of Move- α , but that the transition from S-structure to the level of LF is somehow less constrained than the transition from D-structure to S-structure.

However, since the 1990's there have been several other arguments put forth for and against LF *wh*-movement, and the issue of LF movement has not been settled yet. Notably, the asymmetry between LF *wh*-movement and overt *wh*-movement breaks down when it comes to Subjacency effects. In order to see this, contrast (9) where overt movement violates the Subjacency condition with (10), where LF movement does not violate the Subjacency condition (data from Huang 1995; see also Baker 1970).

- (9) a. ?*What do you remember [why we bought t]? (Wh-island)
 b. ?*Who do you like [books that criticize t]? (Complex NP Island)
 c. ?*Who do you think that [pictures of t] are on sale? (Subject Island)
 d. *Who did you get jealous [because I talked to t]? (Adjunct Island)

- (10) a. Which student knows where Mary bought which book?
 b. Bill knows where Mary bought which book.
 c. Bill knows where Mary bought *Aspects* and Sue knows where Mary bought LGB.

Sentence (10) is ambiguous with respect to the scope of the unmoved lower *wh*-phrase *which book* (data taken from Dayal 2005; see also Baker 1970; Epstein 1992; Lasnik and Saito

1992). The wide-scope reading of the in-situ *wh*-phrase in (10c) can be accounted for if the in-situ phrase undergoes movement to the matrix, yielding a multiple question associated with the matrix *wh*-phrase. Let us further consider the binding relation in (11) (data from Brody 1995, p. 133).

- (11) a. John_i wondered [which pictures of himself_{i/k}] Bill_k liked t.
 b. *John wondered when Mary saw [which pictures of himself].

In (11a), *himself* can have either John or Bill as antecedent. Likewise, if *wh*-in-situ undergoes LF *wh*-movement, one would expect *himself* in (11b) to be able to be anaphoric to John (i.e., John wondered which pictures of himself Mary liked). However, the asymmetry between (11a) and (11b) leads us to support a view that LF *wh*-movement does not always occur.

Regarding scope and landing sites, many languages show that landing sites of a *wh*-phrase do not necessarily mark scope in overt movement. In some languages, such as German, the scope marker (SM) determines the scope of *wh*-phrases, which stays in an embedded clause, as in (12). In the case of Hindi, both the in-situ and the movement option are allowed. The difference between the two strategies is that a scope-marking question particle must be present to mark the matrix *wh*-scope in the latter case, as in (13). What these data tell us is that it is unlikely that the *wh*-phrase moves for the purpose of scope, which in turn casts doubt on the LF movement account (Data from Watanabe (2001:217)).

- (12) **Was** glaubt Hans [**mit wem** [Jakob jetzt spricht]]
 SM believe Hans with whom Jakob now speak
 ‘With whom does Han think that Jakob is now talking?’ (German)

- (13) a. **kOn** raam-ne socaa [ki t aayaa hE]
 ‘Who did Ram think had come?’
 b. raam-ne **kyaa** socaa [ki **kOn** aayaa hE]
 Ram-Erg SM thought that who come has (Hindi)

In addition, the uniform LF movement analysis does not capture both the asymmetry between argument *wh*-phrases and adjunct *wh*-phrases in Korean, as shown in (5-7), repeated here as (14-16).

- (14) a. Mary-nun [[John-ekey **mwuess-ul** cwun] saram-ul] manness-ni?
 Mary-Top John-Dat what-Acc gave man-Acc met-Q
 ‘For what x, Mary met the man who gave John x?’ (Complex NP Island)
- b. Mary-nun [John-i **mwuess-ul** sasski ttamune] coahass-ni? Mary-Top
 John-Nom what-Acc bought because liked-Q
 ‘For what x, Mary liked because John bought x?’ (*Wh*-adjunct)
- (15) a. *Mary-nun [[John-ekey i chayk-ul **way** cwun] saram-ul] manness-ni?
 Mary-Top John-Dat this book-Acc why gave man-Acc met-Q
 ‘What did Mary meet the man who gave (it) to John?’ (CNPC)
- b. *Mary-nun [John-i i chayk-ul **way** sasski ttamune] cohahass-ni?
 Mary-Top John-Nom this book-Acc why bought because liked-Q
 ‘What did Mary leave because John liked (it)?’ (*Wh*-adjunct)
- (16) ?? John-un [Mary-ka **mwuess-ul** sassnun ci] Tom-ekey mules-ni?
 John-Top Mary-Nom what-Acc bought-Q Tom-Dat asked-Q
 ‘What did John ask Tom whether Mary bought t?’

Moreover, if *wh*-scope is licensed at LF after Spell-out, it cannot have an effect on prosody, a PF-property (Lee 2001). In sentences (3-4), repeated as (17), the embedded *wh*-phrases are considered an existential quantifier in normal intonation, but if they are focused, *wh*-phrases can take wide scope, as the English translation shows.

- (17) a. John-un [Mary-ka **mwuess-ul** sassnun-ci] alkosipeha-ni?
 John-Top Mary-Nom what-Acc bought-Q want to know-Q
 ‘What does John want to know whether Mary bought?’
- b. John-un [Mary-ka **nwukwu-ekey mwuess-ul** cwuessnun-ci] alkosipeha ni?
 John-Top Mary-Nom who-Dat what-Acc gave-Q want to know-Q
 ‘To whom, what does John want to know that Mary gave?’

It appears that the LF movement analysis offers a uniform account cross-linguistically in the way all languages involve movement, with the difference being restricted to only to the level of movement. The above cross-linguistic data, however, casts doubt on the existing LF analyses that an in-situ *wh*-phrase undergoes movement for scope.

6.3.2 LF Pied-Piping

As mentioned in the previous section, English observes the Subjacency effect, whereas Korean does not. It has been claimed by some researchers (Choi 1987; Nishigauchi 1990) that the LF pied-piping analysis accounts for the lack of the Subjacency effects at LF in Korean and Japanese. In (18), Subjacency is violated because *nani* ‘what’ is related to the trace in the Comp position of the embedded clause across more than one bounding node, an S and an NP (Lasnik and Saito (1984)). Nonetheless, the sentence is legitimate.

- (18) Taroo-ga [nani-o teni ireta koto]-o sonnani okotteru-no?
 Taro-Nom what-Acc obtained fact-Acc so much be angry-Q
 ‘*What are you so angry about the fact that Taro obtained t?’

Choi (1987) claims that the apparent Subjacency violation in Japanese and Korean can be avoided if the whole NP headed by *koto* ‘fact’ moves along with *nani* to the higher Comp in LF in the above example. To support her argument, Choi notes the Pied-Piping Convention proposed by Ross (1967:116) for syntactic movement. An example is given in (19). In the example, it is *which boy* that is questioned, but the larger NP that dominates *which boy* is “pied-piped” to the sentence-initial position. Choi considers that this syntactic convention can be extended to LF.

- (19) Which boy's guardian's employer did we elect president?

The LF Pied Piping is schematically represented as in (21).

- (20) [[_{island} WH]_i [...t_i...]] (LF)

Choi and Nishigaush's view is that the LF pied-piping hypothesis is supported in question-answer pairs. According to them an entire *wh*-island, rather than a *wh*-phrase, is appropriate as an answer to *wh*-interrogative. See the example in (5), repeated as (21). The absence of the Complex NP constraint is explained by positing that the complex NP itself moves to the operator position, and thereby the matrix *wh*-scope reading is obtained.

(21) a. Mary-nun [[John-ekey **mwuess-ul** cwun] saram-ul] manness-ni?

Mary-Top John-Dat what-Acc gave man-Acc met-Q

'For what x, Mary met the man who gave John x?'

b. ?Chayk

book

c. [John-ekey chayk-ul cwun] saram.

[John-Dat boll-Acc gave] person

In spite of the consistent explanation for both English and Korean, the analysis does not offer definitive evidence for the absence of the island effect in both Korean and Japanese, because the wide *wh*-scope is available without being fed by LF pied-piping. Although Choi regards the answer (21b) as marginally grammatical, it seems to me that there is no difference in the two answers in acceptability.

Another empirical pitfall that the LF pied-piping hypothesis has is that it wrongly predicts that two elements can be coindexed at LF with respect to the binding condition C. If (22b) is the LF of (22a), John should be able to refer to *he* since John is not c-commanded by *he* by virtue of the LF pied-piping, which is not the case.

(22) a. Ku-nun [[John-ekey **mwuess-ul** cwun] saram-ul] manness-ni?

He-Top John-Dat what-Acc gave man-Acc met-Q

'For what x, John met the man who gave John x?'

b. [[John-ekey **mwuess-ul** cwun] saram-ul]_i ku-nun t_i manness-ni? (LF)

John-Dat what-Acc gave man-Acc he-Top met-Q

The LF pied-piping analysis also has a conceptual problem in that it is not in accordance with the economy principle according to which feature movement in Chomsky (1995) or feature checking via Agree at a distance in Chomsky (2000) is preferred.

Taken together, the pied-piping analysis offers an alternative to resolve the problematic overt-covert asymmetry in terms of locality, but has also some limitations in empirical and theoretical aspects. We thus need to reconsider whether LF pied-piping can be maintained.

6.3.3 Operator Movement and Q-Movement

In Korean and Japanese, it was argued that *wh*-in-situ is constrained by Subjacency, unlike its English counterpart where the scope of *wh*-in-situ is not constrained by Subjacency. An interesting fact has to do with the effect of an additional *wh*-phrase; If there is one *wh*-word outside of a *wh*-island, the in-situ *wh*-phrase can take matrix scope. The contrast between (23a) and (23b) illustrates a two-level movement involved in multiple questions: the first level is sensitive to Subjacency, which applies to S-structure movement, while the second level is not, which applies to covert movement.

(23) a. ??John-wa [Mary-ga **nani-o** katta kadooka] Tom-ni tazuneta-no?
 John-Top Mary-Nom what-Acc bought whether-Q Tom-Dat asked-Q
 ‘What did John ask Tom whether Mary bought?’

b. John-wa [Mary-ga nani-o katta kadooka] **dare-ni** tazuneta-no?
 John-Top Mary-Nom what-Acc bought-Q who-Dat asked-Q
 ‘Who did John ask Tom whether Mary bought what?’

