

## On the Nature of the Dependency between a Numeral and a Classifier\*

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**Choi, Kiyong.** 2011. **On the Nature of the Dependency between a Numeral and a Classifier.** *Linguistic Research* 28(3), 517-542. In this article, I claim that a numeral and a classifier each instantiates distinct heads and that the former has a classifier phrase as its complement in numeral classifier constructions in Korean. I also claim that in Korean, a head-final language, the surface word order between a numeral and a classifier, which is Num-CI, is obtained via head movement of CI to Num. When CI is a genuine classifier, the movement is obligatory due to its clitic-like property, while when CI is an ordinary noun with [+numerable], it is optional. (Kwangwoon University)

**Key Words** numerals, classifiers, numerability, *amwu*, head movement, selectional restriction, antisymmetry, Korean

### 1. Introduction

As is well known, Korean has four types of numeral classifier constructions, each of which differs from the others in terms of word order between nominal elements and numeral+classifier elements and a case marker that these elements carry. Among them, I focus on the N(oun)-Case type numeral classifier construction in this paper. The N-Case type refers to a sentence or an NP where a noun is followed by a numeral or a numeral+classifier and a structural case marker such as *-i/ka* Nom or *-ul/lul* Acc appears only after the noun, as shown in (1) and (2): (Nom is for Nominative, Acc for Accusative, CI for Classifier, Dec for Declarative, Loc for Locative, and Gen for Genitive.)

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\* The work reported in this article has been presented at SICOOG 13 (Sogang University, Seoul) in August 2011. I would like to thank the audience at the conference including Hangjin Yoon, Beom-Sik Park, Yeun-Jin Jung, Kwangsup Kim, Young-Wha Kim, Yeon-Me Park, Sung-Ho Ahn, and two anonymous reviewers for valuable comments and suggestions. Any remaining errors are of course my own. The present research has been conducted by the Research Grant of Kwangwoon University in 2010.

- (1) a. Chelswu-ka sakwa-lul sey kay mek-ess-ta.  
 -Nom apple-**Acc** three Cl eat-Past-Dec  
 ‘Chelswu ate three apples.’
- b. chayksang wi-ey chayk-i sey kwon iss-ess-ta.  
 desk top-Loc book-**Nom** three Cl be-Past-Dec  
 ‘There were three books on the desk.’
- (2) a. ipen ciphoy-ey haksayng-i seys  
 this meeting-Loc student-**Nom** three  
 chamyehay-ss-ta.<sup>1</sup>  
 participate-Past-Dec  
 ‘Three students participated in this meeting.’
- b. Kim kyoswu-ka ceyca-lul twul chwuchenhay-ss-ta.  
 professor-Nom pupil-**Acc** two recommend-Past-Dec  
 ‘Professor Kim recommended his two pupils.’

The other three types are illustrated in (3) - (5):

Double Case type<sup>2</sup>

- (3) a. Chelswu-ka sakwa-lul sey kay-lul mek-ess-ta.  
 -Nom apple-**Acc** three Cl-**Acc** eat-Past-Dec
- b. chayksang wi-ey chayk-i sey kwon-i iss-ess-ta.  
 desk top-Loc book-**Nom** three Cl-**Nom** be-Past-Dec
- c. ipen ciphoy-ey haksayng-i seys-i chamyehay-ss-ta.  
 this meeting-Loc student-**Nom** three-**Nom** participate-Past-Dec

<sup>1</sup> Nouns such as *haksayng* 'student' or *ceyca* 'pupil' can co-occur with a numeral without a classifier. That is, not all nouns require a classifier when occurring with a numeral in Korean. Other nouns that do not require but can co-occur with a classifier include *tancheoy* 'organization', *enni* 'elder sister', *sikkwu* 'dependent', *camay* 'sister', *chungwi* 'level', *nammay* 'brother', *ai* 'child', *pyenhosa* 'lawyer', *kica* 'reporter', etc:

(i) sey tancheoy, sey enni, sey sikkwu,  
 three organization three elder sister three dependent  
 sey camay, sey chungwi, sey nammay  
 three sister three level three brother  
 sey ai, sey pyenhosa, sey kica  
 three child three lawyer three reporter

<sup>2</sup> The Double Case type refers to a sentence or an NP where the same structural case marker appears after a noun and a numeral(-classifier).

- d. Kim kyoswu-ka ceyca-lul twul-ul chwuchenhay-ss-ta.  
 professor-Nom pupil-Acc two-Acc recommend-Past-Dec

Num-(Cl)-Case type<sup>3</sup>

- (4) a. Chelswu-ka sakwa sey kay-lul mek-ess-ta.  
       -Nom apple three Cl-Acc eat-Past-Dec  
 b. chayksang wi-ey chayk sey kwon-i iss-ess-ta.  
    desk top-Loc book three Cl-Nom be-Past-Dec  
 c. ipen ciphoy-ey haksayng seys-i chamyehay-ss-ta.  
    this meeting-Loc student three-Nom participate-Past-Dec  
 d. Kim kyoswu-ka ceyca twul-ul chwuchenhay-ss-ta.  
    professor-Nom pupil two-Acc recommend-Past-Dec

Genitive Case type<sup>4, 5</sup>

<sup>3</sup> In the Num-(Cl)-Case type, a structural case marker appears only after a numeral(-classifier).  
<sup>4</sup> In the Genitive Case type, a numeral-classifier sequence precedes a noun, appearing with a genitive case marker, *-uy*. As shown below, unlike in the other types, in the Genitive Case type, a numeral requires a classifier.

- (i) a. \*ipen ciphoy-ey seys-uy haksayng-i chamyehay-ss-ta.  
       b. \*Kim kyoswu-ka twul-uy ceyca-lul chwuchenhay-ss-ta.  
 (ii) a. ipen ciphoy-ey sey myeng-uy haksayng-i chamyehay-ss-ta.  
             Cl  
       b. Kim kyoswu-uy twu myeng-uy ceyca-lul chwuchenhay-ss-ta.  
             Cl

I will discuss what it would mean shortly.

