

Against Pied-Piping

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Young-Sik Choi. 2002. Against Pied-Piping. *Language and Information* 6.2, 171–185. I claim that the asymmetry of locality effects in wh-questions involving Complex Noun Phrase Island in Korean follows from the proposal for the asymmetric mode of scope taking between *way* (why) and the other wh-words in Korean as laid out in Choi (2002). I will show that the present proposal is superior to the LF pied-piping approach in Nishigauchi (1990) and WH-structure pied-piping in von Stechow (1996) in that it does not have the fatal problem of wrong semantics in Nishigauchi and Subjacency violation problem in von Stechow. The crossed reading in examples involving Wh-island has an interesting implication for the mechanism of unselective binding, suggesting that Heim's (1982) quantifier indexing mechanism, which requires the local unselective binding of the indefinite by the unselective binder, may be too strong. (Seoul National University)

Key words: question morpheme, unselective binding, propositional adjunct wh-word, nonpropositional wh-word, indefinite, pied-piping, locality

1. Introduction

Since Nishigauchi's innovative proposal for LF pied-piping for the interpretation of wh-interrogatives in Korean type languages (also see Choe 1987), it has been widely accepted in the literature as a valid mechanism in the grammar (see Watanabe 1992 and von Stechow 1996, among others). Thus the contrast in grammaticality as in (1-2) may be ascribed to the availability of the pied-piping mechanism in contrast to the classical unbound dependency approach in Huang (1982), according to which ECP is essentially responsible for the contrast in grammaticality.

- (1) Ne-nun **nwu**-ka ssun chayk-ul ilkess-ni?
you-TOP who-NOM wrote book-ACC read-QM
'Who is the person x such that you read a book x wrote?'
- (2) *Ne-nun John-i **way** ssun chayk-ul ilkess-ni?
you-TOP J-NOM why wrote book-ACC read-QM
'What is the reason x such that you read a book John wrote for x?'

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In this paper, I claim that the grammar does not have pied-piping as a mechanism for the interpretation of wh-interrogatives in Korean type languages. Instead, I claim the contrast in grammaticality as in (1-2) above rather follows from the asymmetric scope taking strategy of two types of wh-words in Korean as claimed in Choi (2002).

The organization of this paper is the following: In section 2, it will be shown that the adjunct wh-word *way* (why), unlike the other wh-words, is not an indefinite and that the two types of wh-words thus have a different mode of scope taking strategy in wh-questions i.e., movement at LF into Spec of CP to mark scope via spec head agreement with the QM, driven by the need for proper interpretation by forming the operator variable chain for the former and unselective binding by the QM that serves as a wh-operator and marks scope for the latter. In section 3, I will show how the contrast in locality effects in wh-questions as in (1-2) essentially follows from the proposal for the asymmetric scope taking mode of the two types of wh-words.

The former that should undergo movement at LF into Spec of CP via spec head agreement with the question morpheme (QM, henceforth) to mark its scope is hence subject to locality effect, while the latter, unselectively bound by the QM that serves as a wh-operator and marks its scope, is immune to the effect.

In section 4, I review the proposals for LF pied-piping by Nishigauchi (1990) and WH-structure pied-piping by von Stechow (1996) and show that the present proposal does not run into a fatal wrong semantics problem in Nishigauchi and Subjacency violation problem in von Stechow. The crossed reading in examples involving a Wh-island has an interesting implication for the mechanism of unselective binding, hinting that Heim's (1982) quantifier indexing mechanism, which requires the local unselective binding of the indefinite by the unselective binder may be too strong. Section 5 is the conclusion.

2. Wh-words as Indefinites

There has been a growing body of research in recent literature, suggesting that wh-words in Korean type languages cannot be treated on a par with wh-words in English, since wh-words in the former type languages can have different interpretations, depending on the context where they occur (Nishigauchi 1990, Cheng 1991, Li 1992, and Tsai 1994, Lin 1996, Kim 1991, Choi 2002 among others).

When it comes to Korean, Kim (1991) suggests that they are quantifiers across the board, undergoing movement via Quantifier Raising at LF as claimed by May (1985). Chung (1996) argues that they are wh-interrogatives underlyingly, and that nominal wh-words are licensed via binding and adverbial wh-words are licensed exclusively by spec head agreement mechanism at LF. Choi (2002), on the other hand, claims that *way* (why) stands apart from the rest of wh-words in that the former is not an indefinite in the sense of Lewis (1975) and Heim (1982), while the latter are. He calls *way* (why) propositional adjunct wh-word and the rest of wh-words nonpropositional wh-words, respectively since the former unlike

the latter can quantify over propositions.