As for the data of (23), Watanabe (1992) entertains the idea that what is moved in overt syntax is actually not a null *wh*-operator, but rather a *wh*-feature. Watanabe parallels Japanese with English by arguing that Japanese *wh*-questions involve movement of a phonologically empty operator to Spec CP in overt syntax. Under such an analysis English and Japanese differ minimally, in that in the former it is the entire *wh*-phrase that is attracted to C, whereas in the latter it is an empty operator originating in Spec DP that rises to Spec CP. That is, it is this invisible operator that undergoes overt movement to Spec CP. Since the overt null operator movement originates from the *wh*-phrase outside of the *wh*-island, this movement does not

cross the the *wh*-island. Accordingly, Watanabe follow the view that the subjacency condition applies to overt movement, not LF movement.

In his recent work, Watanabe (2006) claims that the *wh*-island effect in Japanese is an instance of minimality, suggesting that *wh*-elements are licensed via Agree. That is, his view is that the scope of in-situ *wh*-elements in Japanese are determined by agreement with a c-commanding Q-morpheme.

Hagstrom (1998) claims that what actually moves in Japanese is the question particle.⁶⁰ This operation is labelled Q-Movement. Hagstrom examines data in Sinhala, Japanese, and Okinawan and puts forth the proposal that the question marker in these languages moves to the surface position in the CP from a position adjacent to the in-situ *wh*-phrase. Hagstrom's (1998) proposal accounts for the ambiguous status of the *wh*-element (i.e., either an existential quantifier or a *wh*-phrase). In a *wh*-question the Q-feature on the C head attracts the Q particle, which rises to C, whereas in a yes-no question the *wh*-phrase remains in-situ.

Consider the sentences in (24a–c). Hagstrom takes the Japanese *ka* particle associated with the indefinite in (24a) to be the same as the *ka* in (24b-c). According to him, *ka* in (26b-c) has moved from the *wh*-word *nani* ‘what’ to its surface position (data from Hagstrom 1998).

(24) a. John-ga nani-**ka**-o katta
John-nom what-Q-acc bought
‘John bought something.’

b. John-ga nani-o kaimasita **ka**
John-nom what-acc bought.polite Q
‘What did John buy?’

c. John-ga [Mary-ga nani-o katta **ka**] sitteiru
John-nom Mary-nom what-acc bought Q know
‘John knows what Mary bought.’

⁶⁰ Kishimoto (2005) argues that the particle *de* in Sinhala undergoes either overt or covert movement, based on facts concerning the position of *de* and the interpretation of the *wh*-questions. According to him, what moves is a Q particle rather than a *wh*-phrase in Sinhala.

Following Hagstrom (1997) Miyagawa (2001) proposes that in English the Q-feature and the *wh*-feature situated on C determine pied-piping of the *wh*-phrase to Spec CP, whereas in Japanese the two features are morphologically separated: a *wh*-word contains a *wh*-feature and a question particle contains a Q-feature, so the two features are contained on separate LIs. Thus, in Japanese, the Q-feature on C agrees with the Q-particle and the EPP associated with the Q-feature triggers the raising of the Q-particle to C. The *wh*-feature is not on C but on T and satisfies the EPP-feature on T by moving to Spec TP.

6.3.4 Unselective Binding

Unselective binding, first developed by Heim (1982), is a mechanism that does not require movement at all; scoped elements are associated with one or more in-situ elements in their c-command domain. More precisely, in this approach, a Q on C (i.e. [wh]) serves as a binder for a *wh*-phrase in-situ; thereby *wh*-in-situ is licensed. Baker (1970) proposed coindexation to represent scope assignment of in-situ *wh*-phrases, and the mechanism is similar to Unselective Binding in the sense of Heim. Later, similar proposals have been developed by many researchers (Pesetsky 1987; Aoun and Li 1993; Tsai 1994; Chomsky 1995). Among them, Aoun and Li (1993) doubt a possibility of LF movement through examples in (25).

- (25) a. He only likes Mary. (He doesn't like Sue.)
 b. *Mary_i, he only likes t_i.
 c. *Who_i does he only like t_i?
 d. Who only likes whom?

As an alternative, they suggest that the scope of *wh*-in-situ is determined by the Qu-operator it is coindexed with, by arguing that in both English and Chinese in-situ *wh*-phrases do not move to the Spec of CP. This is schematized in (26).

- (26) a. [CP Q_{ij} [IP... WH_i ... WH_j ...]]
 b. [CP Q_i [CP Q_j [IP... WH_i ... WH_j ...]]
 c. [CP Q_j [CP Q_i [IP... WH_i ... WH_j ...]]

The scope of an in-situ *wh*-phrase in Chinese is explained by Unselective Binding as the English translations indicate (Aoun and Li 1993). That is, the lack of *wh*-island effects is explained by the Unselective Binding theory. Consider below.

(27) Ta xiang-zhidao shei maile shenme?

He wonders who bought what?

‘What does he wonder who bought?’

‘Who does he wonder bought what?’

‘He wonders who bought what.’

Similarly Bošković (1998) claims that an in-situ *wh*-phrase in French and English is also accounted for by the Unselective Binding approach. The [uwh] in C in the matrix is checked by the higher *Qui* in French and *who* in English, and the scope of the in-situ *wh*-phrase is determined by Unselective Binding. See below.

(28) a. Qui croit que Marie a vu qui?

Who believes that Marie has seen whom?

b. Who wonders whether Peter bought what?

Thus, Unselective Binding seems to be a better account than LF movement in that the former overcomes the conceptual problem of the overt/covert movement asymmetry in the LF approach. Also, Unselective Binding seems to be preferred over movement given that movement is a last-resort operation that occurs with a view to converge at the interfaces of grammar.

Note, however, that like in LF movement, the Subjacency effect still arises in Unselective Binding as well, as can be seen from the contrast between repeated as (29a) and (29b). If the Q-operator associated with arguments can be base-generated at matrix CP and binds the *wh*-arguments, we would not expect the contrast.

(29) a. ?? John-wa [Mary-ga **nani-o** katta kadooka] Tom-ni tazuneta-no?

John-Top Mary-Nom what-Acc bought-Q Tom-Dat asked Q

‘What did John ask Tom whether Mary bought?’

- b. John-wa [Mary-ga nani-o katta kadooka] **dare-ni** tazuneta-no?
 John-Top Mary-Nom what-Acc bought-Q who-Dat asked Q
 ‘Who did John ask Tom whether Mary bought what?’

Moreover, Unselective Binding cannot apply to *wh*-adjuncts, but only to *wh*-arguments, because *wh*-adjuncts cannot play a role in binding variables, unlike *wh*-arguments (Tsai 1994). That is, the problem of the asymmetry between *wh*-arguments and *wh*-adjuncts in locality still seems to remain in the unselective binding approach, as shown in (30).

- (30) a. Mary-nun [[John-ekey **muwess-ul** cwun] namca-lul] manss-ni?
 Mary-Top John -Dat what-Acc gave man-Acc meet-Q
 ‘For which thing x did Mary meet a man who gave x to John?’ (Complex NP Island)
- b. *Ne-nun [[ke-ka **way** ssun] chayk]-ul ikess ni?
 You-Top he-Nom why write book-Acc read -Q
 ‘You read book that he wrote why?’ (Adjunct Island)

A similar observation is found in English in (31). Aoun and Li (1993) view the grammatical difference between ‘what’ and ‘why’ as the possibility of co-indexing between an operator and an in-situ *wh*-phrase, that is, so-called absorption, as shown in (32).

- (31) a. He wonders who saw what.
 b. *He wonders who saw why.
- (32) a. He wonders [who_i] [t_i saw what $_j$]
 b. *He wonders [who_i Qu $_j$ [t_i saw why $_j$]]

According to them, the reason that *who* and *what* can be coindexed is that they belong to the same type, i.e. individuals, which results in absorption. But *who* and *why* cannot be co-indexed because *why* belongs to another type, i.e. predicated, which results in double complementizer fillers. Therefore, the Unselective Binding theory does not seem to provide a uniform account of *wh*-words.

What is interesting is that other *wh*-adjuncts such as ‘when’ and ‘where’ can occur with ‘who’, indicating that the analysis also has a limitation in terms of an empirical aspect (data from Hornstein 1995). These aspects cast doubt on what the theoretical ground for the absorption analysis is.

- (33) a. *Who met the man why?
b. Who met the man where?
c. Who met the man when?

On the other hand, Reinhart (1998) argues that there is in fact no LF *wh*-movement involved in *wh*-in-situ questions (see also Simpson 1995, 2000)⁶¹, pointing out that given the notion of economy (Chomsky 1991), we would not expect (34) to be ambiguous.

(34) Who knows where to find what?

The in-situ *wh*-word *what* in (34) can have either embedded or matrix scope (i.e., associated with either where or who). If *wh*-movement is involved, we do not expect the different scope interpretations given economy considerations. Reinhart (1998:34) states this as follows.

“...Subjacency is a general constraint on Move and there can be no difference in this respect between phonetically visible and invisible movement. If *wh*-in-situ does not show Subjacency effects, this cannot be dealt with through statements about properties of LF movement; rather, it indicates that they don’t move.”

Reinhart (1998) argues that Unselective Binding suffers from the inability to correctly capture possible interpretations, and proposed the alternative mechanism of *choice functions*.⁶²

⁶¹ Reinhart (1998), pointing out unselective binding’s inability to capture possible interpretations, proposed the alternative mechanism of *choice functions*.

⁶² The details of these methods are not important for the purposes of this dissertation but suffice it to say that both unselective binding and choice functions predict insensitivity to islands without covert movement.

6.4 A Phase-Theoretic Approach to *WH*-Scope

6.4.1 Asymmetry between *Wh*-arguments and *Wh*-adjuncts in Islands

In the previous section we reviewed several existing theories of *wh*-in-situ, such as LF phrasal movement, operator movement, and Unselective Binding. We also observed that those accounts have limitations to apply to scope interpretation of in-situ *wh*-phrases; LF movement cannot account for the asymmetry between overt and covert movement in Subjacency effects. Unselective binding cannot accommodate the effects either. The other types of movement approaches (e.g., LF pied-piping, null operator-movement, Q-movement) seem unnecessary in terms of economy. The discussion leads us to take a different approach to account for the Korean data. Therefore, I would like to offer a unified analysis for both island effects and long distance *wh*-scope agreement phenomena observed in Korean *wh*-constructions. With respect to the above Korean data, the following question arises: how can a wide-scope in-situ *wh*-phrase be accounted for by phase theory, given that an in-situ *wh*-phrase and the relevant C may be in different domains (i.e., different phases)?