<sup>5</sup> Unlike a structural case marker, a semantic case marker such as *-eykey/ey* 'to' is not allowed both in the N-Case type and the Double Case type. It is allowed only in the Num-(Cl)-Case type and the Genitive Case type, as shown below:

- (i) a. \*Kim kyoswu-ka haksayng-eykey sey myeng chayk-ul cwu-ess-ta.  
           professor-Nom student-to three Cl book-Acc give-Past-Dec  
       'Professor Kim gave books to three students.'  
       b. \*Kim kyoswu-ka haksayng-eykey sey myeng-eykey chayk-ul cwu-ess-ta.  
       c. Kim kyoswu-ka haksayng sey myeng-eykey chayk-ul cwu-ess-ta.  
       d. Kim kyoswu-ka sey myeng-uy haksayng-eykey chayk-ul cwu-ess-ta.

Given that the *-eykey* phrase is an argument of a predicate, *cwu-* 'give', the contrast between (ia, b) and (ic) implies that the nominal element alone cannot function as an argument. If correct, it would mean that both a hybrid approach as in Kang (2002), Ko (2005, 2007, 2009), Ko and Oh (2010) and an adverbial approach as in Kim (2002), Kim and Yang (2007) are on the wrong track.

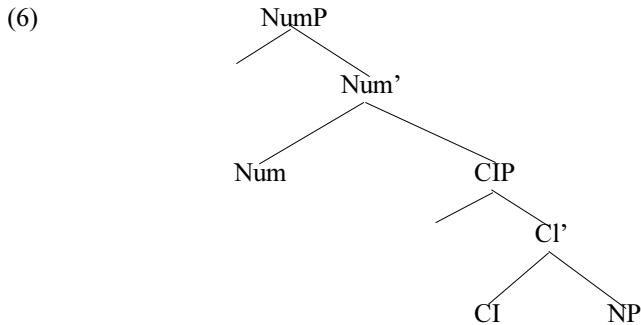
- (5) a. Chelswu-ka sey kay-uy sakwa-lul mek-ess-ta.  
           **-Nom three CI-Gen apple-Acc eat-Past-Dec**
- b. chayksang wi-ey sey kwon-uy chayk-i iss-ess-ta.  
       desk top-Loc three CI-Gen book-Nom be-Past-Dec

As one might easily expect, one of the major issues surrounding the numeral classifier constructions in previous studies has been whether each type is or isn't derivationally related (Kitahara 1993, Kawashima 1998, Kagegawa 2000, Choi 2001, Saito, Lin and Murasugi 2006, Watanabe 2006, Ko 2005, 2007, 2009, Ko and Oh 2010, Shin 2008a, b, Park 2009, Kim 2010). Notwithstanding its importance, I will not address this issue directly in this paper. I believe that a more basic issue, the correct relationship between a numeral and a classifier, has not been seriously addressed and consequentially no consensus has been reached for this issue in the literature on the structure of the numeral classifier construction in head-final languages such as Korean and Japanese.<sup>6</sup> It is interesting to note that in the literature on head-initial languages such as Chinese, Thai, Khmer, and Vietnamese, "(in all works distinguishing Num and CI as distinct heads,) it is commonly assumed that Num/numerals and other quantifiers take scope over CI/classifiers, this reflecting the assumption that nouns may first be individuated by a classifier and then quantified over by a numeral or other quantifier." (Simpson 2005:811) In other words, a widely held assumption for the structural relation between a numeral and a classifier in the head-initial languages is the following (Tang 1990, Cheng and Sybesma 1999, Li 1999, Borer 2005, Simpson 2005. See Zhang 2011 for a different approach.):<sup>7</sup>

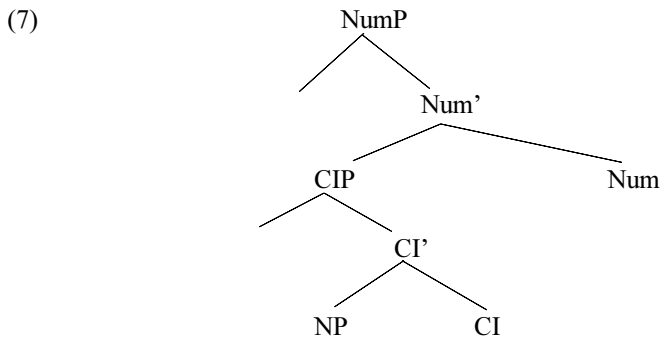
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<sup>6</sup> In this paper, I do not discuss the other important issue, that is, the relation between a classifier and a noun. As for this issue, there are two different, but interrelated, sub-issues. One is whether or not they form a single constituent and the other is the nature of the relation under the assumption that they form a single constituent. See Kang (2002), Kim (2002), Ko (2005, 2007, 2009), Kim and Yang (2007), Ko and Oh (2010) and references cited in Kim (2002), Ko and Oh (2010) for discussion of the first sub-issue. As for the second sub-issue, a widely held assumption has been that a nominal element is a complement of a classifier (Tang 1990, Cheng and Sybesma 1999, Li 1999, Kagegawa 2000, Choi 2001, Borer 2005, Simpson 2005, Watanabe 2006, Saito, Lin and Murasugi 2006, and Kim 2010). One exception to this consensus is Park (2009) who proposes a small clause (SC) analysis where the noun is considered to be a subject. See the structure in (11) for the details.

<sup>7</sup> However, opinions differ as to where a numeral element is located. Either it is base-generated at a Spec position (Cheng and Sybesma 1999, Li 1999, Borer 2005, Zhang 2011) or it is treated as a head (Simpson 2005).



Thus, it would be nice to maintain the structure as in (6) where Numeral has CIP as its complement for the N-Case type in Korean as well. However, note that in the N-Case type, word order among Num, CI, and N is N-Num-CI. There are two different options to get the surface order. One is to assume NP movement over the NumP in (6), adopting Kayne's (1994) antisymmetry framework, which amounts to saying that Korean is underlyingly head-initial. The other is, adopting the head parameter, to assume the same structure as in (6) modulo the position of the head, which is given in (7), and head movement of CI to Num:



A main goal of this paper is to show that the latter option is on the right track for the structure of the N-Case type, more specifically, for the relation between a numeral and a classifier. The organization of the paper is as follows. In section 2, after identifying the structural assumptions that are encoded in (7), we first see how the structural assumptions that previous studies postulate are different from those in

(7). Then I present four pieces of evidence supporting the structure in (7). In section 3, I point out two problems with a Kayne-based approach to the N-Case type.