His claim for the difference between *way* (why) and the rest of wh-words regarding their status as indefinites is based among others on the following data involving adverbs of quantification where wh-words other than *way* (why) shows quantificational variability and scoping out of a syntactic island, given that indefinites typically have these two properties as claimed in Heim (1982):¹

- (3) a. [CP **Nwu**_i-ka o-myen] (pro_i) nul wuli-lul pangmwunhanta.
 who-NOM come-if always us-ACC visit
 'For every x, x an individual, if x comes, x visits us.'
- b. ?[CP LA-eyse **enu** chinkwu_i-ka o-myen] (pro_i) nul wuli-lul
 LA-from which friend-NOM come-if . always us-ACC
 pangmwunhanta.
 visit
 'For every x, x a friend if x comes from LA, x visits us.'
- c. [CP John_i-i **eti**-lo oychwulha-myen] (pro_i) nul nusskey tolaonta
 J-NOM where-to go out-if always late returns
 'For every x, x a place, if John goes out to x, he returns home late (from x).'
- d. [CP John_i-i **encey** o-myen] (pro_i) nul wuli-ul pangmwunhanta.
 J-NOM when come-if always us-ACC visit
 'For every x, x time, if John comes at x, he visits us (at x).'
- e. [CP Mary_i-nun cheychwung-i caki_i-uy cengsang chaycwung-pota
 M-TOP weight-NOM her-POSS normal weight-than
elma te naka-myen] (pro_i) nul diet-lul hanta.
 how much more weigh-if always diet-ACC do
 'For every x, x weight, if Mary weighs x more than normal weight, she goes on a diet (for x).'
- f. [CP John_i-i **ettehkey** wuli cipey o-myen] (pro_i) nul
 J-NOM how our house-to come-if always
 senmwul-ul kacikoonta.
 gift-ACC bring
 'For every x, x means, if John comes to our place by x, he brings a gift (by x).'

1. It should be noted that the readings as notated by the informal logical form notations in (3) are not the only readings for these sentences. One may have another reading for (3a) for example, which is 'For some x, x an individual, if x comes, x always visits us.'

- g. [_{CP} Nay-ka **ettehkey** John-eytayhay malha-myen]
 I-NOM how J-about talk-if
 Mary-nun nul hwalul naykonhanta.
 M-TOP always get angry

'For every x, x manner, if I talk about John in x, Mary gets angry (with x).'

- (4) * [_{CP} John_i-i **way** o-myen] (pro_i) nul wuli-lul pangmwunhanta.
 J-NOM why come-if always us-ACC visit
 'For every x, x reason, if John comes for x, he visits us (for x).'
- (Choi 2002)

Given their different status as indefinites, Choi (2002) thus claims that it is only natural to believe that the two types of wh-words in Korean have a different scope taking strategy in wh-questions, too.²

- (5) a. Ne-nun [John-i **nwukwu**-lul mannassta-ko] sayngkakha-ni?
 you-TOP J-NOM whom-ACC met-COMP think-QM
 'Who do you think John met?'
- b. Ne-nun [John-i **way** nusessta-ko] sayngkakha-ni?
 you-TOP J-NOM why late-COMP think-QM
 'What is the reason x such that you think John came late for x?'

He suggests that QM as a wh-operator as in (5a) unselectively binds and thus marks the scope of the nonpropositional wh-word at LF (cf. Baker 1970), assuming the minimalist tenet that LF is the only level for semantic interpretation (Chomsky 1995), while the propositional adjunct wh-word in (5b) should undergo movement into Spec of CP at LF, driven by the need for proper interpretation by forming an operator variable chain via spec head agreement with the QM, since it is not an indefinite, unlike the one in (5a) serving as a position holder such that the propositional adjunct wh-word checks off the wh-feature of the QM, marking its scope at LF.³

2. A reviewer notes that wh-word as in (5a) can be interpreted as an existential quantifier, too. Choi (2002) actually discusses this issue and adopts the view that QM in (5) is ambiguous in terms of [Q, WH] feature specification. As a matter of fact, Suh (1987: 2ff) observes that in some Kyongsang dialects especially those spoken in the areas around the cities of Masan and Kimhay, the question morpheme for the wh-question and yes no question remain morphologically distinct. *Ka* and *na* stand for yes no question morpheme and *ko* and *no* stand for wh-question morpheme.

3. Choi (2002) contends that the QM in (5b) as a position holder follows as a logical consequence of the claim that *way* (why) should undergo movement to form an operator variable construction (modulo first order predicate logic) for proper interpretation. According to him if QM is a wh-operator in (5b), it should bind the trace of the wh-word *way* (why). This will invariably lead to vacuous quantification, which, however, is prohibited, following Fregean semantics that an open sentence with either a free variable or vacuous quantifier cannot be properly interpreted.

3. Asymmetry of Locality Effects

The asymmetric mode of scope taking between the propositional adjunct wh-word and nonpropositional wh-words in wh-questions has an interesting implication for the asymmetry of locality effects between the two types of wh-words in wh-questions, which will be the topic of our discussion in the present section. Consider the examples involving Complex Noun Phrase Island (Ross 1967) in (1-2) repeated as (6) and (7), respectively, which is widely believed to be a typical syntactic island in Korean.