Returning once again to Chomsky's proposal, in order to implement Agree a goal must be in a closest c-command domain of a relevant head; thus, agreement relations are typically highly local. Therefore, we face the issue of how long-distance *wh*-agreement relations can be established between a licensing head and a *wh*-phrase in an embedded clause. At first, the PIC does not seem to capture long-distance agreement scope phenomena because it is a strong cyclicity constraint: the *wh*-phrase within the embedded clause is spelled out when the matrix C is merged according to the PIC, rendering it impossible for the *wh*-phrase to have matrix scope, as shown in (35).

(35) [CP2 [_v*P1 [CP1 [_v*P [VP **WH...**]] ko]...] ... **ni**]

Concerning the first issue, the notion of the PIC may straightforwardly predict the illegitimacy of islands that contain the *wh*-phrase 'why' in (6), repeated as (36). According to the PIC, once the embedded CP is spelled out, a probe on matrix C cannot Agree with a goal in the domain of CP; as a result, movement cannot take place. Hence, the sentences in (36a-b) are ruled out.

(36) a. *Mary-nun [[John-ekey i chayk-ul **way** cwun] saram-ul] mannass-ni?

Mary-Top John-Dat this book-Acc why gave man-Acc met-Q

‘Why did Mary meet the man who gave this book to John ?’ (Complex NP Island)

- b. *Mary-nun [John-i i chayk-ul **way** sasski ttamune] cohahass-ni?
Mary-Top John-Nom this book-Acc why bought because liked-Q
‘What did Mary leave because John liked (it)?’ (Adjunct Island)

In Uriagereka’s theory of Multiple Spell Out (MSO), the illegitimacy is explained in a way that since adjuncts clauses, complex NPs, and so on, are formed separately from other elements in a clause, complete syntactic objects are spelled-out before they are merged with other elements in a syntactic structure. However, Uriagereka’s theory wrongly predicts that *wh*-arguments in islands in Korean are also spelled out and consequently cannot enter Agree with a matrix C head. Considering the sentences in (5), repeated as (37), the *wh*-arguments are immune to islands: hence, the sentences in (37a-b) are ruled in. Then how do we account for the fact that *wh*-arguments can remain in islands?

- (37) a. Mary-nun [[John-ekey **mwuess-ul** cwun] saram-ul] manness-ni?
Mary-Top John-Dat what-Acc gave man-Acc met-Q
‘For what x, Mary met the man who gave John x?’ (Complex NP Island)

- b. Mary-nun [John-i **mwuess-ul** sasski ttamune] coahass-ni?
Mary-Top John-Nom what-Acc bought because liked-Q
‘For what x, Mary liked because John bought x?’ (Adjunct Island)

It appears that the operation Agree may or may not be subject to locality effects since *wh*-arguments and *wh*-adjuncts behave differently in the same constructions. The different behaviour can be found in overt movement of a *wh*-phrase out of islands. Consider below.

- (38) a. ***Way** Mary-nun [[John-ekey i chayk-ul t_i cwun] saram-ul] manness-ni?
Way Mary-Top John-Dat this book-Acc gave man-Acc met-Q
‘Why did Mary meet the man who gave this book to John ?’ (Complex NP Island)

- b. ***Way** Mary-nun [John-i i chayk-ul t_i sasski ttamune] cohahass-ni?
Way Mary-Top John-Nom this book-Acc bought because liked-Q

‘Why did Mary like because John bought this book?’ (Adjunct Island)

(39) a. (?)**Mwuess-ul** Mary-nun [[John-ekey t_i cwun] saram-ul] mannass-ni?
What-Acc Mary-Top John-Dat gave man-Acc met-Q
‘For what x, Mary met the man who gave John x?’ (Complex NP Island)

b. (?)**Mwuess-ul** Mary-nun [John-i t_i sasski ttamune] coahass-ni?
Mary-Top John-Nom what-Acc bought because liked-Q
‘For what x, Mary liked because John bought x?’ (Adjunct Island)

To account for the apparent asymmetry between *wh*-arguments and *wh*-adjuncts in islands in Korean, I thus take a position that *wh*-arguments in islands can still achieve long distance agreement with a matrix C head via feature movement.⁶³

Having explained the asymmetry in *wh*-arguments and *wh*-adjuncts concerning the island effect, in the remaining sections, I return to the second issue, a long-distance scope agreement between in-situ *wh*-arguments and a matrix C head, in more detail. I would like to put forward an analysis that builds on Chomsky’s (2000) treatment of Agree (see also Watanabe 2006), which rests on the idea that, typically, agreement relations are highly local. From this perspective, long-distance *wh*-scope follows local steps of agreement in a successive cyclic fashion (cf. Legate 2005). That agreement relations are highly local is supported by

⁶³ To account for the apparent asymmetry between *wh*-arguments and *wh*-adjuncts in islands, one may assume that the *wh*-scope licensing mechanism for *wh*-arguments is different from that for *wh*-adjuncts under the assumption that DP is a phase, and the D head bearing an operator feature Q licenses matrix *wh*-scope of *wh*-arguments. This means that in the case of *wh*-arguments, a local operation for the *wh*-scope licensing can take place before complete syntactic objects are spelled out. Otherwise, the element in the spell-out domain cannot enter an Agree relation with a higher head outside of the islands, since the adjunct clauses and complex NPs do not have licensing C heads, unlike *wh*-phrases in other subordinate clauses (e.g., complement clauses). In contrast to *wh*-arguments, *wh*-adjuncts in islands cannot have an Agree relation with the D head since they inherently take matrix scope only. Along this reasoning, it can be suggested that the D head bearing an operator feature Q takes the role of licensing matrix scope in the adjunct clauses or complex NPs, such that the [uwh] feature of a *wh*-argument is checked in-situ by the operator feature Q within the D in the islands. In this way, a unified account can be offered for why *wh*-arguments, unlike *wh*-adjuncts, can appear in islands. In the case of sentences in which both a *wh*-argument and a *wh*-adjunct are in islands, we may consider Grewendorf’s (2001) view that the *wh*-adjunct may be licensed through adjunction to a *wh*-argument in a higher position than the *wh*-adjunct. That is, the ordering of an argument *wh*-phrase and an adjunct *wh*-phrase is island-insensitive. In Grewendorf’s analysis, the u[Wh] of the *wh*-phrase(s) checked by the [Q] of the DP and then the u[Q] of the C is valued by the [Q] of the DP. I leave this issue open.

Korean Q-morphemes. Recall from (1-2) that the matrix clause question morpheme *-no* induces direct questions, and *-na* induces indirect questions. Moreover, if a *wh*-phrase is contained in a clause with the Q-morpheme *-ci*, the matrix clause cannot have the Q-morpheme, *-no*, and as a result it cannot be a *wh*-question. For this fact, I suggest that an agreement relation has been already established between the in-situ *wh*-phrase and *-ci*. See below.

(40) a. John-un [Mary-ka mwuess-ul sassnun-ci] malhass-**na**?

John-Top Mary-Nom what-Acc bought Q said Q

b. *John-un [Mary-ka mwuess-ul sassnun-ci] malhass-**no**?

John-Top Mary-Nom what-Acc bought Q said Q

In addition, local steps of the operation Agree can account for the *wh*-island in (7a), which is repeated here as (41).

(41) a.??John-un [Mary-ka **mwuess-ul** sassnun-ci] Tom-ekey mules-ni?

John-Top Mary-Nom what-Acc bought whether Tom-Dat asked Q

‘What did John ask Tom whether Mary bought t?’

Our task, then, is to devise a mechanism for C to Agree with an element in the phase domain, so that an uninterpretable feature of a goal, an in-situ *wh*-phrase and a probe, a matrix C head can be valued before undergoing *transfer* for Spell-Out and interpretation.

Leaving the possibility that the reviewed accounts will be sustained across the languages and language internal variation, I will develop an analysis of *wh*-scope agreement based on Korean facts in a way that a general condition on derivations requiring the concept of local domain is guaranteed. In doing so, I adopt an economy-based approach (Chomsky 1995, 2000) and propose a non-movement approach for local agreement (i.e., Agree) within a clause and a feature-based movement approach for long distance agreement across clauses. This is in line with the widely accepted view that Agree is less costly than derivations which involve Move, and feature movement is less costly than phrasal movement. Although in the framework of Chomsky (2000, 2001), where feature movement is completely replaced by

Agree, feature movement seems to be required in Korean in order to explain long distance scope agreement relations.

6.4.2 Long Distance Scope Agreement: *WH*-Scope, Agree and Phases

Recall that if an Agree relation between a Probe and a Goal is established, unvalued features can be deleted by being sent off to the interface and deleted at the point of *Transfer*. The domain subjected to Transfer becomes inaccessible to further syntactic operations due to the PIC, which permits operations outside a phase to have access only to the head of the phase and to its edge. Via Agree, a valued feature becomes visible to *Multiple Transfer*. If a feature remains unvalued, this feature will be invisible to Multiple Transfer. It then follows that it will not be transferred, violating Full Interpretation.

Based on the above data from Korean in section 6.1, the observed long distance *wh*-scope agreement can be explained if we assume the following conditions on syntactic operations.

- (42) a. F carries along just enough material for convergence (Chomsky 1995:262)
- b. Agree and Move are constrained by locality conditions (Chomsky 2000, 2001, 2004)
- c. (Both Internal and external) Merge is uniformly triggered by EF in C (Chomsky 2004)

Given (43), scope agreement applies cyclically on the basis of information contained at the level of the syntactic phase. To see how this proposal works, let us look at the cyclic agreement mechanism in more detail.

With this assumption, following Chomsky I assume that the probe in C is an uninterpretable Q-feature and the goal *wh*-phrase contains a set of an interpretable Q-feature and an uninterpretable *wh*-feature which makes the Q-feature active for movement. This is schematically represented in (44).