## 2. The Relation between a Numeral and a Classifier

In this section, we first see how the structure in (7) differs from the structures that previous literature postulates for the N-Case type. As mentioned earlier in the introduction, (7) contains the following two empirical claims:<sup>8</sup>

- (8) a. A numeral and a classifier each instantiates distinct heads, Num and Cl respectively.
- b. A numeral has CIP as its complement.

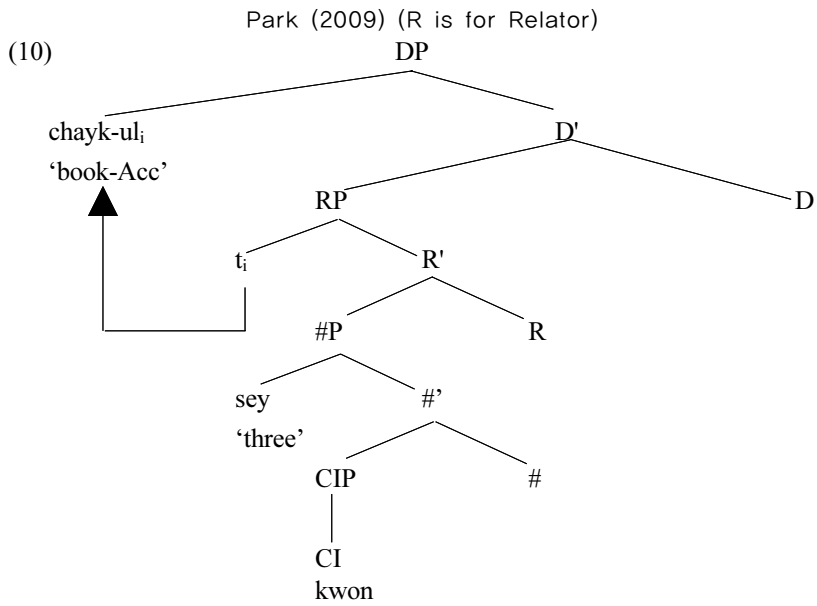
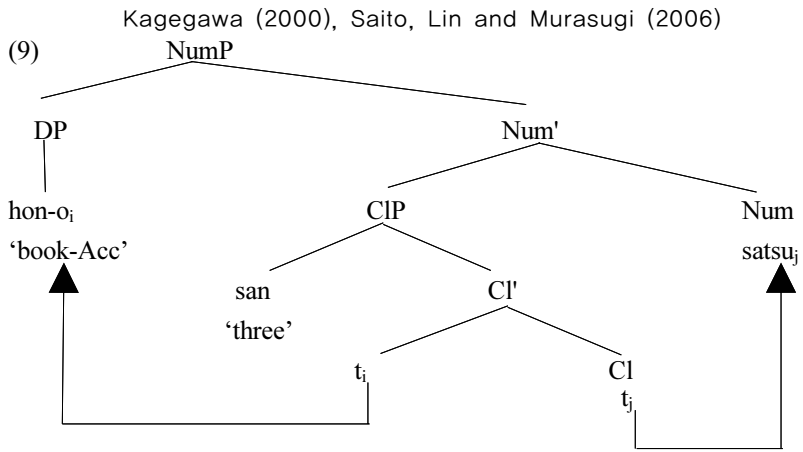
However, previous studies postulate various structures in which (8a) and/or (8b) are not adopted.<sup>9</sup> For example, in Kitahara (1993) and Kawashima (1998), numerals and classifiers are treated as constituting a single functional head. In Kagegawa (2000), Watanabe (2006), and Park (2009), categories such as Num (or #) and Cl are postulated, as one can see in (9) through (11). However, in none of these studies, (8b) is adopted or a numeral element is positioned under Num. Instead, it is in a Spec position higher over a classifier. It seems that this kind of a structural assumption is adopted to capture the word order between a numeral and a classifier:

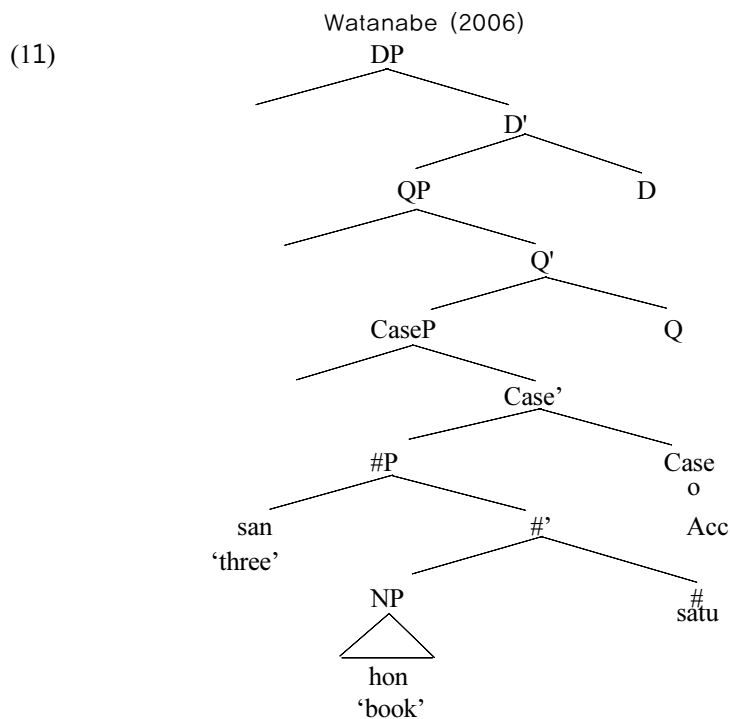
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<sup>8</sup> Actually, it contains one more, which is given below. I leave discussion of this issue for future research:

(i) NP is a complement of a classifier.

