

## Quantifier Agreement in Korean\*

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### 1. Introduction

In Korean, when quantifiers comes after their associated nominals, they show the same case as their associated nominals, as shown in (1-2).

- (1) a. Mary-ka **haksayng-tul-ul** pimiliey **motwu-lul** pwulle-ss-ta  
M.-NOM **student-PL-ACC** secretly **all-ACC** call-PAST-DECL  
'Mary called all the students secretly.'  
b. Mary-ka **haksayng-tul-ul** pimiliey **twul-ul** pwulle-ss-ta  
M.-NOM **student-PL-ACC** secretly **two-ACC** call-PAST-DECL  
'Mary called two students secretly.'
- (2) a. **Haksayng-tul-i** ecey **motwu-ka** sohwan-toy-ess-ta  
**student-NOM** yesterday **all-NOM** call-PASS-PAST-DECL  
'All the students were called yesterday.'  
b. **Haksayng-tul-i** ecey **twul-i** sohwan-toy-ess-ta  
**student-NOM** yesterday **two-NOM** call-PASS-PAST-DECL  
'Two students were called yesterday.'

In (1), the quantifiers and their associated nominals are marked with accusative case. In (2), they are marked with nominative case. However, case agreement is confined to post-nominal quantifiers. Pre-nominal quantifiers do not show case agreement:

- (3) a. \*Mary-ka **motwu-lul** **haksayng-tul-ul** pwulle-ss-ta  
M.-NOM **all-ACC** **student-PL-ACC** call-PAST-DECL  
'Mary called all the students.'  
b. \*Mary-ka **twul-ul** **haksayng-tul-ul** pwulle-ss-ta  
M.-NOM **two-ACC** **student-PL-ACC** call-PAST-DECL  
'Mary called two students.'

In (3), case agreement between pre-nominal quantifiers and their associated nominals makes the examples ungrammatical. In addition, *motwu* and *twul* are not the correct forms for pre-nominal quantifiers; *motun* and *twu* are the correct forms, as shown in (4).

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- (4) a. Mary-ka **motun haksayng-tul-ul** pwulle-ss-ta  
 M.-NOM **all student-PL-ACC** call-PAST-DECL  
 'Mary called all the students.'
- b. Mary-ka **twu haksayng-tul-ul** pwulle-ss-ta  
 M.-NOM **two student-PL-ACC** call-PAST-DECL  
 'Mary called two students.'

The data in (1-4) raises a crucial question: Why is case agreement confined to quantifiers in postnominal positions and their associated nominals?

According to Bobaljik (1998), no analysis is successful in predicting the distribution and property of floating quantifiers with full generality. In this paper, I focus on what I see in Korean and attempt to provide a new analysis of floating quantifiers in Korean.

## 2. Two Competing Analyses of Floating Quantifiers

Broadly speaking, there are two competing analyses of floating quantifiers. According to the non-movement analysis, floating quantifiers are base-generated as VP or TP modifiers.

### 2.1 Non-movement Analyses

Dowty and Brodie (1984) analyze floating quantifiers as predicate modifiers. Miyagawa (1989) analyzes them as secondary predicates. Both analyses assume that floating quantifiers and their associated nominals do not form a constituent at any point, and are not related by movement.

#### 2.1.1 Floating Quantifiers as Predicate Modifiers

According to Dowty and Brodie (1984), floating quantifiers are essentially adverbial elements which serve as operators on the verb phrase, or parts thereof.

- (5) [<sub>S</sub> [<sub>NP</sub> the students] [<sub>VP</sub> have [<sub>VP</sub> all [<sub>VP</sub> left]]]]

This analysis explains why floating quantifiers in English may show up in a sentence-medial position, in which only adverbs occur, as shown in (6).

- (6) a. The students **all/really** should have been drinking tea.  
 b. The students should **all/really** have been drinking tea.  
 c. The students should have **all/really** been drinking tea.