- (6) Ne-nun **nwu**-ka ssun chayk-ul ilkess-ni?
 you-TOP who-NOM wrote book-ACC read-QM
 ‘Who is the person x such that you read a book x wrote?’
- (7) *Ne-nun John-i **way** ssun chayk-ul ilkess-ni?
 you-TOP J-NOM why wrote book-ACC read-QM
 ‘What is the reason x such that you read a book John wrote for x?’

The sentence in (6) with a nonpropositional wh-word is grammatical while the one in (7) with a propositional adjunct wh-word *way* (why) is ungrammatical. The following examples in (8) with a nonpropositional wh-word are all grammatical, suggesting the contrast in grammaticality of the sentences involving Complex Noun Phrase Island is essentially along *way* (why) on the one hand and the rest of wh-words on the other:

- (8) a. Ne-nun **enu** cakka-ka ssun chayk-ul ilkess-ni?
 you-TOP which writer-NOM wrote book-ACC read-QM
 ‘Which writer x is such that you read a book x wrote?’
- b. Ne-nun John-i **eti**-se ssun chayk-ul ilkess-ni?
 you-TOP J-NOM where-at wrote book-ACC read-QM
 ‘What is the place x such that you read a book John wrote at x?’
- c. Ne-nun John-i **encey** ssun chayk-ul ilkess-ni?
 you-TOP J-NOM when wrote book-ACC read-QM
 ‘What is the time x such that you read a book John wrote at x?’
- d. Ne-nun cheychwung-i **elma** nakanun salam-ul coaha-ni?
 you-TOP weight-NOM how much weigh man-ACC like-QM
 ‘What is the weight x such that you like a man who weighs x?’
- e. Ne-nun John-i **ettehkey** kulin kulim-ul coaha-ni?
 you-TOP J-NOM how painted painting-ACC like-QM
 ‘What is the means x such that you like pictures John drew by x?’

- f. Ne-nun oss-ul **ettehkey** ipnun salam-ul coaha-ni?
 you-TOP clothes-ACC how get dressed man-ACC like-QM
 'What is the manner x such that you like a man who gets dressed in x?'

The contrast in grammaticality in (6) and (8) on the one hand and (7) on the other can be accounted for, given the proposal for the asymmetric mode of scope taking between the two types of wh-words in wh-questions together with the assumption that Subjacency (Chomsky 1973, 1977, and 1986) subsuming islands such as Complex Noun Phrase Island and Wh-island is the locality constraint active at LF: Nonpropositional wh-word is interpreted in-situ at LF as a wh-interrogative via unselective binding by the QM in the matrix clause that marks its scope, thus vacuously satisfying Subjacency in (6) and (8).⁴ Meanwhile, the propositional adjunct wh-word in (7), not being an indefinite, should undergo movement at LF into Spec of CP of the matrix clause, via spec head agreement with the QM, driven by the need for proper interpretation by forming operator variable chain, subject to Subjacency, and thus leading to ungrammaticality.

At this point, it is useful to briefly compare the present account for the locality effects in examples involving Complex Noun Phrase Island with other proposals in the literature: unbound dependency approach as advocated in Huang (1982) and heterogeneous licensing in Chung (1996).

Huang (1982) argues that sentences with in-situ wh-words involving syntactic islands in Chinese show asymmetry of grammaticality along argument wh-words on the one hand and adjunct wh-words on the other, suggesting that in-situ wh-words undergo movement at LF and that ECP, but not Subjacency is the locality constraint at LF, its violation leading to ungrammaticality: To be specific, argument wh-word is lexically governed, satisfying ECP, while adjunct wh-word, being not lexically governed, should be antecedent governed, which is impossible due to intervening island between the antecedent and its trace, thus invariably violating ECP.⁵ Extended to Korean, his proposal encounters a nontrivial problem in accounting for the grammaticality of the examples in (8e-f), although *ettehkey* (how) is a *bona fide* adjunct wh-word, according to Huang (1982).⁶

Chung (1996) claims that wh-words in Korean are wh-interrogatives underlyingly and that nominal wh-words are licensed by the question operator via binding and the adverbial wh-words are licensed via spec head agreement mechanism. According to him, the lack of Subjacency effect in wh-questions with a

4. A reviewer notes that it is not clear how the unselective binding mechanism for the nonpropositional wh-words does not constitute Subjacency violation. I am crucially assuming here Subjacency is a constraint for movement not for interpretation, following standard practice in the literature.

5. Huang (1982) adopts disjunctive ECP by Aoun and Sportiche (1981), which is given below.
 A properly governs B if and only if A governs B and
 (a) A is a lexical category, or
 (b) A is co-indexed with B.