<sup>9</sup> Unlike in Kitahara (1993) and Kawashima (1998) where a numeral and a classifier are not separated, in Choi (2001) it is claimed that a numeral and a classifier, each being a distinct  $X^0$ , form an  $X^0$  adjoined structure, which is base-generated. This paper claims that such an  $X^0$  adjoined structure is a result of head movement of a classifier into a numeral.





### 2.1 A Numeral has an NP with a Feature [+numerable] as Its Complement

Having seen what the differences are, I now present four pieces of evidence supporting (8a) and (8b). Firstly, note that if (8b) is correct, we expect a numeral appearing without a classifier to be ungrammatical. The expectation is borne out by the facts:

- (12) a. ?\*Chelswu-ka sakwa-lul seys mek-ess-ta.  
 -Nom apple-Acc three eat-Past-Dec  
 'Chelswu ate three apples.'
- b. ?\*chayksang wi-ey chayk-i seys iss-ess-ta.  
 desk top-Loc book-Nom three be-Past-Dec  
 'There were three books on the desk.'



One might point out the examples in (2) as counterexamples to the expectation. I claim that the contrast between (2) and (12) is related to the fact that ordinary nouns in Korean are divided into two types with respect to their ability to combine with a numeral directly. Nouns such as *sakwa* 'apple' or *chayk* 'book' obligatorily require a classifier to be combined with a numeral, while nouns such as *haksayng* 'student' or *ceyca* 'pupil' do so optionally, as seen in (2). Thus, along with (2), the following sentences are also good:

- (13) a. ipen ciphoy-ey haksayng-i sey myeng chamyehay-ss-ta.  
 this meeting-Loc student-Nom three CI participate-Past-Dec  
 'Three students participated in this meeting.'
- b. Kim kyoswu-ka ceyca-lul twu myeng chwuchenhay-ss-ta.  
 professor-Nom pupil-Acc two CI recommend-Past-Dec  
 'Professor Kim recommended his two pupils.'

It means that genuine classifiers such as *myeng*, *kay*, *kwon*, etc.<sup>10</sup> and nouns such as *haksayng* 'student' or *ceyca* 'pupil' share a property to combine with a numeral directly. Let us call this property "numerability," following Zhang (2011).<sup>11</sup> Under [+numerable], it can be interpreted that in (2), *haksyang* or *ceyca* satisfies a more generalized version of (8b), which is given below:<sup>12</sup>

- (14) A numeral has an NP with a feature [+numerable] as its complement.

A more interesting confirmation of (14) comes from Genitive Case type, where a numeral+classifier is used as a modifier of a noun. In this type, (14) requires a

<sup>10</sup> Some ordinary nouns such as *pyeng* 'bottle' or *can* 'glass' can be used as a classifier as shown below:

- (i) maykcwu sey pyeng, wuyu han can  
 beer three bottle milk one glass  
 'three bottles of beer' 'one glass of milk'

Classifiers which are not used as an ordinary noun are called genuine classifiers in this paper.  
<sup>11</sup> Thus, the notion "numerability," the ability of a noun to combine with a numeral directly, should not be confused with the notion "count/mass."  
<sup>12</sup> I propose that a syntactic category of a classifier is a noun on the grounds that it can have a case marker, as seen in (3) and (4).

numeral to co-occur with a classifier, regardless of which type of noun it modifies. This is confirmed as seen below:

- (15) a. Chelswu-ka sey kay-uy sakwa-lul mek-ess-ta.  
           -Nom three **Cl-Gen** apple-Acc eat-Past-Dec  
 b. chayksang wi-ey sey kwon-uy chayk-i iss-ess-ta.  
    desk top-Loc three **Cl-Gen** book-Nom be-Past-Dec  
 c. ipen ciphoy-ey sey myeng-uy haksayng-i  
    this meeting-Loc three **Cl-Gen** student-Nom  
    chamyeohay-ss-ta.  
    participate-Past-Dec  
 d. Kim kyoswu-ka twu myeng-uy ceyca-lul  
    professor-Nom two **Cl-Gen** pupil-Acc  
    chwuchenhay-ss-ta.  
    recommend-Past-Dec
- (16) a. \*Chelswu-ka seys-uy sakwa-lul mek-ess-ta.  
           -Nom three-**Gen** apple-Acc eat-Past-Dec  
 b. \*chayksang wi-ey seys-uy chayk-i iss-ess-ta.  
    desk top-Loc three-**Gen** book-Nom be-Past-Dec  
 c. \*ipen ciphoy-ey seys-uy haksayng-  
    this meeting-Loc three-**Gen** student-Nom  
    chamyeohay-ss-ta.  
    participate-Past-Dec  
 d. \*Kim kyoswu-ka twul-uy ceyca-lul chwuchenhay-ss-ta.<sup>13</sup>  
    professor-Nom two-**Gen** pupil-Acc participate-Past-Dec

<sup>13</sup> The following examples cannot be counterexamples to (14). Note that these examples do not mean 'three report cards' and 'three recommendation letters' respectively.

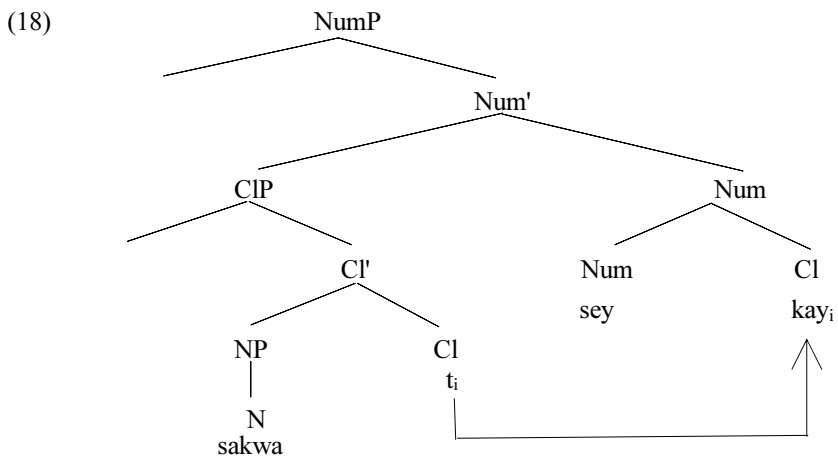
- (i) a. kutul seys-uy sengcekphyo  
       those three-Gen report card  
       'report cards of those three'  
 b. ceyca seys-uy chwuchense  
    pupil three-Gen recommendation letter  
    'recommendation letters for three pupils'