But, in Korean, an argument and an adverb do not show case agreement.

- (7) a. \*Mary-ka **haksayng-tul-ul pimilley-lul** sohwanhay-ss-ta  
 M.-NOM **student-PL-ACC secretly-ACC** call-PAST-DECL  
 'Mary called all the students secretly.'
- b. \***Haksayng-tul-i ecey -ka** sohwan-toy-ess-ta  
**student-NOM yesterday-NOM** call-PASS-PAST-DECL  
 'All the students were called yesterday.'

As shown in (7), the manner adverb *pimiliey* and the temporal adverb *ecey* cannot show case agreement. Although adverbs do not generally show case agreement in Korean, measure adverbials show case agreement with arguments, one might therefore consider case-agreeing quantifiers as some form of measure adverbials.

- (8) Mary-ka **maykcwu-lul twu sikan-ul** masi-ess-ta  
 Mary-NOM **beer-ACC two hour-ACC** drink-PAST-DECL  
 'Mary drank beer for two hours.'

As shown in (8), the measure adverbial *twu sikan-ul* is marked with accusative case like an object.

But, this analysis encounters several problems. A measure adverbial can precede or follow an object whereas case-agreeing quantifier cannot precede an object. Compare (9b) with (10b).

- (9) a. Mary-ka **maykcwu-lul twu sikan-ul** masi-ess-ta  
 M.-NOM **beer-ACC two hour-ACC** drink-PAST-DECL  
 Mary drank beer for two hours.\_  
 b. Mary-ka **twu sikan-ul maykcwu-lul** masi-ess-ta  
 M.-NOM **two hour-ACC beer-ACC** drink-PAST-DECL  
 'Mary drank beer for two hours.'
- (10) a. Mary-ka **haksayng-tul-ul motwu-lul** sohwanhay-ss-ta  
 M.-NOM **student-PL-ACC all-ACC** call-PAST-DECL  
 'Mary called all the students.'  
 b. \*Mary-ka **motwu-lul haksayng-tul-ul** sohwanhay-ss-ta  
 M.-NOM **all-ACC student-PL-ACC** call-PAST-DECL  
 'Mary called all the students.'

As shown in (10b), case-agreeing quantifiers cannot come before the associated nominal.

In addition to word order restrictions, if we regard floating quantifiers as measure adverbials, the following sentence will be a problem.

- (11) John-i haksayng-tul-ul twul-ul han sikan-ul yatanchi-ess-ta  
 John-NOM student-PL-ACC two-ACC one hour-ACC scold-PAST-DECL  
 'John scolded two students for one hour.'

Since the quantifier *twul* and the adverbial *han sikan* provide measures of the event and the measures are not the same, one might expect this sentence to be ill-formed. But the sentence is fine. This approach appears to imply a violation of the principle proposed by Tenny (1994) that there can be no more than one measuring-out for any event described by the verb.

The final arguments disfavoring the measure adverbial analysis of floating quantifiers is that floating quantifiers and measure adverbials have different semantic functions. A floating quantifier is a predicate of individuals whereas a measure adverbial is a predicate of events (cf., Parsons 1990). Hence, (12a, b) have different interpretations:

- (12) a. Mary-ka **haksayng-tul-ul twul-ul** sohwanhay-ss-ta  
 M.-NOM **student-PL-ACC two-ACC** call-PAST-DECL  
 'Mary called two students.'  
 b. Mary-ka **haksayng-tul-ul twu pen-ul** sohwanhay-ss-ta  
 M.-NOM **student-PL-ACC two times-ACC** call-PAST-DECL  
 'Mary called students twice.'

(12a) has the interpretation that the number of the students called by Mary were two. (12b) has the interpretation that there were two events in which Mary called students.

### 2.1.2 Floating Quantifiers as Secondary Predicates

Miyagawa (1989) proposes that floating quantifiers are secondary predicates. He suggests a parallelism between the Japanese numeral quantifiers in (13) and the depictive adjuncts in (14).