(44) Feature Valuation

$$C [uQ] \text{ DP } [iQ] [uwh: _] \rightarrow C [uQ: iQ] \text{ DP } [iQ] [uwh: iwh] \text{ (} wh\text{-question)}$$

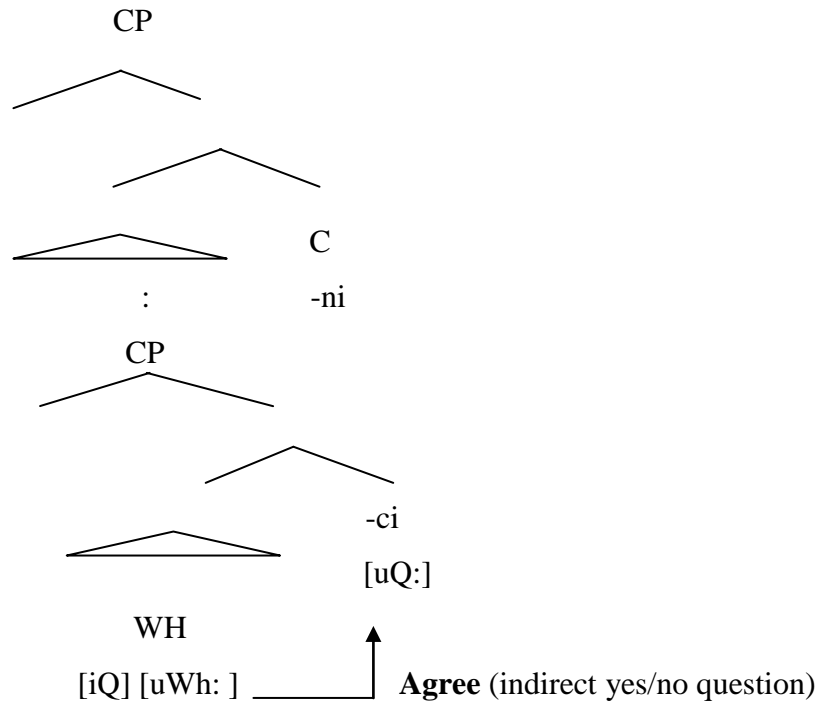
Under the probe-goal system, the Korean interrogative *-ci* morpheme in an intermediate clause involves the Agree operation, resulting in a narrow scope and the declarative *-ko*

morpheme in an intermediate clause involves feature copy and the Agree operation, resulting in a wide scope. In the latter case, *-ko* mediates local agreement between an embedded *wh*-phrase and its licensing head in a matrix clause in a way that features on the *wh*-phrase are percolated up to the intermediate clause. This in turn would lead to the following generalization in the probe-goal system a la Chomsky.

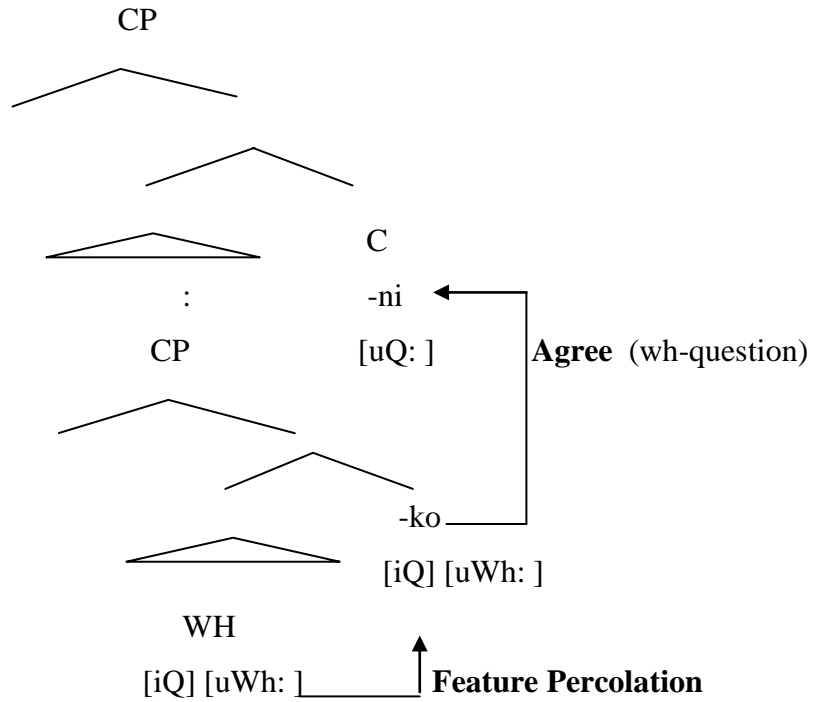
(45) The Probe-Goal Relations Underlying *Wh*-scope Agreement in Bi-Clauses

- a. *Wh*-phrases in an embedded clause introduced by ‘*-ci*’, which encodes indirect question, involve Agree
- b. *Wh*-phrases in a matrix clause introduced by ‘*-ni*’, which encodes direct question, involve feature movement followed by Agree

(46a=45a)



(46b=45b)



Looking at the feature valuation process for an embedded scope, ‘what’ is bound by *-ci* via Agree, as shown in (47a) and consequently, that *wh*-in-situ cannot take scope outside embedded questions follow immediately, as shown in (47b). The unavailability of wide scope suggests that the Q-morpheme, *-ci* in the embedded clause functions as a barrier, such that the matrix Q-morpheme, *-ni* bearing [iQ] as default value cannot affect scope of the embedded *wh*-phrase.

(47) a. [CP1 [*v**P1 [CP2 [*v**P2 WH ... *v**]... [C2 *ci*]] ... *v**]

[iQ][uwh:_] [uQ]

Locally bound

b. [CP1 [*v**P1 [CP2 [*v**P2 WH... *v**]... [C2 *ci*]] ... *v**] ... [C1 *ni*]]

Transferred and not Accessible

That a probe, matrix C, cannot Q-agree with a goal, *wh*-phrase means that [uwh] is already checked and valued by the embedded C with [uQ] is captured by the Inactivity Condition in (47).

(48) **Inactivity Condition** (Chomsky 2008)

If a nominal element DP or NP is inactivated, with all its uninterpretable features valued by Agree, then it cannot enter into further computations.

In this way, we can account for constructions such as (1), repeated here as (48), in which the in-situ *wh*-phrase cannot have matrix scope.

- (49) John-un [Mary-ka mwuess-ul sassnun-ci] kiyeokha-ni?
John-Top Mary-Nom what-Acc bought-Q remember-Q
‘Does John remember what Mary bought?’

Let us now turn to the valuation process for long distance *wh*-scope agreement. Assuming that the Korean declarative complementizer *-ko* is not a scope barrier, I suggest that the embedded *wh*-element can take matrix scope because a *u[wh]* on a goal does not Agree with *C* headed by *-ko* without a *Q* feature, as shown in (51a).⁶⁴ That is, the intermediate head does not have a relevant feature which matches a feature on a goal in its local domain. In this respect, the Korean declarative complementizer *-ko* has a defective *Q*-morpheme, which allows the in-situ *wh*-phrase to Agree with the matrix *C* head. Thus, *Q*-features and the features of the *wh*-phrase are transmitted to *-ko* on phase-head *C*₂, in the step of (50b), and then in turn the [*iQ*] of *C*₂ value the [*uQ*] on the *C*₁ when *C*₁ is merged, and the [*uwh*] of the *C*₂ is valued as a reflex, in the step of (49c).

- (50) a. [CP₁ [*v**P₁ [CP₂ [*v**P₂ mwuess-ul ... *v**]... [C₂ *ko*]]... *v**]

[*iQ*][*uwh*:_]

Defective Intermediate C

- b. [CP₁ [*v**P₁ [CP₂ [*v**P₂ mwuess-ul ... *v**]... [C₂ *ko*]] ... *v**]

[*iQ*][*uwh*:_] [*iQ*][*uwh*:_]

Feature Percolation

- c. [CP₁ [*v**P₁ [CP₂ [*v**P₂ mwuess-ul ... *v**]... [C₂ *ko*]] ... *v**] ... [C₁ *ni*]]

[*iQ*][*uwh*:_] [*iQ*][*uwh*:*iwh*] [*uQ*:*iQ*]

Feature Valuation via Intermediate C

⁶⁴ Depending on what types of morpheme are used in the embedded clause with respect to sentence type, the matrix sentences can be interpreted as a *wh*-question or a yes/no questions (Suh 1989).

The scope readings in (51-52) further confirms that features of the embedded *wh*-phrases are transmitted to the intermediate C and then Agree takes place between the intermediate C and the matrix C. The *wh*-scope is determined when the matrix C is merged and the relevant Q-morpheme is merged. It can be said that the C is in the unspecified state (Simpson 2000) in that it can take the *wh*-question morpheme, *-no*, or the yes/no-question morpheme, *-ni*. The long distance wide and narrow scope interpretations of (51) and (52) are schematically represented in (53), (54) and (55), respectively.⁶⁵

(51) John-un [Mary-ka mwuess-ul sassnun-ko] malhass-**ni**?
 John-Top Mary-Nom what-Acc bought C said Q
 ‘What did John say that Mary bought what?’

(52) a. Ni-nun [CP Swuni-ka edey kassta-ko] sayngkakha-**no**?
 You-Top Swuni-Nom where went- C think Q
 ‘Do you think Swuni went somewhere?’ (*Wh*-question morpheme *-na*)

b. Ni-nun [CP Swuni-ka edey kassta-ko] sayngkakha-**na**?
 You-Top Swuni-Nom where went- C think Q
 ‘Where do you think Swuni went?’ (Yes/no question morpheme *-no*)

(53=51) a. [CP1[v*P1[CP2[v*P2 mwuess-ul...v*]... [C2 ko]]]... v*]

[iQ][uwh:_]

Defective Intermediate C

b. [CP1 [v*P1 [CP2 [v*P2 mwuess-ul... v*]... [C2 ko]]]...v*]

[iQ][uwh:_]

[iQ][uwh:_]

Feature Percolation

c. [CP1[v*P1[CP2 [v*P2 mwuess-ul... v*]...[C2 ko]] ... v*] ... [C1 **ni**]

[iQ][uwh:iwh]

[uQ:iQ]

⁶⁵ Note that in (i), the fronted *wh*-phrase in the embedded clause can only Agree with the *wh*-question morpheme, ‘-no’

(i) Edey ne-nun [CP Swuni-ka t_i kassta-ko] sayngkakha-na-**a/o*?
 ‘Where do you think Swuni went?’