**2.2 The Clitic-like Property of Genuine Classifiers**

If (14) is correct, we expect an NP with [+numerable] to appear left to a numeral in Korean which is head-final. This expectation is only partially fulfilled, as one can see in (1, 2) and (17):

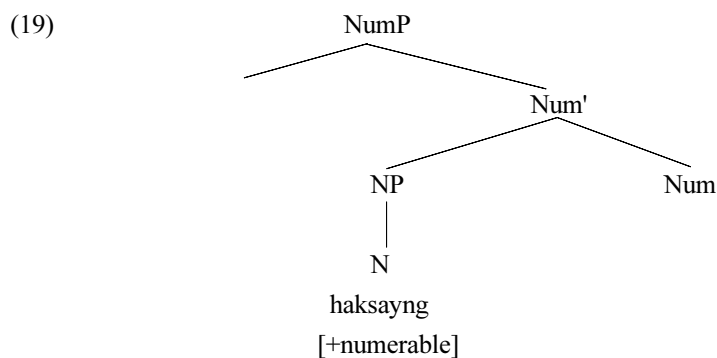
- (17) a. \*Chelswu-ka sakwa-lul kay sey mek-ess-ta.  
           -Nom apple-Acc Cl three eat-Past-Dec
- b. \*chayksang wi-ey chayk-i kwon sey iss-ess-ta.  
           desk top-Loc book-Nom Cl three be-Past-Dec

However, this will not be a serious problem with (14), since the expectation is not fulfilled only in the case of genuine classifiers. An ordinary noun with [+numerable] confirms (14), which is shown in (2). I propose that the peculiarity of genuine classifiers has something to do with their being clitic-like or suffixal elements, as suggested in many studies including Cheng and Sybeema (1999: 529 fn. 16), Simpson (2005), Saito, Lin and Murasugi (2006), and Park (2009:213). That is, when a noun is a genuine classifier as in (17), it moves obligatorily to Num, thus forming the structure in (18):



When a noun is an ordinary noun with [+numerable], on the other hand, it

performs a dual function of Cl and N simultaneously, thus forming the structure in (19):



The following examples show that in this case, head movement to Num is optional:<sup>14</sup>

- (20) a. ipen ciphoy-ey sey haksayng-i chamyehay-ss-ta.  
           this meeting-Loc three student-Nom participate-Past-Dec  
       b. Kim kyoswu-ka twu ceyca-lul chwuchenhay-ss-ta.  
           professor-Nom two pupil-Acc recommend-Past-Dec

This, of course, assumes that (2) and (20) are derivationally related. One might reject this assumption and claim that the examples in (20) are derivationally related to the following sentences of Num-(Cl)-Case type:

- (21) a. ipen ciphoy-ey haksayng seys-i chamyehay-ss-ta.  
       b. Kim kyoswu-ka ceyca twul-ul chwuchenhay-ss-ta.

<sup>14</sup> Note that in (20), *sey* 'three' and *twu* 'two' are used instead of *seys* and *twul*. In fact, if the latter forms are used, the sentences become ungrammatical:

- (i) a. \*ipen ciphoy-ey **seys** haksayng-i chamyehay-ss-ta.  
       b. \*Kim kyoswu-ka **twul** ceyca-lul chwuchenhay-ss-ta.

Later we will see that this difference in the form correlates with the projectional status of the nominal element that co-occurs with a numeral.

There is supporting evidence for the claim that (2) and (20) are derivationally related. Note that in sentences as in (20), personal pronouns and conjoined proper nouns cannot co-occur with a numeral, as shown below:

- (22) a. \*Kim kyoswu-ka      **twu wuli-lul** chwuchenhay-ss-ta.  
           professor-Nom    two we-Acc    recommend-Past-Dec  
       b. \*Kim kyoswu-ka      **twu kutul-ul** manna-ss-ta.  
           professor-Nom    two they-Acc meet-Past-Dec  
       c. \*na-nun **twu Cheli-wa Miay-lul** manna-ss-ta.  
           I-Top    two Cheli-and Miay-Acc meet-Past-Dec

Interestingly, the same co-occurrence restriction holds for N-Case type, but not for Num-(Cl)-Case type:

- (23) a. ?\*Kim kyoswu-ka **wuli-lul twul** chwuchenhay-ss-ta.  
       b. ?\*Kim kyoswu-ka **kutul-ul twul** manna-ss-ta.  
       c. \*na-nun **Cheli-wa Miay-lul twul** manna-ss-ta.  
       (24) a. Kim kyoswu-ka **wuli twul-ul** chwuchenhay-ss-ta.  
           (lit.) ‘Professor Kim recommended us two.’  
       b. Kim kyoswu-ka **kutul twul-ul** manna-ss-ta.  
           ‘Professor Kim met those two.’  
       c. na-nun **Cheli-wa Miay twul-ul** manna-ss-ta.  
           (lit.) ‘I met Cheli and Miay two.’

Then, under (14), various phenomena in (1, 2, 17, 20) are accounted for in terms of head movement being optional or obligatory. In contrast, it would not be clear how these phenomena are accounted for in the previous literature. For example, note that according to Watanabe (2006), *haksayng* or *ceyca* in (2), which can be a maximal projection as seen in (25), would be in a complement position within the #P in (11) before its movement:

- (25) a. ipen ciphoy-ey    [[Kim kyoswu-ka      chwuchenha-n]  
           this meeting-Loc      professor-Nom    recommend-Rel  
           haksayng-i]    seys    chamyehay-ss-ta.

student-Nom three participate-Past-Dec  
 ‘Three students who Professor Kim recommended participated in  
 this meeting.’