- (13) a. Gakusei-ga **3-nin** kita  
 student-NOM **3-CL** came  
 'Three students came.'  
 b. Gakusei-ga hon-o **4-satu** katta  
 students-NOM book-ACC **4-CL** came  
 'The students bought four books.'
- (14) a. John arrived **nude**.  
 b. John ate the meat **raw**.

In (13-14), the numeral quantifier and the depictive adjuncts are predicates of individuals. Neither of them is an argument of the verb. The verb does not assign a thematic role to them; instead both modify verbal arguments (the subject and the direct object, respectively).

The secondary predicate analysis faces several questions. First, if numeral quantifier agreement is secondary predication, why does Korean not show case agreement with other secondary predicates?

- (15) a. John-i ku hoysa-lul **sacang-ulo** ttena-ass-ta  
 J.-NOM the company-ACC **president-as** left-PAST-DECL  
 'John left the company as a president.'  
 b. Mary-ka John-ul **chinkwu-lo** mana-ass-ta  
 M.-NOM John-ACC **friend-as** meet-PAST-DECL  
 'Mary met John as a friend.'

The secondary predicates, *chinkwu* and *sacang* are not marked with the same case with either the subject or the object. Hence, if the floating quantifiers are secondary predicates, there is an unexplained asymmetry in case agreement.

Second, as discussed by Koizumi (1994), secondary predicates and floating quantifiers appear to occur in different positions. Compare (16b) with (10a, b) repeated here.

- (16) a. John-i koki-lul **nal-lo** mek-ess-ta  
 J.-NOM meat-ACC **raw-INST** eat-PAST-DECL  
 'John ate the meat raw.'  
 b. John-i **nal-lo** koki-lul mek-ess-ta  
 J.-NOM **raw-INST** meat-ACC eat-PAST-DECL  
 'John ate the meat raw.'
- (10a) Mary-ka **haksayng-tul-ul motwu-lul** sohwanhay-ss-ta  
 M.-NOM **student-PL-ACC all-ACC** call-PAST-DECL  
 'Mary called all the students.'
- (10b) \*Mary-ka **motwu-lul haksayng-tul-ul** sohwanhay-ss-ta  
 M.-NOM **all-ACC student-PL-ACC** call-PAST-DECL  
 'Mary called all the students.'

In addition, the so-called dative subject can be associated with a secondary predicate whereas it cannot be associated with a floating quantifier.

- (17) a. Mary-ka **John-eykey pajama-ipincay-(lo)** piano-lul chi-key hay-ss-ta  
 M.-NOM **J.-DAT P.J.-in-(INS)** piano-ACC play do-PAST-DECL  
 'Mary made John play the piano in pajama.'  
 b. \*Mary-ka **ai-tul-eykey twul-(eykey)** piano-lul chi-key hay-ss-ta  
 M.-NOM **child-PL.-DAT two-(DAT)** piano-ACC play do-PAST-DECL  
 'Mary made two children play the piano.'

So, the merit of the secondary predicate analysis cannot be evaluated before the problems I have mentioned above are solved.

## 2.2 Movement Analysis

Sportiche (1988) proposes that floating Qs (18b) correspond to partitive Qs (18a).

- (18) a. Tous les enfants ont vu ce film.  
 All the children have seen this movie.  
 b. Les enfants ont tous vu ce film.  
 The children have all seen this movie.

Employing the VP-internal subject hypothesis, Sportiche (1988) proposes that a floating quantifier is base-generated as a part of a DP, but rather than the quantifier floating away from its associated nominal. According to this view, quantifiers may occur only in positions through which the associated nominal has passed in the course of its movement.

There are Language-particular arguments disfavoring Sportiche (1988). In Korean, some pre-nominal quantifier such as *on*, *kak*, and *may* lack post-nominal counterparts (Kang 1988).