Agree: Feature Valuation via Intermediate C

(53a=51a) a. [CP1[v*P1[CP2[v*P2 mwuess-ul...v*]... [C2 ko]]... v*]

[iQ][uwh:_]

Defective Intermediate C

b. [CP1 [v*P1 [CP2 [v*P2 mwuess-ul... v*]... [C2 ko]]...v*]

[iQ][uwh:_]

[iQ][uwh:_]

Feature Percolation

c. [CP1[v*P1[CP2 [v*P2 mwuess-ul... v*]...[C2 ko]] ... v*] ... [C1 na]]

[iQ][uwh:iwh]

[uQ:iQ]

Feature Valuation via Intermediate C (yes/no question)

(53b=51b) a. [CP1[v*P1[CP2 [v*P2 mwuess-ul... v*]... [C2 ko]]... v*]

[iQ][uwh:_]

Defective Intermediate C

b. [CP1[v*P1 [CP2 [v*P2 mwuess-ul ... v*]...[C2 ko]]... v*]

[iQ][uwh:_]

[iQ][uwh:_]

Feature Percolation

c. [CP1[v*P [CP2 [v*P2 mwuess-ul ... v*]... [C2 ko]] ... v*] ... [C1 no]]

[iQ][uwh:iwh]

[uQ:iQ]

Agree: Feature Valuation via Intermediate C (wh-question)

Let us turn to *way* ‘why’ *wh*-constructions. Recall that the *wh*-adjunct *way* ‘why’ cannot remain in *wh*-islands. Contrast (6), repeated as in (54) where *way* is in islands with (55) where *way* is in complement clause. The contrast shows that the ungrammaticality of the sentence in (5) is not simply due to the property of *way* ‘why’ *wh*-phrases in and of itself, but due to the island effect. Then, the grammaticality of the sentence in (53) can be straightforwardly accounted for in the same manner as argument *wh*-phrases without stipulation in our schema.

(54) a. *Mary-nun [John-ekey i chayk-ul way cwun] saram-ul] manness-ni?

Mary-Top John-Dat this book-Acc why gave man-Acc met-Q

‘What did Mary meet the man who gave (it) to John?’

(Complex NP Island)

b. *Mary-nun [John-i i chayk-ul **way** sasski ttamune] cohahass-ni?
 Mary-Top John-Nom this book-Acc why bought because liked-Q
 ‘What did Mary leave because John liked (it)?’ (Adjunct Island)

(55) Mary-nun [John-i ku chayk-ul **way** sassta-ko] sangkakha-ni?
 Mary-Top John-Nom the book-Acc why bought-C think-Q
 ‘What is the reason x such that Mary thinks that John bought the book?’

The same analysis can be applied to the English multiple *wh*-constructions. In (10), repeated as in (56). The in-situ *wh*-phrase, ‘which book’, can take matrix *wh*-scope. Such an interpretation, however, cannot be expected if the probe on the matrix C cannot have an Agree relation with the embedded *wh*-phrase. In our proposed analysis, the features of an in-situ *wh*-phrase move to the matrix clause to form a Spec-head configuration, obeying the PIC.

(56) Which student knows where Mary bought which book?

In what follows I would like to offer some consequence of this analysis: the phase analysis can be extended to account for the more complex facts of in-situ *wh*-phrases in Korean. Let us see how the approach applies to the data.

6.5. Additional Evidence

We demonstrate the empirical advantages of adopting feature percolation to accommodate scope interpretations for in-situ multiple *wh*-elements and the *wh*-island effect.

6.5.1 Multiple *Wh*-Phrases, Scope and Economy

The u[Q] of the C as a probe can enter into Multiple Agree (Hairaiwa 2000; Chomsky 2004) with the two goals *wh*-phrases and thereby the scope of the two *wh*-phrases is determined by the valuation of the probe C that plays the role of the scope-marker. Given Multiple Agree, the availability of a wide-scope reading for the embedded *wh*-objects is due to simultaneous feature valuation.

(57) John-un [Mary-ka **nwukwu-ekey mwuess-ul** cwuessta-ko] sangkakha-ni ?
 John-Top Mary-Nom who-Dat what-Acc gave-COMP think-Q
 ‘To whom did John say that Mary bought what?’

(58) a. [CP1 [v^* P1 [CP2 [v^* P2 nwukwu-ekey mwuess-ul]...[C2 ko]] v^*]
 [iQ][uwh:_] [iQ][uwh:_]

Defective Intermediate C

b. [CP1 [v^* P1 [CP2 [v^* P2 nwukwu-ekey mwuess-ul...]]...[C2 ko]] v^*]
 [iQ][uwh:_] [iQ][uwh:_] [iQ][uwh:_] [iQ][uwh:_]

Feature Percolation

c. [CP1 [v^* P1 [CP2 [v^* P2 nwukwu-ekey mwuess-ul...]]...[C2 ko]] v^*] ... [C1 **ni**]
 [iQ][uwh:iwh] [[iQ][uwh:iwh] [uQ:iQ]

Multiple Agree: Feature Valuation via Intermediate C

Consider now a potential problem for the cyclic analysis of *wh*-scope posed by facts in multiple *wh*-interrogatives, such as (60), where *wh*-phrases belong to different clauses. As we have noted above, the embedded declarative clause ending with *-ko* enables the embedded *wh*-phrase to take wide scope. However, if there is an additional *wh*-phrase in a higher clause, the embedded *wh*-phrase can be interpreted as an existential quantifier.

(59) a. John-un **nwukwu-ekey** [Mary-ka **mwuess-ul sassta-ko**] malhass-ni ?
 John-Top who-Dat Mary-Nom what-Acc gave-COMP said-Q
 ‘To whom did John tell that Mary gave what?’
 ‘To whom did John tell that Mary gave something?’

My view is that the optional matrix scope of the embedded *wh*-phrase follows the Interface Economy Condition, stated in (60).

(60) **Interface Economy Condition** (IEC) (Chomsky 2000: 109; 2001: 34)

Optional operations can apply only if they have an effect on outcome.

6.5.2 Additional WH-Effects

Let us now consider (6), repeated as (61). Note that an additional *wh*-phrase inside the *wh*-island does not improve grammaticality, as shown in (61b). But an additional *wh*-phrase in the matrix clause rescues an embedded *wh*-phrase so that it can take matrix *wh*-scope, as shown in (61c).

(61) a. ??John-un [Mary-ka **mwuess-ul** sassnun-ci] Tom-ekey mules-ni?
 John-Top Mary-Nom what-Acc bought-Q Tom-Dat asked Q
 ‘What did John ask Tom whether Mary bought t?’

b. ??John-un [**nwu-ka** **mwuess-ul** sassnun-ci] Tom-ekey mules-ni?
 John-Top who-Nom what-Acc bought Q Tom-Dat asked Q
 ‘Who did John ask Tom whether *t* bought what?’

c. John-un [Mary-ka **mwuess-ul** sassnun-ci] **nwukwu-ekey** mules-ni?
 John-Top Mary-Nom what-Acc bought Q whom-Dat asked Q
 ‘To whom did John ask t whether Mary bought what?’

The inactivity condition of Chomsky predicts that the embedded in-situ *wh*-phrase in (61) cannot have long distance agreement with the matrix head beyond intermediate C once it has all its features valued with the intermediate C, as shown in (62). The question is then how to account for the additional *wh*-effects in (61c) which ameliorate the grammaticality of (62a-b).

(62) [CP₁ [v*P₁ [CP₂ [v*P₂ **mwuess-ul** ...]... [C₂ *ci*] ...] ... [C₁ ni]] (=54a-b)
 [iQ][uwh:iwh] [uQ: iQ]

Transferred and not Accessible

The additional *wh*-effect can be accounted for as follows. The fact that when there is a matrix *wh*-phrase agreeing with the matrix C, the embedded *wh*-phrase(s) can also agree with the matrix C head, amounts to saying that if there is a *wh*-element c-commanding the intervener, i.e., the scope barrier *-ci*, then grammaticality improves. That is, for the same scope, the matrix C can agree with the embedded *wh*-phrase. I posit that as far as the additional *wh*-effect is concerned, the *-ci* is no longer a barrier but rather functions as a defective complementizer, *-ko*, and

thereby causing multiple agree between the matrix C head and the two goals. This is schematically given in (64).

(63) a. [CP1 [v*P1[CP2 [v*P2 mwuess-ul v*]...[C2 ci]] nwukwu-ekey v*]...[C1 ni]] (=55c)
 [iQ][uwh:iwh] [iQ][uwh:iwh]

Feature Valuation

b. [CP1[v*P1[CP2 [v*P2 mwuess-ul v*]...[C2 ci]] nwukwu-ekey v*]...[C1 ni]] (=55c)
 [iQ][uwh:iwh] [uQ:iQ]

Agree: Feature Valuation via Intermediate C (Wh-question)

Recall that that the Q-morpheme *-ci* in the embedded clause functions as a barrier, such that the matrix Q-morpheme *-ni* morpheme cannot affect the scope of the embedded *wh*-phrase. What we observe here is the reverse condition where the matrix Q-morpheme *-ni* morpheme can affect scope of the embedded *wh*-phrase since, the embedded Q-morpheme *-ci* is no longer a scope barrier.

I propose that the competition between the clausal-final morphemes (i.e. *-ci* and *-ko*) generated in an intermediate clause can be resolved by the Elsewhere Condition as in Kiparsky (1982).⁶⁶ The condition is applied as follows.

(64) **The Elsewhere Condition on Scope Barriers:** the scope barrier *-ci* (and *-kaddoka* in Japanese) may be used as a (defective) non scope barrier on behalf of *-ko* in case there is an additional *wh*-effect.

Having mentioned (64), recall that the optional matrix scope of the embedded *wh*-phrase follows the Interface Economy Condition (cf. section 6.4.1). It would be reasonable to take the view that the Elsewhere Condition on Scope Barrier is a prerequisite for implementing the Interface Economy Condition.

⁶⁶ The Elsewhere Condition suggested by Kiparsky is a condition on rule application.

The Elsewhere Condition (Kiparsky 1982): Rule A and B in the same component apply disjunctively to a Form F if and only if: (i) the structural description of A (special rule) properly includes the structural description of B (general rule), and (ii) the result of applying of A to F is distinct from the result of applying of B to F. In that case, A applies first, and if it takes effect, then B is not applied.