6. According to Huang (1982: 528-530), Korean wh-words *eti* (where) and *encey* (when) are also argument wh-words since they can be an argument of a postposition.

nominal wh-word involving a syntactic island is thus ascribed to the binding mechanism but not unbound dependency as in Huang (1982). His proposal is problematic, especially given the acceptability of the example in (8f) with a *bona fide* adverbial wh-word.

4. Pied-piping Approach

I thus far showed that the contrast in grammaticality in (6-8) essentially follows from the asymmetric mode of scope taking of the two types of wh-words. The propositional adjunct wh-word in (7) should undergo movement at LF, subject to Subjacency and thus leading to ungrammaticality, while nonpropositional wh-words in (6) and (8) are interpreted in-situ via unselective binding by the QM in the matrix clause, immune to Subjacency.

Recently, Nishigauchi (1990) and von Stechow (1996) proposed that pied-piping mechanism is essentially responsible for the lack of locality effects in sentences involving Complex Noun Phrase Island in Korean type languages. I will review their proposals and will show that pied-piping cannot be the right mechanism to account for the contrast in grammaticality as in (6-8). Let us first review Nishigauchi (1990). Nishigauchi suggests that wh-words in Japanese are indefinites and should undergo movement at LF to be unselectively bound by the QM. He claims that the movement should observe Subjacency contra Huang (1982). His proposal is mainly based on his observation that the Wh-island construction in Korean type languages as in (9) exhibits a Wh-island effect, assuming wh-words undergo movement at LF, the wh-word which underwent movement first forming a Wh-island for the other to the effect that the sentence is construed as a yes-no question only:⁷

- (9) Tanaka-kun-wa [dare-ga nani-o tabeta-ka] oboteimasu-ka?
 T-TOP who-NOM what-ACC eat-QM remember-QM
 'Does Tanaka know who ate what?'
 #'Who is the person x such that Tanaka remembers what x ate?'
 #'What is the thing x such that Tanaka remembers who ate x?'
 (Nishigauchi 1990: 28)

7. Choe (1987) presents the following sentences involving weak crossover as evidence for LF pied-piping. I will not discuss this since Nishigauchi himself notes that weak crossover cannot be evidence for pied-piping, given the independent mechanism of quantifier-raising. (See Nishigauchi (1990) and also von Stechow (1996)).

- a. John-wa Mary-ga pro_i yomumae-ni [Judy-ga kaita hon_i-o] yonda-no?
 J-TOP M-NOM read-before J-NOM wrote book-ACC read-QM
 'Did John read the book_i that Judy wrote before Mary read it_i?'
 b. *John-wa Mary-ga pro_i yomumae-ni [dare-ga kaita hon_i-o] yonda-no?
 J-TOP M-NOM read-before who-NOM wrote book-ACC read-QM
 'Did John read the book_i who wrote before Mary read it_i?' (Choe 1987: 352)

Thus given the island effect in (9), the apparent lack of island effect as in (10) involving Complex Noun Phrase Island is ascribed to a special mechanism at LF, i.e., pied-piping of the NP including the relative clause into Spec of CP (or comp in his terminology).

- (10) Kimi-wa [dare-ga kaita hon-o] yomimasita-ka?
 you-TOP who-NOM wrote book-ACC read-QM
 'You read books who wrote?' (Nishigauchi 1990:48)

Nishigauchi maintains that the pied-piping mechanism can find its motivation in the fact that in Korean type languages, the relative clause is the specifier of the NP. Based on this marked structural property of the relative clause in Korean type languages, he crucially suggests a feature percolation mechanism between the specifier and the NP, following Selkirk (1982). To be specific, the wh-word inside the relative clause undergoes initial movement into Spec of CP from which point its wh-feature percolates into CP, which is the specifier of the NP, and then further percolates into the NP. Then the operation, which is responsible for wh-movement, moves the NP including the relative clause into Spec of CP of the matrix clause, which is headed by the QM as in (11).

- (11) [CP [c' [VP [NP [CP wh-word_i [IP t_i]]] V] QM]]

The feature percolation mechanism which enables the eventual large scale pied-piping of the NP including the relative clause is subject to several conditions, however: The wh-word undergoing initial movement into Spec of CP either should match with the categorial feature [+N] of the head noun or should be quantificational, otherwise the feature percolation from Spec of CP of the relative clause into NP will be blocked. According to Nishigauchi, a wh-word has [+N] feature once it can be case marked, and it is quantificational once it can pick up quantificational force of the external quantificational element.

When his proposal is extended to Korean, the contrast in grammaticality in examples above in (6-8) involving Complex Noun Phrase Islands will follow, assuming that nonpropositional wh-words in (6) and (8), either having [+N] or being quantificational, are pied-piped while the adjunct wh-word *way* (why) in (7) not having [+N] nor being quantificational, cannot. The examples in (3-4) in section 2 indicate that *way* (why), unlike the other wh-words, is not quantificational in the sense of Nishigauchi: The example in (12) below further indicates that *way* (why) cannot have [+N] feature in his sense, either.