- (19) a. **On** kukmin-i ku taytonglyeng-ul cichay-ss-ta  
**all** people-NOM the president-ACC support--PAST-DECL  
 'All the people supported the president.'

- b. \**kukmin-i on ku taytonglyeng-ul cichay-ss-ta*  
 people-NOM **all** the president-ACC support-PAST-DECL  
 'All the people supported the president.'
- (20) a. **kak** *haksayng-tul-i choysun-ul tahay-ss-ta*  
**each** student-PL-NOM best-ACC do-PAST-DECL  
 'Each of the student did his best.'
- b. *haksayng-tul-i kak choysun-ul tahay-ss-ta*  
 student-PL-NOM **each** best-ACC do-PAST-DECL  
 'Each of the student did his best.'

Many quantifiers in Korean have two different forms in post-nominal and pre-nominal positions. (Kang 1988).<sup>1</sup>

(21)	English	Pre-nominal Q	Post-nominal Q
	all	motun	motwu
	one	han	hana
	two	twu	twul
	three	sey	seys
	four	ney	neys

### 3. Two Quantifier Constructions

My account of quantifier agreement in Korean depends on recognizing very different structures for DPs with pre-nominal and post-nominal quantifiers. In particular I propose that a Korean DP with a post-nominal quantifier is a form of small-clause construction in which the quantifier serves as a primary (not a secondary) predicate (22a). By contrast, a Korean DP with a

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<sup>1</sup> There are many languages where post-nominal Qs are morphologically distinct from their pre-nominal counterparts. This is true of Dutch *allemaal* (i) and Mandarin Chinese *dou* (ii), both of which occur in floated positions, but neither of which is generally permitted prenominally (Bobaljik 1998, Hoeksema 1996, Dowty and Brodie 1984).

- (i) a. *De kinderen zijn allemaal gekomen.*  
 The children are all come
- b. \**Allemaal (de) kinderen zijn gekomen.*
- c. *Alle kinderen zijn gekomen.*  
 All the children are come  
 'The children have all come.' (Doetjes 1997: 210-11)
- (ii) a. *ren dou zou le*  
 people all left Asp  
 'The people have all left.'
- b. *suo you de ren zou le*  
 all FRT people left ASP  
 'all the people have left.' (Dowty and Brodie 1984: 82)

pre-nominal quantifier is a structure of modification, with the quantifier serving as an attributive adjunct (22b).<sup>2</sup>

- (22) a. [DP [SC [DP haksayng-tul-i] [NP twul-i]] D .]  
 b. [DP [AP twu] [DP haksayng-tul-i]]

In the following sections I will justify these structures.

3.1 *The Post-nominal Quantifier Constructions*

The exact structure and derivation I assume for Korean post-nominal quantifier constructions is shown below in (23).

- (23) Post-nominal Q  
 [DP haksayng-tul-i [D' [SC t [NP twul-i] D ]]  
 [NOM] [NOM]

Here the associated nominal *haksayngtuli* and the quantity predicate *twul* begin as a small clause in which the latter is predicated of the former. The associated nominal subsequently raises to Spec of D.

This analysis attributes to Korean post-nominal quantifiers basically the same structure found with English post-nominal adjectives like (24a-c):

- (24) a. **The vase broken last night** cost \$5.  
 b. Max catalogued **the jewels stolen yesterday**.  
 c. Alice talked to **any witnesses present**.

The post-nominal adjectives and their respective subjects presumably form small clauses. The adjectives are predicates of the individuals denoted by the subjects.

Evidence for the small clause analysis of floating quantifiers comes from the fact that quantifiers which cannot float cannot occur in post-copular position.<sup>3</sup>

- (25) a. \***haksayng-tul-i on-i-ta**  
**student-PL-NOM all-COP-DECL**  
 'The students are all.'  
 b. \***Haksayng-tul-i on-i sohwan-toy-ess-ta**  
**student-PL-NOM all-NOM call-PASS-PAST-DECL**  
 'All the students were called.'

