

# WH-SCRAMBLING AND WH-SCOPE IN KOREAN

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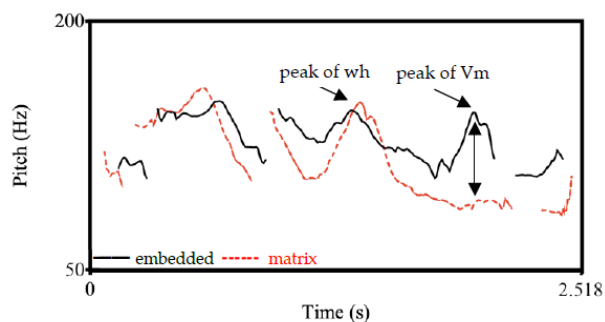
## 1 Introduction

Nishigauchi (1990), Watanabe (1992), Han (1992), and Choe (1995) claim that *wh*-in situ languages such as Korean and Japanese obey *wh*-island constraint at LF (Logical Form). They argue that the semantic scope of *nwukwu* ‘who’ in the embedded clause in (1) cannot be extended to the matrix clause and that (1) is interpreted as the embedded scope reading (1a) only.

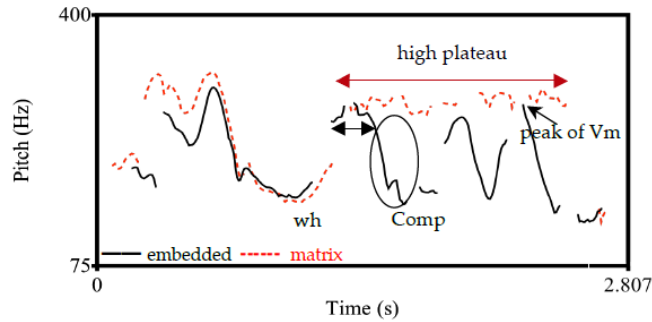
- (1) John-un [Mary-ka *nwukwu-lul* mannassnun-ci] mwulesseo? Korean  
John-Top [Mary-Nom *who-Acc* met-Q] asked-Q  
a. ‘Did John ask who Mary met *t*?’  
b. #‘Who did John ask whether Mary met *t*?’

By revealing the relation between prosody and *wh*-scope, more recent studies including Ishihara (2002) and Hwang (2011), however, show that the matrix scope reading in (1b) is as acceptable as the embedded scope reading in (1a) with the proper prosody, i.e., an F0 pitch compression or high plateau between *wh*-phrases and the associate complementizers as in (2).

- (2) a. pitch compression (Hwang 2011)



## b. high plateau (Hwang 2011)



In addition to prosody, there is another element which can potentially affect processing *wh*-scope in these languages—namely, *wh*-scrambling. In these languages, *wh*-phrases are allowed to scramble out of their base position as in (3).

(3) a. *wh* in situ

[Matrix ... [Embedded ... *wh*-phrase ... Q] ... Q] ?

b. *wh* scrambling inside an embedded clause

[Matrix ... [Embedded *wh*-phrase<sub>i</sub> ... *t*<sub>i</sub> ... Q] ... Q] ?

c. *wh* scrambling out of an embedded clause

[Matrix *wh*-phrase<sub>i</sub> ... [Embedded ... *t*<sub>i</sub> ... Q] ... Q] ?

This raises the following questions. Will the changed syntactic positions caused by *wh* scrambling affect the processing of the semantic scope of *wh*-phrases, regardless of prosody? For example, when a *wh*-phrase is moved higher, will the matrix scope reading be more available?

According to Takahashi (1993), *wh*-phrases in long distance *wh* scrambling constructions such as (3c) can only receive a matrix scope reading, analogous with English *wh*-movement. The syntactic position of the *wh*-phrase, therefore, is expected to play a crucial role on the processing of the *wh*-scope. Note that the LF *wh*-island in Takahashi (1993) works in the opposite way from the traditional view of an LF *wh*-island. According to him, for the *wh* in situ (3a) and *wh* scrambling inside an embedded clause construction (3b), *wh*-phrases can have either embedded or matrix scope, but the scrambled *wh*-phrase in a long distance clause (3c) is not allowed to lower down into its base position at LF so the embedded scope reading is unavailable. However, Saito (1989) and Tada (1993) claim that only an embedded scope reading is possible regardless of the syntactic position of *wh*-phrases. According to them, since the scrambled *wh*-phrases go through radical reconstruction, the scrambled *wh*-phrases are still under a *wh*-island effect. Likewise, there is no theoretical consensus on the relation between the syntactic positions of *wh*-phrases and their scopes. With this in mind, we conducted experiments to investigate the relation between them.

## 2 Experiments

In our study, two different Korean dialects (Kyeongsang Korean and Seoul Korean) were utilized. In order to examine the relation between syntactic positions and *wh*-scope, we controlled for



acceptability scores were received. This suggests that syntactic position of *wh*-phrases play a crucial role in deciding the semantic scope of *wh*-phrases.