- (12) *Way-ka mwuncey-ni?
 why-NOM problem-QM
 'Why will be a problem?'

Thus when it comes to the empirical predictions with respect to the data above in (6-8), either the current proposal or the LF pied-piping approach seems

to be on a par with each other. Nishigauchi's LF pied-piping approach, however, has a fatal problem of wrong semantics, first noted by Partee and later on in von Stechow (1996) with respect to Japanese.⁸ For this, consider the example in (6), repeated in (13).

- (13) Ne-nun **nwu**-ka ssun chayk-ul ilkess-ni?
 you-TOP who-NOM wrote book-ACC read-QM
 'Who is the person x such that you read a book x wrote?'

Given LF pied-piping mechanism and unselective binding of the wh-word and the NP *a la* Nishigauchi, the sentence in (13) above will have the following LF representation in (14) together with its informal logical notation:

- (14) [CP [**Nwu**_x-ka ssun chayk-ul]_y] [_{C'} [IP ne-nun [VP y ilkess]] ni_{x/y}]]
 who-NOM wrote book-ACC you-TOP read QM
 'For which x, y, x a person and y a book x wrote, did you read y?'

Given the informal logical notation above in (14), the sentence in (13) will have the following denotation, given the semantics of Hamblin (1976) and Karttunen (1977), which Nishigauchi tacitly assumes:

- (15) $\lambda p \exists x \exists y [\text{book}(x) \wedge \text{person}(y) \wedge \text{write}(y, x) \wedge p = \lambda w \text{read}_w(\text{you}, x)]$

In (15), only the variable ranging over books occurs in the nuclear scope of the wh-question, which refers to the subformula following 'p=', and as such its value varies. Accordingly, what is asked for by the speaker is information on books but not authors. However, intuitively, what the question in (13) is after is not the identity of books but rather the identity of authors as clearly indicated by the pattern of answers to the question: 'books John wrote' or 'John' but not 'War and Peace' is a possible answer. The problem of LF pied-piping thus is that it does not yield the right semantics.

Noting the problem of wrong semantics in LF pied-piping as just discussed above, among other things, von Stechow (1996) proposes that pied-piping takes place at other level of syntax, which he calls WH-structure with a subsequent reconstruction at LF. Although von Stechow's alternative proposal can resolve the wrong semantics problem in LF pied-piping in Nishigauchi by putting back the pied-piped material including the variable of the wh-word in the nucleus at LF, i. e., IP adjoined position, it has its own consequence: the problem of Subjacency violation. It is because the wh-word should be extracted out of his

8. Besides the wrong semantics problem, Nishigauchi's LF pied-piping has a doubly filled comp problem as originally noted by von Stechow (1996) with respect to Japanese example involving Complex Noun Phrase Island. To be specific, to ensure the large scale pied-piping, the initial wh-movement into Spec of CP of the relative clause is essential, which, however, will inevitably lead to doubly filled comp since the Spec of CP is already occupied by the null operator.

WH-phrase- the NP including the relative clause with a wh-word, into the matrix Spec of CP in what he calls an intermediate structure on the way to LF as in (16) before the rest of pied-piped expressions is reconstructed at LF.

- (16) [CP **Nwu**_x-ka [[t_x ssun] chayk-ul]_y [C' [IP ne-nun [VP y ilkess]] ni_{x/y}]]
 who-NOM wrote book-ACC you-TOP read QM
 'For which x, y, x a person and y books x wrote, did you read y?'

This movement is clearly a violation of Subjacency, which is quite problematic, since pied-piping is solely motivated from the observation that Subjacency is the locality constraint at LF in Korean type languages. Regarding this Subjacency violation problem, von Stechow claims that it is an illusion to have an LF (a transparent LF in his terminology) without Subjacency violation. He further contends:

- (17) Wh-extraction from WH cannot be restricted by Subjacency. It is an idiosyncratic device belonging to the syntax of pied-piping, which accounts for the irregularity of the construction.
 (von Stechow 1996: 85)

However, if it is indeed possible to extract wh-word from WH-phrase as he argues, the motivation for the pied-piping for WH-phrase at WH-structure immediately loses its substantial force, since the wh-word can be directly extracted at LF from WH-phrase without WH-phrase movement at WH-structure.⁹

It thus seems only apparent that one cannot simultaneously resolve the problems of wrong semantics in Nishigauchi and Subjacency violation in von Stechow to the extent that one adheres to pied-piping mechanism, be it at LF or at WH-structure.