<sup>2</sup> Regarding Adjectives, a similar proposal has been made by Cinque (1994). According to Cinque (1994), the syntactic status of adjectives in two different positions is different. It is suggested that pre-nominal adjectives are modifiers whereas post-nominal adjectives are predicates.

<sup>3</sup> According to Bobaljik (1998), the following question is answered: why do only certain universal Qs float (and numerals in Japanese)? The question has an answer at least in Korean. Quantifiers which can occur in post-copular positions can float.

- (26) a. **\*haksayng-tul-i kak-i-ta**  
**student-PL-NOM each-COP-DECL**  
 'The students are each.'
- b. **\*Haksayng-tul-i kak-i sohwan-toy-ess-ta**  
**student-PL-NOM each-NOM call-PASS-PAST-DECL**  
 'Each students were called.'
- (27) a. **\*haksayng-tul-i may-ta**  
**student-PL-NOM may-DECL**  
 'The students are each.'
- b. **\*Haksayng-tul-i may-ka sohwan-toy-ess-ta**  
**student-PL-NOM each-NOM call-PASS-PAST-DECL**  
 'Each students were called.'

When the quantifier *on* occurs in a post-copular position, the sentence is ill-formed as shown in (25a). When it occurs as a floating quantifier, the sentence is ill-formed, as shown in (25b). The same phenomena was found with the quantifiers *kak* and *may* as shown in (26-27). This suggests that two constructions are closely related to each other. A similar phenomenon is found in English adjectives (see Cinque 1994).

- (28) a. \*The indignity, utter and simple  
 b. \*The indignity was utter.  
 (from Abney 1987: 328)

An adjective which cannot occur in a post-nominal position cannot occur in a post-copular position. Given that the right peripheral position (the right of the nominal) is a predicative one, Korean post-nominal quantifiers are also analyzed as primary predicates.

An additional argument is found in morphological forms of Korean quantifiers. For example, a numeral quantifier *twu* has the same morphological form in post-copular and floated positions, as shown in (29a,b). But it is not the same when it occurs in a pre-nominal position (29c).

- (29) a. Haksayng-tul-I **twul-i-ta**  
**student-PL-NOM two-COP-DECL**  
 'Students are two.'
- b. Haksayng-tul-i **twul-i** sohwan-toy-ess-ta  
**student-PL-NOM two-NOM call-PASS-PAST-DECL**  
 'Two students were called.'
- c. **Twu** haksayng-tul-i sohwan-toy-ess-ta  
**Two student-PL-NOM call-PASS-PAST-DECL**  
 'Two students were called.'

### 3.2 The Pre-nominal Quantifier Constructions



In sharp contrast to the predicate analysis of post-nominal quantifiers, I analyze Korean pre-nominal Qs as modifiers. Observing that Korean attaches adjuncts on the left and following the common assumption that modifiers are adjoined to a maximal projection, the structure of a modifier Q is as in (30).

- (30) Pre-nominal Q  
 [<sub>DP</sub> [<sub>AP</sub> *twu*] [<sub>DP</sub> *haksayng-tul-i*]]

Evidence for this structure comes from ordering of modifier Qs and attributive adjectives. Consider (31).

- (31) a. **Yeppun twu** *haksayng-tul-i*    *oa-ss-ta*  
**Pretty two** student-PL-NOM    come-PAST-DECL  
 'Two pretty students came.'  
 b. **Twu yeppun** *haksayng-tul-i*    *oa-ss-ta*  
**two pretty** student-PL-NOM come-PAST-DECL  
 'Two pretty students came.'

The modifier Q *twu* can precede or follow the adjective *yeppun*. This fact is easily accounted for within the adjunction hypothesis, as adjunction is normally intended to be free (cf., Crisma 1990: 60).

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