## 2.2 Kyeongsang Korean

Contrary to Seoul Korean, Kyeongsang Korean has sentence-final particles that overtly mark the semantic scope of *wh*-phrases. For instance, the sentence final particle *-na* indicates a yes-no question and *-no* is indicating a *wh*-questions. Hence, when *-na* is utilized, *wh*-phrases in an embedded clause such as *mwues-ul* in (7) have embedded scope. When *-no* is used, the *wh*-phrases have matrix scope. In this experiment, except for the sentence-final interrogative particles available in the dialect (i.e. *-na* for yes-no questions and *-no* for *wh*-questions), the same target sentences in Seoul Korean experiment were used. Since the sentence-final particles overtly mark the scope of *wh*-phrase, possible answers were not provided in the Kyeongsang Korean experiment. 56 native Kyeongsang Koreans were asked to judge the naturalness of the questions with each sentence-final particle as in (7).

(7) Jungwu-nun Dana-eke [Jiwu-ka mwues-ul ilessnun-ci] \_\_\_\_\_?  
 Jungwu-Top Dana-Dat [Jiwu-Nom what-Acc read-Q ] \_\_\_\_\_?

- a. *mules*-*na*  
 asked-YNQ (Embedded scope)  
 ‘Did Jungwu ask what Jiwu read?’
- b. *mules*-*no*  
 asked-WHQ (Matrix scope)  
 ‘What did Jungwu ask whether Jiwu read?’

The 7-point scale used in Seoul Korean experiment was offered for each verb form. The experiment was processed through the internet by using Qualtrics. The result is as follows.

(8)

Conditions		Average (scale: 0-6)	
		-na (embedded)	-no (matrix)
a. <i>Wh</i> in situ	[...[... <i>wh</i> ... ]...]	2.27	3
b. <i>Wh</i> scrambled within an embedded clause	[...[ <i>wh</i> ... <i>t</i> ... ]...]	2.93	2.94
c. <i>Wh</i> scrambled into a matrix clause	[ <i>wh</i> ...[... <i>t</i> ... ]...]	2.97	3.06

In the Kyeongsang Korean experiment, no such effect of the surface syntactic position was found. The *wh*-in-situ sentences were equally as acceptable as the *wh*-scrambling sentences. Moreover, there was no statistically significant difference between the acceptability of two particles (Linear regression:  $p < .01$ ). This result shows that when the scope of *wh*-phrases is morphologically marked by the sentence-final particles, the scope of *wh*-phrases is decided by them regardless of the syntactic position of *wh*-phrases.

### 3 Discussion

The two experiments in this study reveal the relation between *wh*-scrambling and its scope as well as the relation between *wh*-scope and morphology. When the scope of *wh*-phrases was not morphologically marked, the scrambling of *wh*-phrases helped to access the matrix scope reading. The acceptability of a matrix scope reading was gradually increased by moving the *wh*-phrases from *wh*-in-situ to the left most position of a matrix clause. This provides evidence that the *wh*-island effect at LF in Korean can be alleviated by escaping out of the *wh*-island through syntactic movement, even without the aid of prosody.

Takahashi (1993) distinguished internal scrambling within a clause from long-distance scrambling. According to him, *wh*-phrases have either an embedded scope or a matrix scope in both *wh*-in-situ and the internal scrambling case, but the one scrambled into the left edge of the matrix clause is similar to *wh*-movement in English. The *wh*-phrases on the matrix clause, by this logic, can get matrix scope only. Contrary to his claim, the results of the Seoul Korean experiment show that there exists a preference for an embedded scope reading when *wh*-phrases are in-situ or internally scrambled. Furthermore, even if the *wh*-phrases are scrambled within an embedded clause, the acceptability of a matrix scope reading is significantly improved. This suggests that internal scrambling can also play a role on the *wh*-scope. For the long-distance scrambling case, the matrix scope reading in the Seoul Korean experiment was as acceptable as the corresponding one in the Kyeongsang Korean one which even has a morphological scope marker. This result affirms that long-distance scrambling gives rise to a matrix scope reading. However, in order to verify that the matrix scope reading is the only available one, the acceptability of embedded scope reading in the long distance scrambling construction should be investigated.

The major distinct feature of Kyeongsang Korean is the existence of morphological *wh*-scope markers. Compared to Seoul Korean which is sensitive to syntactic position with regard to *wh*-scope, the acceptability of a matrix scope reading in Kyeongsang Korean did not vary depending on the syntactic positions of *wh*-phrases. This result shows that the role of surface syntactic position in deciding *wh*-scope is obscured when the *wh*-scope is explicitly marked by overt morphology. In other words, morphological *wh*-scope markers play decisive roles in determining the *wh*-scope. The morphological marker is like a switch to toggle the *wh*-island effect. When a morphological *wh*-scope marker indicates matrix scope, the LF *wh*-island effect is overridden. However, when a morphological *wh*-scope marker indicates embedded scope, the *wh*-island effect is active, causing the *wh*-phrases generated in the embedded clause to have only embedded scope regardless of their syntactic movements.

In Sum, we have found that the *wh*-island effect in Korean can be attenuated by scrambling, even without the aid of prosody. Meanwhile, the overt morphological marker indicating a matrix scopenullifies *wh*-island effect regardless of surface syntactic positions of *wh*-phrases.

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