How can the current approach resolve these problems, while maintaining the thesis that Subjacency is the locality constraint active at LF in Korean as suggested in section 3? Please recall our discussion in section 2 where it is claimed that nonpropositional wh-words as in (6) and (8) in Korean are indefinites and that they are interpreted in situ as wh-interrogatives via unselective binding by the QM in the matrix clause. Given this, in the present system, the LF representation for the example in (13) will be the following in (18) where the QM unselectively binds the wh-word:¹⁰

- (18) Ne-nun [NP[CP **nwu**_i -ka ssun] chayk-ul]] ilkess-ni_i
 you-TOP who-NOM wrote book-ACC read-QM
 'For which x, x an individual, did you read a book x wrote?'

9. Moreover, since he adopts Nishigauchi's pied-piping mechanism, von Stechow's WH-structure pied-piping also has a doubly filled comp problem, which he actually criticizes as one of the problems in Nishigasuchi's LF pied-piping.
 10. I will assume the QM binds the indefinite wh-word but not the head NP of the relative clause, following Ohno (1991) and von Stechow (1996).

The problem of wrong semantics in Nishigauchi does not arise in our system, since the indefinite, which acts as a variable bound by the QM in the matrix clause that serves as a wh-operator occurs in the nuclear scope together with the NP 'book', yielding the right interpretation for the sentence in (13) as given in (19) (see von Stechow 1996: 70).¹¹

$$(19) \lambda p \exists x [\text{person}(x) \wedge p = \lambda w \text{read}_w(\text{you}, \Sigma y [\text{books}_w(y) \text{ and } \text{write}_w(x, y)])]$$

The Subjacency violation problem in von Stechow does not arise in our system, either, since the QM at the matrix clause serving as a wh-operator is outside of the island as shown above in (18). Hence, it is not an illusion to have an LF for the example as in (13), which does not violate Subjacency, contrary to von Stechow's contention.

Before closing the section, let us turn to Wh-island constructions as in (9) as repeated in (20). Please recall that the proposal for pied-piping is primarily based on the crucial intuition that Subjacency holds in Wh-island construction in (20), the sentence being construed only as a yes-no question, according to Nishigauchi (1990).

- (20) Tanaka-kun-wa [dare-ga nani-o tabeta-ka] oboteimasu-ka?
 T-TOP who-NOM what-ACC eat-QM remember-QM
 'Does Tanaka know who ate what?'
 #'Who is the person x such that Tanaka remembers what x ate?'
 #'What is the thing x such that Tanaka remembers who ate x?'
 (Nishigauchi 1990: 28)

It should be noted, however, that the judgment is not undisputable as Nishigauchi (1990: 28) himself acknowledges that the subject wh-word in (20) can take matrix scope out of the other wh-word although he attributes the reading to discourse-linking effect. Let us call this type of reading a crossed reading, i.e., a reading where one of the wh-words in the embedded clause can take matrix scope out of the other. Thus to the extent that one can get the crossed reading, the main motivation for pied-piping should be further undermined, since it constitutes Wh-island constraint violation.¹²

In my intuition, similar examples in Korean, in addition to the yes-no reading, can have the crossed reading where either of the two wh-words can take matrix scope out of the other (cf. Kim 1991, Joo 1989, Chung 1996). To be precise, now let us suppose the following situation: The speaker and the hearer are chatting

11. According to von Stechow, Σy in (19) means the largest group y satisfying condition [...y...].

12. My Japanese informants note that in (20) the reading where the object can take matrix scope out of the subject wh-word is possible in Japanese too, although not perfect (also see Richard 2000).

over *John, Mary, Jack, Bomin, and Ines* who were at the spring break party for which each of them was supposed to invite whoever each individual wishes to do so. The speaker, who failed to come to the party for some reason now asks the question to the hearer who was right from the party. Given the above context, the hearer can answer the question in (21) below by giving answers in (22), which indicates that the sentence can admit readings where either of the two *wh*-words can take matrix scope out of the other in (21), given the standard assumption that the scope of the *wh*-word is reflected by the possible answers to the question (see Baker 1970, among others).

- (21) Ne-nun [nwu-ka nwukwu-lul chotayhayssnun-ci] kiekha-ni?
 you-TOP who-NOM whom-ACC invited-QM remember-QM

'Who is the person *x* such that you remember whom *x* invited?'

'Who is the person *x* such that you remember who invited *x*?'

- (22) a. Na-un [John-i nwukwu-lul chotayhayssnun-ci] kiekhata.
 I-TOP J-NOM whom-ACC invited-QM remember

'I remember who John invited.'

- b. Na-un [nwu-ka caki yecachinkwu-lul chotayhayssnun-ci] kiekhanta
 I-TOP who-NOM his girl friend-ACC invited-QM remember

'I remember who invited his girl friend.'