- b. Kim kyoswu-ka [[caki-ka mith-nun] ceyca-lul]  
 professor-Nom self-Nom trust-Rel pupil-Acc  
 twul chwuchenhay-ss-ta.  
 two recommend-Past-Dec  
 ‘Professor Kim recommended two pupils who he trusts.’

Then, under Watanabe's analysis, it could be described that the movement of NPs such as *haksayng* or *ceyca* to Spec of DP is optional, while the movement of NPs such as *sakwa* or *chayk* is obligatory, since if the movement does not occur, the results are ungrammatical.

- (26) a. \*Chelswu-ka sey sakwa(-lul) kay mek-ess-ta.  
 -Nom three apple(-Acc) Cl eat-Past-Dec  
 b. \*chayksang wi-ey sey chayk(-i) kwon iss-ess-ta.  
 desk top-Loc three book(-Nom) Cl be-Past-Dec

It is not clear how the fact that the optionality of NP movement changes depending on nouns can receive a straightforward account. Under Park's (2009) analysis, the problem would be even worse, since a nominal element is treated as a subject. *Haksayng* or *ceyca* would be under Spec of RP in (10) and to get the word order in (20), it should undergo lowering movement to CIP or Cl.

### 2.3 The Status of a Numeral

A third piece of evidence concerns with the status of a numeral. Under my analysis, it is treated as a head, and its modifiers such as *motwu haphay* 'combined together', *kikkethayya* 'at the best', or *manhayya* 'at the most' would be under Spec of NumP. Thus, under the structure in (7), a natural word order among a numeral, its modifiers, and an NP would be “modifier>NP>numeral,” disregarding a classifier. In other words, under (7), it is expected that a numeral and its modifiers can be separated by an NP, which is borne out by the examples in (27):<sup>15</sup>

- (27) a. Chelswu-ka motwu haphay/manhaaya/kikkethayya  
sakwa-lul sey kay mek-ess-ta.  
b. chayksang wi-ey motwuhaphay/manhaaya/kikkethayya chayk-i  
sey kwon iss-ess-ta.  
c. ipen ciphoy-ey motwu haphay/manhaaya/kikkethayya  
haksayng-i seys chamyehay-ss-ta.  
d. Kim kyoswu-ka motwu haphay/manhaaya/kikkethayya  
ceyca-lul twul chwuchenhay-ss-ta.

However, under the previous studies, a numeral and its modifier, forming a maximal projection, would be under a Spec position of either CIP or #P. In other words, they are base-generated, not being separated by any element. Thus, in order to get the word order in (27), either the modifier should move higher than CIP or #P or the NP should move inside the maximal projection that consists of a numeral and its modifier. It is not clear how either option can be motivated.<sup>16</sup>

#### 2.4 Selectional Restriction of a Numeral

A final piece of evidence concerns with a selectional restriction that a numeral imposes on an NP with which it co-occurs. Given that a selectional restriction holds normally between a head and its complement structurally, I claim that the selectional restriction in question constitutes an important piece of evidence in favor of (7) or (14).

Then, what is the nature of the selectional restriction? I pointed out earlier that it involves a feature [+numerable] of a noun and that genuine classifiers and nouns such as *haksayng* or *ceyca* have the feature, while nouns such as *sakwa* or *chayk* do not. I will show that there are another feature and lexical item involved in the

<sup>15</sup> If an NP moves out of NumP, we get the following sentences, which are all grammatical.

- (i) a. Chelswu-ka sakwa-lul motwu haphay/manhaaya/kikkethayya sey kay mek-ess-ta.  
b. chayksang wi-ey chayk-i motwu haphay/manhaaya/kikkethayya sey kwon iss-ess-ta.  
c. ipenciphoy-ey haksayng-i motwu haphay/manhaaya/kikkethayya seys chamyehay-ss-ta.  
d. Kim kyoswu-ka ceyca-lul motwu haphay/manhaaya/kikkethayya twul chwuchenhay-ss-ta.

<sup>16</sup> See Chomsky (1995: 48, 330) for the proposal that adjuncts or adverbial expressions cannot be interpreted as if they have been moved.

selectional restriction. The lexical item is *amwu* 'any'. This confirms that the selectional restriction generally holds between a numeral/*amwu* and a nominal element with which it co-occurs.

What is interesting concerning *amwu* 'any' is that it is very similar to a numeral in the way it combines with a noun and word order. First, it requires a noun. That is, *amwu* 'any' should be used with a noun to its right.<sup>17</sup> One might question the validity of this requirement by pointing out that *amwu-to/na* 'anybody' is possible. I claim that there is an empty noun, probably *pro* which is [+human], right to *amwu*. The crucial evidence for this claim comes from the following examples:

- (28) a. *amwu namca-eykey-to*, *amwu saram-eykey-to*,  
           man-to-                                  person-to-  
           *amwu haksayng-eykey-to*  
           student-to-  
       b. \**amwu namca-ey-to*, \**amwu saram-ey-to*, \**amwu haksayng-ey-to*
- (29) a. *amwu kkoch-ey-to*, *amwu hakkyo-ey-to*,  
           flower-to-                          school-to-  
           *amwu kikwan-ey-to*  
           organization-to-  
       b. \**amwu kkoch-eykey-to*, \**amwu hakkyo-eykey-to*,  
           \**amwu kikwan-eykey-to*

(28, 29) show that the choice of *-eykey* or *-ey* 'to' depends on whether or not its preceding noun refers to a human. When the noun is [+human], *-eykey* is used, while it is [-human], *-ey* is used. In other words, *amwu* does not decide which form to be used. However, only *-eykey* is allowed after *amwu* with no overt noun and crucially, *amwu-eykey-to* 'to anyone' only refers to human beings. If we intend to refer to a non-human being using *amwu*, we should put *kes* 'thing' after *amwu* and only *-ey* is allowed:

- (30) a. *amwu-eykey-to*/\**amwu-ey-to*  
       b. *amwu kes-ey-to*/\**amwu kes-eykey-to*

<sup>17</sup> Here I ignore the fact that it requires either *-to* or *-(i)na*.