6.6 Summary

This chapter has presented the scope phenomena of in-situ *wh*-phrases in *wh*-constructions. I hope I have offered a novel way of approaching the Korean long distance *wh*-scope phenomena, by showing the one-to-one correspondence between syntactic structure and semantic interpretation that satisfies the economy of interpretation. In doing so, I proposed a local modelling of a non-local dependency that establishes a long distance *wh*-scope agreement relationship, a mechanism of indirect Agree mediating between a licensing head and *wh*-elements in an embedded clause aided by a hypothesis that the Korean question morpheme enters into an Agree relation with a *wh*-phrase in its local c-command domain. I further proposed that the matrix scope of an embedded *wh*-phrase is blocked by the Inactivity Condition (Chomsky 2008) when the intermediate clause bears *-ci*, and optional matrix scope of an embedded *wh*-phrase regulated by Interface Economy Condition. I therefore concluded that the Korean *wh*-scope facts in question can be given a principled explanation if we assume that long distance *wh*-scope agreement is a result of a strict cyclic Spell-Out at the level of the syntactic phase.

CHAPTER 7

CONCLUSION

There have been various issues and proposals concerning *wh*-in-situ since the 1980s. This dissertation focused on the issue of locality effects that regulates long distance movement and long distance scope agreement of *wh*-phrases in Korean, and attempted to offer a unified account of movement and the scope interpretation in Korean *wh*-in-situ from a minimalist perspective. In particular, the dissertation discussed issues including long-distance *wh*-scrambling, superiority effects in multiple *wh*-constuctions, the relation between verb movement and long distance superiority, and *wh*-scope interpretation of in-situ *wh*-phraes in Korean.

Chapter 3 conveyed the idea that left periphery movement of a *wh*-phrase in Korean is not a uniform operation. In doing so, I introduced the two empirical phenomena that have been central in the analysis of (*wh*-) scrambling: reconstruction effects and semantic effects. Additionally, I showed that movement of a *wh*-phrase in a Korean dialect is similar to English *wh*-movement in that there is an agreement phenomenon between *wh*-phrases and *wh*-question morphemes, and moved *wh*-phrases take only the *wh*-question morpheme *-no*. We thus proposed that both an operator movement (*wh*-movement) and a non-operator movement(*wh*-scrambling) in Korean are uniformly reduced to one single syntactic relation directly resulting from the internal Merge operation induced by an edge feature (Chomsky 2005/2008), although what exactly the edge feature is is an issue that requires further investigation.

Chapter 4 examined which factors are involved in the resulting presence and absence of superiority effects in *wh*-movement. In addressing the question, I compared Korean with English and analysed superiority phenomenon in terms of derivation by phase. In Korean, *wh*-subjects do not obligatorily move to Spec, TP; whereas in English, *wh*-subjects simultaneously move to Spec, TP and Spec, CP, in compliance with Chomsky's idea that A and A'-bar can apply in parallel in the same phase. It was proposed that the different derivations brought about the absence of superiority effects in Korean (i.e., OSV) and the presence of superiority effects in English (i.e., SOV).

Chapter 5 discussed verb movement and long distance superiority effects across languages. It was shown that there was a correlation between the long superiority effect and verb movement in V-to-C languages, whereas there was no correlation between the long superiority effect and verb movement in head-final languages like Korean (and Japanese). Whether or not verb movement in Korean takes place at narrow syntax and why verb movement ameliorates or cancels the superiority effect in some languages under consideration in this chapter require further examination.

Chapter 6 concerned *wh*-scope interpretations between in-situ *wh*-phrases and the licensing heads (i.e, Q-morpheme) in Korean. Assuming that Korean question morphemes enter into an Agree relation with a *wh*-phrase in its local c-command domain, I proposed a local modelling of a non-local dependency, a mechanism of indirect Agree mediating a licensing head and *wh*-elements in an embedded clause via Agree and Feature Copy. I left the possibility that the reviewed existing accounts (e.g., LF phrasal movement, Unselective Binding, etc) in the chapter would be sustained across the languages as well as language internal variation.

This dissertation adopted a probe-goal approach to movement and agreement and proposed that in Korean, *wh*-scope agreement as well as *wh*-movement is subject to locality in accordance with the Phase Impenetrability Condition (PIC), in accordance with the local operation that the MP takes to be one of the vital properties of the faculty of language. We hope that further research will shed light on the various other issues brought up in this dissertation.

ABBREVIATIONS

A-P	Articulatory-perceptual system
ACC	Accusative
CIS	Clause Internal Scrambling
COMP	Complementizer
C-I	Conceptual-intentional system
CT	Contrastive Topic
DAT	Dative
DBP	Derivation by Phase
DO	Direct Object
ECP	Empty Category Principle
FI	Full Interpretation
FocP	Focus phrase
GB	Government and Binding Theory
[iF]	Interpretable Feature
IO	Indirect Object
LI	Lexical Item
v	Light Verb
LDS	Long Distance Scrambling
LF	Logical Form
MLC	Minimal Link Condition
MP	The Minimalist Program
MSO	Multiple Spell-Out
NEG	Negation
NOM	Nominative
P&P	Principles-and-Parameters (Theory)
PIC	Phase Impenetrability Condition
PF	Phonetic Form
PMC	Principle of Minimal Compliance
PST	Past Tense
Q	Question Marker
RM	Relativized Minimality
Spec	Specifier
SMT	Strong Minimalist Thesis
TOP	Topic
UG	Universal Grammar
[uF]	Uninterpretable Feature

REFERENCES

- Aoun, Joseph, and Yen-Hui. Audrey. Li. 1993. *Wh*-elements in situ: Syntax or LF? *Linguistic Inquiry*, 24:199-238.
- Bailyn, John. 2001. A (Purely) Derivational Approach to Russian Scrambling. In *FASL 11: the Amherst Meeting*, Michigan Slavic Publications, Ann Arbor, Michigan.
- Baker, C. L. 1970. Notes on the description of English questions: The role of an abstract question morpheme. *Foundations of Language* 6:197–219.
- Belletti, A, and Rizzi, Luigi. 1988. Psych-verbs and Θ -theory. *Natural Language and Linguistic Theory*, 6:291–352.
- Bruening, Benjamin. 2007. *Wh*-in-Situ Does Not Correlate with *Wh*-Indefinites or Question Particles. *Linguistic Inquiry* 38: 139-166.
- Bhattacharya Tanmoy and Simpson Andrew.2003. Obligatory Overt *Wh*-Movement in a *Wh*-in-Situ Language. *Linguistic Inquiry*, 34(1):127-142.
- Boeckx, Cedric, and Stjepanovič, Sandra. 2001. Heading toward PF. *Linguistic Inquiry*, 32: 345-355.
- Bošković, Željko. 1999. On Multiple Feature Checking: Multiple *Wh*-Fronting and Multiple Head Movement. S. D. Epstein and N. Hornstein (eds). *Working Minimalism*, pp. 159-188. Cambridge, Mass: MIT Press.
- Bošković, Željko. 2002. On Multiple *Wh*-Fronting. *Linguistic Inquiry*, 33(3): 351-385.
- Brody, Michael. 1995. *Lexico-logical form*. Cambridge, Mass.: MIT Press.
- Bruening, Benjamin, and Tran, Thuan. 2006. *Wh*-questions in Vietnamese. *Journal of East Asian Linguistics*, 15: 319-341.
- Bruening, Benjamin. 2007. *Wh*-in-situ does not correlate with *wh*-indefinites or question particles. *Linguistic Inquiry*, 38: 139-166.
- Cable, Seth. 2007. *The grammar of Q: Q-particles and the nature of wh-fronting, as revealed by the wh-questions of Tlingit*. Ph.D. Dissertation. Massachusetts Institute of Technology.
- Cheng, Lisa. 1991. *On the typology of wh-questions*, PhD Dissertation, MIT, Cambridge, Mass.
- Cinque, Guglielmo. 1999. *Adverbs and Functional Heads: A Cross-linguistic Perspective*. New York: Oxford University Press.
- Choi, Ki-Young. 2003. Korean and head movement. *Studies in Generative Grammar*, 13: 119-

- Choi, Young-Sik. 2002. *Asymmetry of Scope Taking in Wh-Questions*. Ph.D. Dissertation, University of Southern California, Los Angeles.
- Citko, Barbara. 2008. Missing labels. *Lingua*, 118:907–944.
- Choe, Jae-Woong. 1987. "LF *WH*-Movement: A Case of Pied Piping. *Linguistic Inquiry*. 18: 348–353.
- Choi, Hye-Won. 1996. *Optimizing Structure in Context: Scrambling and Information Structure*. Ph.D. Dissertation. Stanford University.
- Chomsky, Noam. 1973. Conditions on Transformations. In Anderson, S. and Kiparsky, P. (Eds.), *A Festschrift for Morris Halle*. New York: Holt, Rinehart and Winston.
- Chomsky, Noam. 1981. *Lectures on Government and Binding*, Foris, Dordrecht.
- Chomsky, Noam. 1986. *Barriers*. Cambridge: MIT Press.
- Chomsky, Noam. 1995a, *The Minimalist Program*, Cambridge, Mass.: MIT Press.
- Chomsky, Noam. 1995b, "Bare Phrase Structure", in G. Webelhuth, ed., *Government and Binding Theory and the Minimalist Program*, Oxford: Blackwell.
- Chomsky, Noam. 2000. 'Minimalist Inquiries: the framework.' In Roger Martin, David Michaels and Juan Uriagereka (eds.) *Step by Step: Essays in Minimalist Syntax in Honor of Howard Lasnik*, pp. 89-156. Cambridge, Mass.: MIT Press.
- Chomsky, Noam. 2001. 'Derivation by phase.' In Michael Kenstowicz (ed.) *Ken Hale: a life in language*, pp. 1-52. Cambridge, Mass.: MIT Press.
- Chomsky, Noam. 2004. 'Beyond explanatory adequacy.' In Adriana Belletti (ed.) *Structures and Beyond: The Cartography of Syntactic Structures*. Oxford: Oxford University Press, pp. 104-131.
- Chomsky, Noam. 2005. Three Factors in Language Design. *Linguistic Inquiry*, 36:1-22.
- Chomsky, Noam. 2008. 'On phases.' In Robert Freidin, Carlos Otero and Maria Luisa Zubizarreta (eds.) *Foundational issues in linguistic theory*. 133-166. Cambridge, Mass.: MIT Press.
- Collins, Chris, and Hoskuldur, Thrainsson. 1996. VP-internal structure and Object Shift in Icelandic. *Linguistic Inquiry*, 27, 391-444.
- Dayal, Veneeta. 2005. Multiple *Wh*-Questions. *The Blackwell Companion to Syntax*, ed. By Martin Everaert and Henk C. van Riemsdijk, pp. 275–326. Oxford: Blackwell.
- Den Dikken, M. 2007. Phase extension: contours of a theory of the role of head movement in phrasal extraction. Ms. CUNY Graduate Center.