The crossed readings in (22) in Korean are not a surprise, given that *wh*-words in (21) are indefinites and as such they are interpreted via unselective binding as shown in section 2. To be specific, the crossed reading in (22a) where the subject *wh*-word takes matrix scope out of the object *wh*-word obtains via unselective binding of the subject *wh*-word by the matrix QM and the object *wh*-word by the embedded QM and the one in (22b) where the object *wh*-word takes matrix scope out of the subject *wh*-word obtains via unselective binding of the subject *wh*-word by the embedded QM and the object *wh*-word by the matrix QM, both with no Subjacency violation, since no movement is involved.

At this point one may wonder whether the crossed readings in (21) is actually due to the unbound dependency as in Huang (1982). However, the sentence in (23) below where the adjunct *wh*-word *ettehkey* (how) can also take matrix scope out of the other *wh*-word as indicated by the answers in (24) indicates that whatever is responsible for the wide scope of the adjunct *wh*-word cannot be attributed to the unbound dependency since it is a *bona fide* adjunct *wh*-word, which cannot be lexically governed.¹³

13. It seems that the intuition regarding the example in (23) seems to be rather subtle. A reviewer observes that he cannot get the wide scope reading of the adjunct *ettehkey* (how) in (23).

- (23) Ne-nun [nwu-ka ettehkey wassnun-ci] kiekha-ni?
 you-TOP who-NOM how came-QM remember-QM
 ‘Who is the person x such that you remember how x came?’
 ‘What is the means x such that you remember who came by x?’
- (24) a. Na-nun [John-i ettehkey wassnun-ci] kiekhanta.
 I-TOP J-NOM how came-QM remember
 ‘I remember how John came.’
- b. Na-nun [nwu-ka bus-lo wassnun-ci] kiekhanta.
 I-TOP who-NOM bus-by came-QM remember
 ‘I remember who came by bus.’

Please recall that *ettehkey* (how) either under ‘means’ or ‘manner’ construal is an indefinite as shown in section 2. Now the reading where the adjunct wh-word can take matrix scope out of the subject wh-word obtains in our system via the unselective binding of the adjunct wh-word by the matrix QM and the subject wh-word by the embedded QM. I will leave the crossed reading for matrix scope of the subject wh-word out of the adjunct wh-word to the reader.

The crossed readings in (21) and (23), to the extent that unselective binding is responsible for them has an important implication for the unselective binding mechanism as proposed in Heim (1982). Heim (1982: 146) proposes quantifier-indexing mechanism, which essentially prohibits the nonlocal unselective binding of an indefinite by a binder into the domain of the other binder. Heim’s proposal is crucially based on the following example in English:

- (25) If a cat likes a friend of mine, I always give it to him.

For the reading ‘there is a friend of mine such that if a cat likes him, I always give it to him’, if the indefinite ‘a friend of mine’ is bound nonlocally by the existential closure, it will have the following truth condition in (26) which may be verified even when there exists someone who is not a friend of mine:

- (26) $\exists x_2 \forall x_1 [[\text{cat}(x_1) \ \& \ \text{friend of mine}(x_2) \ \& \ \text{like}(x_1, x_2)] \rightarrow \text{give}(I, x_1, x_2)]$

The sentence above in (25), however, does not have this truth condition, intuitively. Thus according to Heim, it should be the case that an indefinite should be bound locally to have the right truth condition for the sentence in (25), which may be the following in (27):

- (27) $\exists x_2 [\text{friend of mine}(x_2) \wedge \forall x_1 [[\text{cat}(x_1) \ \& \ \text{like}(x_1, x_2)] \rightarrow \text{give}(I, x_1, x_2)]]$

Thus the crossed readings in (21) and (23), if it is indeed the case that unselective binding is what is responsible for them, as I claim, seems to suggest that

the quantifier indexing mechanism according to which only a local unselective binding is allowed, however, is too strong.¹⁴

5. Conclusion

I claimed that the asymmetry of locality in wh-questions involving syntactic islands in Korean follows from the proposal for the asymmetric mode of scope taking between *way* (why) and the other wh-words in Korean as laid out in Choi (2002), assuming Subjacency is the locality constraint at LF. The former, not being an indefinite, should undergo movement at LF to be properly interpreted by forming an operator variable chain, hence subject to Subjacency, while the latter are interpreted in-situ via unselective binding by the question morpheme that serves as a wh-operator, thus immune to the constraint. I showed that the current proposal based on the asymmetric scope taking mode of wh-words in Korean is superior to the LF pied-piping approach in Nishigauchi (1990) and WH-structure pied-piping in von Stechow (1996) in that it does not have the fatal problem of wrong semantics in Nishigauchi and Subjacency violation problem in von Stechow. Besides, the crossed reading in Wh-island construction in Korean further undermines their main motivation for pied-piping. I also noted that the crossed reading in examples involving Wh-island, if real, has an interesting implication for the mechanism of unselective binding, suggesting that Heim's (1982) quantifier indexing mechanism, which requires the local unselective binding of the indefinite by the unselective binder may be too strong.