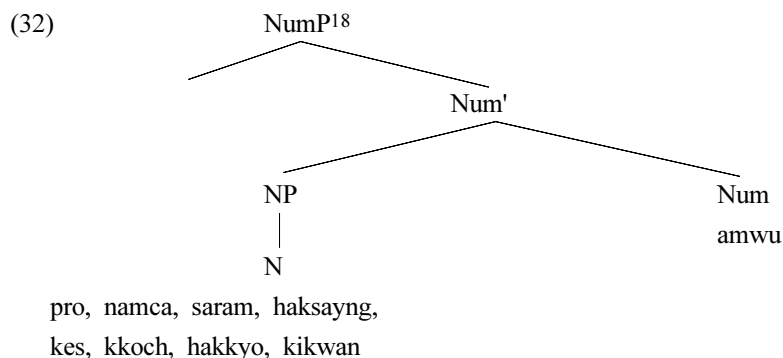


As one can easily guess, this pattern can be nicely accounted for if we assume that there is *pro* after *amwu*. Incidentally, *amwu-to/na* only refers to human beings as well.

Second, the word order pattern is also similar. As mentioned earlier, *amwu* appears left to a noun that it requires, but when an NP appears with Nom or Acc, it appears left to *amwu*, as shown below:

- (31) a. Chelswu-ka kwail-ul amwu kes-to mek-ci anh-ass-ta.  
           -Nom fruit-Acc anything- eat-Neg-Past-Dec  
           ‘Chelswu ate no fruits.’
- b. chayksang wi-ey nay-ka coaha-nun chayk-i  
    desk top-Loc I-Nom like-Rel book-Nom  
    amwu kes-to eps-ess-ta.  
    anything- be.no-Past-Dec  
    ‘There were no books that I like.’
- c. ipen ciphoy-ey haksayng-i amwu-to  
    this meeting-Loc student-Nom anyone-  
    chamyeoha-ci anh-ass-ta.  
    participate-Neg-Past-Dec  
    ‘No students participated in this meeting.’
- d. Kim kyoswu-ka ceyca-lul amwu-to  
    professor-Nom pupil-Acc anyone-  
    chwuchenha-ci anh-ass-ta.  
    recommend-Neg-Past-Dec  
    ‘Professor Kim recommended no pupils.’

These similarities lead us to adopt the structure in (32) for *amwu-N-to/(i)na*.



However, *amwu* differs from numerals with respect to selectional restriction. To see this, consider the following examples of *amwu-N*:

- (33) a. *amwu sakwa, amwu chayk, amwu haksayng, amwu ceysca,*  
 apple book student pupil  
*amwu tanchey, amwu hakkyo, ...*  
 organization school
- b. \**amwu kay, \*amwu kwon, \*amwu myeng, ...*  
 Cl Cl Cl

(33b) shows that *amwu* cannot co-occur with genuine classifiers. This fact cannot be captured in term of a feature [+/-numerable] since *amwu* can co-occur with noun which are [-numerable], as shown in (33a). We need another feature that distinguishes genuine classifiers from ordinary nouns. Let us call this feature [+/-property] based on the intuition that genuine classifiers have no property which is related to the description of ordinary nouns. Then we can describe the difference between numerals and *amwu* as follows:

- (34) a. Numerals select NPs with a feature [+numerable].  
 b. *amwu* selects NPs with a feature [+property].

In turn, nouns can be classified as follows in terms of these two features:

<sup>18</sup> I tentatively suggest *amwu* to be under Num.

- (35) a. sakwa, chayk, pay, kes, pro; [-numerable, +property]  
 b. haksayng, ceyca, namca, saram; [+numerable, +property]  
 c. kwon, kay, myeng, phyen; [+numerable, -property]

## 2.5 Summary

To summarize, a numeral or *amwu* in Korean, as an independent head, requires an NP as its complement and each imposes its own selectional requirement on its complement NP. A numeral requires its NP to have a feature [+numerable], and *amwu* its NP to have a feature [+property]. In cases where the complement NP that a numeral requires is an ordinary noun, head movement is optional, and when no head movement occurs, the complement NP precedes its head, which is shown in (2). However, if the NP is a genuine classifier, head movement is obligatory due to its clitic-like property and when the head movement occurs, a numeral precedes a nominal element. In turn, an additional NP would be required when a nominal element that a numeral selects is a genuine classifier, since it does not have any kind-denoting property.

Finally, before we move on to the next issue concerning Kayne's antisymmetry thesis, let us consider some remaining problems to complete the discussion so far.

First, under (32), it should be assumed that *amwu-N-to/(i)na* is formed via head movement. The problem with this assumption is that the movement is obligatory, as shown below:

- (36) a. Chelswu-ka amwu kwail-to mek-ci anh-ass-ta.  
           -Nom any fruit- eat-Neg-Past-Dec  
 b. chayksang wi-ey nay-ka coaha-nun  
    desk top-Loc I-Nom like-Rel  
    amwu chayk-to eps-ess-ta.  
    any book- be.no-Past-Dec  
 c. ipen ciphoy-ey amwu haksayng-to chamyeha-ci anh-ass-ta.  
    this meeting-Loc any student- participate-Neg-Past-Dec  
 d. Kim kyoswu-ka amwu ceyca-to chwuchenha-ci anh-ass-ta.  
    professor-Nom any pupil- recommend-Neg-Past-Dec

- (37) a. \*Chelswu-ka kwail-to amwu mek-ci anh-ass-ta.  
           -Nom fruit- any eat-Neg-Past-Dec
- b. \*chayksang wi-ey nay-ka coaha-nun  
     desk top-Loc I-Nom like-Rel  
     chayk-to amwu eps-ess-ta.  
     book- any be.no-Past-Dec
- c. \*ipen ciphoy-ey haksayng-to amwu chamyeha-ci anh-ass-ta.  
     this meeting-Loc student- any participate-Neg-Past-Dec
- d. \*Kim kyoswu-ka ceysa-to amwu chwuchenha-ci anh-ass-ta.  
     professor-Nom pupil- any recommend-Neg-Past-Dec

We cannot adopt the motivation that is used for the obligatory movement of a genuine classifier, since what move here are not classifiers. I claim that the obligatory movement here is due to a certain locality condition between *amwu* and *-to/(i)na*, whose exact nature remains to be discussed.<sup>19</sup>

Second, how should we deal with the NPs that appear before *amwu* in (31c, d) if a noun that is required by *amwu* must move? The key to this problem can be found from the claim that was made earlier as for *amwu-to*. I suggested that *amwu-to* is indeed *amwu-pro-to*. If correct, it means that if a noun required by *amwu* is either *kes* or *pro*, an additional NP may appear. This makes sense, since either lacks any denoting property except a feature [human]. This additional NP can be either in a complement or a specifier position of an NP whose head is *kes* or *pro*. I tentatively claim that it is in a specifier position, since it is unlikely that *kes* or *pro* requires a complement.