- Diesing, Molly. 1992. *Indefinites*, MIT Press, Cambridge, MA.
- Donati, Caterina. 2006. On *wh*-head movement. L. Cheng and N. Corver (eds.). *Wh-Movement Moving On*, pp. 21-46. Cambridge, MA: MIT Press.
- Embick, David, and Noyer, Rolf. 2001. Movement Operations after Syntax. *Linguistic Inquiry*, 32: 555-598.
- Epstein, Samuel, Erich M. Groat, Ruriko Kawashima and Kitahara, Hisatsugu. 1998. *A Derivational Approach to Syntactic Relations*. Oxford University Press.
- Ernst, Thomas. 2002. *The Syntax of Adjuncts*. Oxford University Press.
- Fabian, Heck & Müller, Gregon. 2000. Successive cyclicity, long distance superiority, and local optimization. In *Proceedings of the 19th Annual West Coast Conference on Formal Linguistics*, pp. 218-231.
- Fanselow, Gisbert. 2001. Features, θ -roles, and Free Constituent Order. *Linguistics Inquiry*, 32(3):405-437.
- Fox, Danny. 2000. *Economy and semantic interpretation*. MIT Press.
- Frank, Robert, and K. Vijay-Shanker. 2001. Primitive c-command. *Syntax*, 4(3):164–204.
- Frank, Robert. 2007. Notes on phase extension. *Theoretical Linguistics*, 33(1):49–63.
- Fukui, Naoki and Sakai, Hiromu. 2003. The Visibility Guideline for Functional Categories: Verb Raising in Japanese and Related Issues. *Lingua*, 113: 321-375.
- Grebenyova, Lydia 2004. Superiority-Syntactic and Interpretive." *Proceedings of the West Coast Conference on Formal Linguistics*. ed. V. Chand, A. Kelleher, A. Rodriguez and B. Schmeiser, pp. 1-14. Somerville, MA: Cascadilla Press.
- Grewendorf, Günther. 2001. Multiple *wh*-fronting. *Linguistic Inquiry*, 32(1): 87–122.
- Grohmann, Kleanthes. K., Drury, John, and Castillo, Juan Carlos. 2000. No more EPP. In WCCFL 19: Proceedings of the 19th West Coast Conference on Formal Linguistics, ed. R. Billerey & B.D. Lillehaugen, 153-166. Somerville, Mass.: Cascadilla Press.
- Hagstrom, Paul.1997. Scope Interactions and Phrasal Movement in Korean Negation, in S. Kuno, et al. (eds.), *Harvard Studies in Korean Linguistics VII*, Cambridge, MA: Harvard University Department of Linguistics.
- Hagstrom, Paul. 1998. *Decomposing Questions*. Ph.D. Dissertation. MIT, Cambridge, MA.
- Han, Chung-hye, Jeffrey Lidz and Julien Musolino. 2007. Verb-raising and Grammar Competition in Korean: Evidence from Negation and Quantifier Scope. *Linguistic Inquiry*, 38:1, 1-47.
- Hiraiwa, Ken. 2000. "Multiple Agree and the Defective Intervention Constraint in Japanese",

- MIT Working Papers in Linguistics*, 40, pp. 67-80.
- Harley, Heidi. 2004. Merge, Conflation, and Head Movement: The First Sister Principle Revisited. *Proceedings of NELS*, 34: 239-254.
- Heim, Irene. 1982. *The Semantics of Definite and Indefinite Noun Phrases*. Ph.D. Dissertation, University of Massachusetts, Amherst. Published in 1988 by Garland, New York.
- Hoji, Hajime. 1998. Null object and sloppy identity in Japanese. *Linguistic Inquiry*, 29: 127-152.
- Holmberg, Anderson. 1999. Remarks on Holmberg's Generalization. *Studia Linguistica*, 53: 1-39.
- Holmberg, Anders, and Christer Platzack. 1995. *The Role of Inflection in Scandinavian Syntax*. Oxford: Oxford University Press.
- Hornstein, Nobert. 1995. *Logical form: From GB to minimalism*. Cambridge, Mass: Blackwell.
- Huang, C-T, James. 1982 *Logical Relations in Chinese and the Theory of Grammar*. Ph.D. Dissertation. MIT.
- Hwang, Hee.-Joo. 2007. *Wh-Phrase Questions and Prosody in Korean*. The 17th JK Linguistic Conference. UCLA. Los Angeles, CA.
- İşsever, Selcuk. 2008. "EPP-driven Scrambling and Turkish". *Ambiguity of Morphological and Syntactic Analyses*, (ed.) Tokusu Kurebito. Tokyo: Tokyo University of Foreign Studies (Research Institute for Languages of Asia and Africa [ILCAA]) Press, pp. 27-41.
- Jaeggli, Osvaldo. 1982. *Topics in Romance syntax*. Dordrecht: Foris.
- Jayaseelan, K. A. 2001. IP-internal Topic and Focus Phrases". *Studia Linguistica*. 55 (1): 39-75.
- Jayaseelan. K. A. 2003. Question words in focus positions. *Linguistic Variation Yearbook* 3, 6 9-99.
- Jayaseelan. K. A. 2004. Question Movement in Some SOV Languages and the Theory of Feature Checking. *Language and Linguistics*, 5(1):5-27.
- Jung, Yeun-Jin. 2002 . Scrambling, Edge Effects, and A/A'-Distinctict. *The Linguistic Association of Korea Journal*, 10(4), 41- 64.
- Kang, Dae.-Hyang. 2005. *Scrambling in Universal Grammar: an analysis of scrambling as optional movement in Korean and other languages*. Ph.D. Dissertation, Anglistik der Universitaet Stuttgart.
- Kim, Hak-Yeon. 2006. EF-feature and Wh-Scrambling. *Studies in Modern Grammar*, 44:71-89

- Kim, Kwang-Hyun. 2006. The Nature of Scrambling and *Wh*-movement in English and Korean. *The New Korean Association of English Language and Literature*, 48(2): 229-250.
- Kim, Soo-Won. 1991. *Chain Scope and Quantification Structure*. Ph.D. Dissertation, Brandeis University.
- Kim, Yeon-Seung. 2001. *Wh*-Agree vs. *Wh*-Licensing. *Studies in Generative Grammar*, 11: 97-150.
- Kim, Yeon-Seun. 2002. On the Nature of Focus Movement. *Studies in Modern Grammar*, 30: 109-134.
- Kiparsky, Paul. 1982. "Lexical Morphology and Phonology." In I.-S. Yang (ed.) *Linguistics in the Morning Calm*. Seoul, Hanshin.
- Kishimoto, Hideki. 2005. *Wh*-in-Situ and Movement in Sinhala Questions. *Natural Language & Linguistic Theory*, 23, pp. 1-51.
- Kitahara, Hisatsugu. 1997. *Elementary operations and optimal derivations*, Cambridge, Mass.: MIT Press.
- Kitahara, Hisatsugu. 2002. Scrambling, Case, and Interpretability. Samuel David Epstein and T. Daniel Seely (ed.). *Derivation and Explanation in the Minimalist Program*. Blackwell.
- Koizumi, Masatoshi. 2000. String Vacuous Overt Verb Movement. *Journal of East Asian Linguistics*, 9:227-285.
- Koopman, Hilda. 2005. Korean (and Japanese) Morphology from a Syntactic Perspective. *Linguistic Inquiry*, 36: 601-634.
- Kuno, Susumu, and Jane Robinson. 1972. Multiple *Wh*-Questions. *Linguistic Inquiry* 3: 463-48.
- Lasnik, Howard and Mamoru Saito. 1984. "On the Nature of Proper Government," *Linguistic Inquiry* 15: 235-289.
- Lasnik, Howard, and Mamoru Saito. 1992. *Move α : Conditions on its application and output*. Cambridge, MA: MIT Press.
- Lasnik, Howard. 1999. *Minimalist analysis*. Cambridge, MA: Blackwell publishing.
- Lasnik, Howard. 2002. *Feature movement or agreement at a distance?* In *Dimensions of movement: From features to remnants*, ed. By A. Alexidou, E & Anagnostopoulou, S. Barbiers, and H.-M. Gaertner, 189-208. Amsterdam: John Benjamins.