References

- Aoun, J., N. Hornstein and D. Sportiche. 1981. Some Aspects of Wide Scope Quantification. *Journal of Linguistic Research* 1. 69-95.
- Baker, Lee. 1970. Note on the description of English questions: The role of an abstract question morpheme. *Foundations of Language* 6:197-219.
- Cheng, Lisa Lai-Shen. 1991. *On the typology of wh-questions*. Doctoral dissertation, MIT, Cambridge.
- Choi, Young-Sik. 2002. Why not in situ? Invited talk. GSIL colloquium, University of Southern California.
- Chomsky, Noam. 1964. *Current Issues in Linguistic Theory*. The Hague, Mouton.
- Chomsky, Noam. 1986. *Barriers*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 1993. A Minimalist Program in Linguistic Theory. In *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*, Ken Hale and Samuel Keyser (eds.), 1-52. Cambridge, MA: MIT Press.

14. A reviewer notes that the present criticism for quantifier indexing mechanism should be further supported by additional evidence, since my intuition regarding the data in (21-24) as reported in the present paper is very subtle. I would like to present the following example as additional evidence for my criticism of the quantifier indexing mechanism:

Nwu_i-ka wa-to (pro_i) taycheylo wuli-lul pangmwunhanta.
 who-NOM come-TO usually us-ACC visit

'For most x, x an individual, if x comes x visits us.'

'For every x, x an individual, if x comes, x usually visits us.'

The first interpretation, to the extent that it exists, clearly indicates that the unselective binder, i.e., the adverbial quantifier in the main clause can bind the indefinite within the scope of another binder, i.e., the universal quantifier, *to*.

- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
- Chung Daeho. 1996. *On the representation and licensing of Q and Q-dependents*. Doctoral dissertation, University of Southern California, Los Angeles.
- Huang, C.T. James. 1982. *Logical Relations in Chinese and the theory of Grammar*. Doctoral dissertation, MIT, Cambridge.
- Joo, Shim Yanghee. 1989. *A Cross-Linguistic Approach to Quantification in Syntax*. Doctoral Dissertation, University of Wisconsin-Madison.
- Katz, Jerrold J., and Paul M. Postal. 1964. *An Integrated Theory of Linguistic Description*. Cambridge, MA: MIT Press.
- Kim, Soo Won. 1991. *Chain Scope and Quantification Structure*. Doctoral dissertation, Brandeis University.
- Klima, Edward. 1964. Negation in English. In *The Structure of Language*, Jerry Fodor and Jerrold Katz (eds.), 246-323, New Jersey: Prentice Hall.
- Ladusaw, William. 1980. *Polarity Sensitivity as Inherent Scope Relation*. New York, Garland Press.
- Lewis, David. 1975. Adverbs of Quantification. In *Formal Semantics of Natural language*, Edward Keenan (ed.), 3-15, Cambridge and New York: Cambridge University Press.
- Li., Yen-hui Audrey. 1992. Indefinite Wh in Mandarin Chinese. *Journal of East Asian Linguistics* 1:125-155.
- Lin, Jo Wang. 1996. *Polarity Licensing and Wh-phrase Quantification*. Doctoral dissertation, University of Massachusetts, Amherst.
- Nishigauchi, Taisuke. 1990. *Quantification in the Theory of Grammar*. Dordrecht: Kluwer Academic Publishers.
- Ohno, Yutaka. 1991. Arguments against Unselective Binding in Korean. *Harvard Studies in Korean Linguistics*, 553-562. Seoul, Hanshin Publishing.
- Richard, Norvin. 2000. An Island Effect in Japanese. *Journal of East Asian Linguistics* 9:187-205.
- Ross, John Robert. 1967. *Constraints on variables in Syntax*. Doctoral dissertation, MIT, Cambridge.
- Selkirk, Elisabeth. 1982. *The Syntax of Words*. Cambridge, MIT Press.
- von Stechow, Amin. 1996. Against LF pied-piping. *Natural Language Semantics* 4: 57-110.
- Suh, Cheongsoo. 1994. *Korean Grammar*, Seoul: Deep-rooted Tree Publishing.
- Suh, Jin-Hee. 1990. *Scope Phenomena and Aspects of Korean Syntax*. Doctoral dissertation, University of Southern California, Los Angeles.
- Suh, Chung-Mok. 1987. *A Study on the Interrogative Sentences in Korean*. Seoul, Tower Press.
- Tsai, Wei-tien Dylan. 1994. *On economizing the theory of A-bar dependencies*. Doctoral dissertation, MIT, Cambridge.
- Vergnaud, Jean-Roger and Maria Luisa, Zubizarreta. 2002. Some Preliminaries to Minimalist Questions. Ms., University of Southern California, Los Angeles.
- Watanabe, Akira. 1992. Wh-in-Situ, Subjacency, and Chain Formation. *MIT Occasional Papers in Linguistics* No.2. MIT.

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