- Lasnik, Howard. 2007. Verbal morphology. Ž. Boškovič (eds.). *Minimalist Syntax: The Essential Readings*, pp. 263-287. Cambridge, MA: Blackwell publishing.
- Lee, Doo-Won. 2005. Phases and Successive Cyclic Movement. *Studies in Modern Grammar* 38, 53-70.
- Lee, Jung-Hun. 2004. *A study on the Grammatical Form and Syntactic Structures of Korean*. Ph.D. Dissertation. Sogang University. Korea.
- Lee, Man-Ki 2004. 'Scrambling and Information Structure.' *Harvard Studies in Korean Linguistics*, 11:617-630.
- Lee, Young-Suk. 1993. *Scrambling as case-driven obligatory movement*. Ph.D.Dissertation, University of Pennsylvania.
- Lee, Won-Bin, and Cho, Sung-Eun. 2003. Object shift and scrambling. *Studies in Generative Grammar* 13:39-59.
- Lebeaux, David. 1998. Where does the binding theory apply? MS, NEC Research Center, Princeton.
- Leagate, Julie. 2005. Phases and Cyclic Agreement. In Martha McGinnis & Norvin Richards (eds.), *Perspectives on Phases*. MITWPL.
- Longobardi, Giuseppe. 1994. References and Proper Names: A Theory of N-movement in Syntax and Logical Form. *Linguistics Inquiry*, 25, 251-275.
- Mahajan, Anoop Kumar. 1990. *The A/A-Bar Distinction and Movement Theory*. Ph.D. Dissertation. MIT.
- Mahajan, Anoop Kumar. 2000. Word order and (Remnant) VP Movement. Ms., UCLA.
- Matushansky, Ora. 2006. Head Movement in Linguistic Theory. *Linguistic Inquiry*, 37: 60-107.
- McCloskey, James. 2001. "Resumption, Successive Cyclicity and the Locality Operations," Ms., University of California, Santa Cruz.
- Miyagawa, Shigeru 1997 "Against Optional Scrambling", *Linguistic Inquiry*, 28, 1-25.
- Miyagawa, Shigeru. 2001. The EPP, Scrambling, and *Wh*-in.Situ. In: Knestowicz, M. *Ken Hale A Life in Language*. Cambridge: MIT Press, 272-293.
- Miyagawa, Shigeru. 2003. A-Movement Scrambling and options without optionality. In: Karimi, S. (ed.) *Word order and Scrambling*. Oxford/Berlin: Blackwell Publishers. 177-200.
- Miyagawa, Shigeru. 2005. EPP and Semantically Vacuous Scrambling. In *The Free Word Order Phenomenon: Its Syntactic Sources and Diversity*, ed. by Joachim Sabel and

- Mamoru Saito, 181-220. Berlin: Mouton de Gruyter.
- Moon, Gui-Sun. 1996. 'Syntactic *Wh*-Movement in Korean: Movement of Long Distance Scrambled *Wh*-phrases.' *Harvard Studies in Korean Linguistics*, pp. 369-382.
- Muller, Gereon and Wolfgang Sternfeld. 1994. Scrambling as A-bar movement. In Cover, N and van Riemsdijk, H. (eds.) *Studies on Scrambling. Movement and non-movement approaches to free-word-order phenomena*. 331-385. Berlin: Mouton de Gruyter.
- Muller, Gereon. 1997a. Partial *Wh*-Movement and Optimality Theory. *The Linguistic Review* 14: 249-306.
- Nemoto, N. 1993. *Chains and Case Positions: A Study from Scrambling in Japanese*. Ph.D. Dissertation. University of Connecticut.
- Nishigauchi, Taisuke. 1990. *Quantification in the Theory of Grammar*. Kluwer, Dordrecht.
- Nishigauchi, Taisuke. 2002. Scrambling and reconstruction at LF. *Gengo Kenkyu* 121:49-105.
- Nishiyama Kunio, Whitman John, and Yi Eun-Young. 1996. 'Syntactic Movement of Overt *Wh*-Phrases in Japanese and Korean.' *Harvard Studies in Korean Linguistics*, pp. 337-351.
- Nissenbaum, Jonathan. 2000. *Investigations of Covert Phrase Movement*, Ph.D. Dissertation, MIT.
- Otani, Kazuyo, and Whitman, John. 1991. V-raising and VP-ellipsis. *Linguistic Inquiry*, 22: 345-358.
- Park, Sun-Hyuck, and Lee Jee-Eu. 2006. Scope Interaction and Phrasal Movement in Korean Negation. In Susumu Kuno et al. (eds.), *Harvard Studies in Korean Linguistics VII*. Cambridge, MA: Harvard University and Seoul: Hanshin]
- Pesetsky, David. 1987. *Wh*-in-Situ: Movement and Unselective Binding. In: *The Representation of (In) definiteness*. Eric Reuland and Alice ter Meulen (eds.), 98-129. Cambridge: MIT Press.
- Pesetsky, David. 2000. Phrasal Movement and its Kin, *Linguistic Inquiry Monograph*, 37. Cambridge, Mass: MIT Press.
- Pintzuk, Susan. 1996. Cliticization in Old English. In Aaron L. Halpern and Arnold M. Zwicky, eds., *Approaching Second: Second Position Clitics and Related Phenomena*, Stanford: CSLI Publications.
- Pollock, Jean-Yves. 1989. Verb Movement, Universal Grammar and the Structure of IP. *Linguistic Inquiry* 20, 365-424.
- Reinhart, Tanya. 1998. *Wh*-in-situ in the Frame work of the Minimalist Program, *Natural*

- Language Semantics*, 6(1), 29-56.
- Richards, Norvin. 1997. *What moves where in which language?* Ph.D. Dissertation. MIT, Cambridge, Mass.
- Richards, Norvin. 2001. *Movement in Language: interactions and architectures*. New York: Oxford University Press.
- Rizzi, Luigi. 1990. *Relativized Minimality*. Cambridge, Mass.: MIT Press.
- Rizzi, Luigi, 1997. The fine structure of the left periphery. *Elements of Grammar: Handbook in Generative Syntax*, ed. By L. Hageman. Dordrecht: Kluwer.
- Rizzi, Luigi. 2004. Locality and left periphery. A. Belletti (eds.). *The Cartography of Syntactic Structures*, pp. 223-252. New York: Oxford University Press.
- Roberts, Ian. 2010. Agreement and Head Movement. Clitics, Incorporation, and Defective Goals. *Linguistic Inquiry Monographs*, 59. Cambridge, Massachusetts: MIT press.
- Ross, John. 1967. *Constraints on variables in syntax*. Ph.D. Dissertation, MIT.
- Rudin, Catherine. 1988. On multiple questions and multiple *wh*-fronting. *Natural Language and Linguistic Theory*, 6: 445-501.
- Rohrbacher, Bernhard. 1999. *Morphology-Driven Syntax: A theory of V to I raising and prodrop*. John Benjamins, Amsterdam.
- Sabel, Joachim. 2005. String-vacuous scrambling and the effect on output condition. In Henk van Riemsdijk, Jan Koster, and Harry van der Hulst (eds.), *The free word order phenomenon*, pp.281-334. Berlin, New York: Mouton de Gruyter.
- Saito, Mamoru. 1985. *Some Asymmetries in Japanese and their Theoretical Implications*. Ph.D. Dissertation, MIT.
- Saito, Mamoru. 1989. Scrambling as semantically vacuous A'-movement. *Alternative Concepts of Phrase Structure*, eds M.R. Baltin and A.S. Kroch. Chicago: The University of Chicago Press, pp. 182-200.
- Saito, Mamoru. 1992. Long distance scrambling in Japanese. *Journal of East Asian Linguistics*, 1:69-118.
- Saito, Mamoru, and Naoki. Fukui, 1998, "Order in Phrase Structure and Movement", *Linguistic Inquiry*, 29: 439-474.
- Saito, Mamoru. 2003. A derivational approach to the interpretation of scrambling chains. *Lingua*, 113:481-518.
- Saito, Mamoru. 2005. Further Notes on the Interpretation of Scrambling Chains. In: J. Sabel and M. Saito (eds.). *The Free Word Order Phenomenon*. Berlin: Mouton de Gruyter.

- Shield, Rebecca. 2007. Derivation versus representation: Evidence from Minimality effects in adverb movement. *LSO Working Papers in Linguistics 7: Proceedings of WIGL 2007*.
- Sauerland, Uli, and Elbourne, Paul 2002, "Total Reconstruction, PF movement and Derivational Order", *Linguistic Inquiry*, 33: 283-319. *LSO Working Papers in Linguistics 7: Proceedings of WIGL*, pp. 161-176.
- Shima, Etsuro. 2000. A preference for Move over Merge. *Linguistic Inquiry* 31(2): 375–385.
- Shin, Jee-Yon. 2005. *Wh*-constructions in Korean: A lexical account. *Toronto Working Papers in Linguistics*, 25: 48-57.
- Srivastav, Veneeta. 1991. "Subjacency Effects at LF: The Case of Hindi *wh*," *Linguistic Inquiry*, 22(4): 762–769.
- Suh, Chung-Mok, and Park, Jin-Hee. 2006. The *WH*-scope of embedded questions in Korean. *Harvard Studies in Korean Linguistics*. XI, pp. 764-774.
- Svenonious, Peter. 2004. On the edge. In *Peripheries: Syntactic edges and their effects*, ed. by David Adger, Cécile de Cat, & George Tsoulas, 261–287. Dordrecht: Kluwer.
- Takahashi, Daiko. 1993. 'Movement of *wh*-phrases in Japanese.' *Natural Language and Linguistic Theory*. 11. 655-678.
- Takano, Yuji. 1998. Object shift and scrambling. *Natural Language and Linguistic Theory*, 16, pp. 817–889.
- Tsai, Wei-Tien Dylan. 1994. On Nominal Islands and LF Extraction in Chinese. *Natural Language and Linguistic Theory*, 12: 121–175.
- Yang, Dong-Whee, and Kim, Sung-Hun. 2005. Scrambling and Interpretive Complex. *The Linguistic Association of Korea Journal*, 13(2), 169-193.
- Yang, Dong-Whee. 2008. On Edge Feature Movement, Ms. MIT.
- Yoon, James H. 1994. Korean verbal inflection and Checking Theory, Morphology-Syntax Connection, *MIT WPL*. 22, pp. 251-270.
- Yoon, Sang-Hun. 1997. *The Grammar of wh-interpretation, scrambling and de re/de dicto distinction*. Ph.D. Dissertation. University of Wisconsin, Madison.
- Yoshida, Tomoyuki. 1999. LF Subjacency Effects Revisited. *MIT WPL*, 34: 1-34.
- Uriagereka, Juan. 1999. Multiple Spell-Out. In: S.D. Epstein and N. Hornstein (eds.) *Working minimalism*, pp. 251-282. Cambridge, MA: MIT Press.
- Watanabe, Akira. 1992. Subjacency and S-structure movement of *wh*-in-situ. *Journal of East Asian Linguistics* 1: 255-291.
- Watanabe, Akira. 2003. *Wh*-in-situ languages. In *The handbook of contemporary syntactic*

- theory, ed. by Mark Baltin & Chris Collins, pp. 203-225. Malden, MA: Blackwell.
- Watanabe, Akira. 2006. The Pied-Piper Feature. In L. L-S Cheng and N. Corver (eds.) *Wh-Movement on the Move*. Massachusetts: MIT Press, pp. 47-70.
- Zwart, C. Jan-Wouter. 2001. Syntactic and Phonological Verb-Movement, *Syntax*, 4(1):34-62.