Finally, on the issue of how the Case of the NPs that appear before a numeral-(classifier) or *amwu* in (1, 2, 31) is licensed, I suggest that it is licensed by a Case assigner outside NumP or #P via Agree in the sense of Chomsky (2000, 2001a, b), given that the NPs are assumed to be inside NumP or #P. Let me just point out that this aspect of Case licensing is not atypical in Korean. Given below are some examples which exhibit the same pattern:

- (38) a. Chelswu-ka Yeongmi-lul son-ul cap-ass-ta.

<sup>19</sup> See Choi (1998) for a tentative formulation of this licensing condition.

- Nom                    -Acc hand-Acc    hold-Past-Dec  
 ‘Chelswu held Yeongmi’s hand.’
- b. Chelswu-ka    khi-ka            khu-ta.  
                   -Nom height-Nom   tall-Dec  
 ‘Chelswu is tall.’
- c. Chelswu-ka    enehak-ul        kongpwu-lul    hay-ss-ta.  
                   -Nom linguistics-Acc study-Acc    do-Past-Dec  
 ‘Chelswu studied linguistics.’

### 3. Against a Kayne-based Approach

As mentioned earlier in the introduction, one easy approach to get the N-Num-CI order of the N-Case type is to assume the structure in (6), and to force the NP to move to Spec of NumP or higher than NumP. Simpson (2005) adopts former option to get the N-Adj-Num-CI-Dem order in Thai which is basically head-initial. If this kind of approach is successful, it would be evidence for Kayne's antisymmetry thesis which claims that phrase structure is universally head-initial. In this section, I point out two problems that such an approach would face.

Note that along with the examples in (27), the following sentences where Case-marked NPs precede elements modifying numerals are also good, as mentioned in note 15:

- (39) a. Chelswu-ka sakwa-lul motwu haphay/manhaaya/kikkethayya  
           sey kay mek-ess-ta.  
       b. chayksang wi-ey chayk-i motwu haphay/manhaaya/kikkethayya  
           sey kwon iss-ess-ta.  
       c. ipen ciphoy-ey haksayng-i motwu haphay/manhaaya/kikkethayya  
           seys chamyehay-ss-ta.  
       d. Kim kyoswu-ka ceyca-lul motwu haphay/manhaaya/kikkethayya  
           twul chwuchenhay-ss-ta.

In my account, there is no NP-movement in (27), while there is in (39). In fact, there seems to be a difference in information structure between the two. That is, the

NPs which precede elements modifying numerals in (39) have presentational focus, while the NPs which follow them in (27) do not. However, it is not clear how this difference would be captured under a Kayne-based approach. Note that the elements modifying numerals in (27) or (39) would be under Spec of NumP in (6). Then, to get the order in (39), the Case-marked NPs should move higher than NumP, and to get the order in (27), they should move into inner Spec of NumP, assuming that the elements modifying numerals are in outer Spec of NumP. Since either movement is obligatory as shown below, we need certain motivation for either movement. The problem is that it is not likely to have a good motivation for the latter movement:

- (40) a. \*Chelswu-ka motwu haphay/manhaaya/kikkethayya  
sey kay sakwa-lul mek-ess-ta.  
b. \*chayksang wi-ey motwu haphay/manhaaya/kikkethayya  
sey kwon chayk-i iss-ess-ta.  
c. \*ipen ciphoy-ey motwu haphay/manhaaya/kikkethayya  
seys haksayng-i chamyehay-ss-ta.  
d. \*Kim kyoswu-ka motwu haphay/manhaaya/kikkethayya  
twul ceyca-lul chwuchenhay-ss-ta.

One might say that the claim that the movements that are supposed to occur in (27) or (39) are obligatory is suspicious, based on the fact that if *sey* or *twu* is used instead of *seys* or *twul*, the sentences become grammatical, as shown in (41):

- (41) a. ipen ciphoy-ey motwu haphay/manhaaya/kikkethayya  
**sey** haksayng-i chamyehay-ss-ta.  
b. Kim kyoswu-ka motwu haphay/manhaaya/kikkethayya  
**twu** ceyca-lul chwuchenhay-ss-ta.

Here the differences in the form of numerals are crucial. I claim that the differences correlate with the projectional status of the noun. Recall that a nominal element following a numeral is not an NP but an N which undergoes head movement to the numeral in my account. On the other hand, a nominal element preceding a numeral is an NP. The evidence for this difference is that a nominal element preceding a numeral allows the modification by relative clauses or genitives,

while a nominal element following a numeral does not, as shown below:<sup>20</sup>

- (42) a. ipen ciphoy-ey [mikwuk-eyse o-n]/[Kwangwun tayhakkyo-uy]  
 this meeting-Loc America-from come-Rel university-Gen  
 haksayng-i **seys** chamyehay-ss-ta.  
 student-Nom three participate-Past-Dec
- b. Kim kyoswu-ka [sengcek-i hwulywungha-n]/  
 professor-Nom grade-Nom excellent-Rel  
 [Park kyoswu-uy] ceyca-lul **twul** chwuchenhay-ss-ta.  
 professor-Gen pupil-Acc two recommend-Past-Dec
- (43) a. \*ipen ciphoy-ey **sey** [mikwuk-eyse o-n]/  
 this meeting-Loc three America-from come-Rel  
 [Kwangwun tayhakkyo-uy] haksayng-i chamyehay-ss-ta.  
 university-Gen student-Nom participate-Past-Dec
- b. \*Kim kyoswu-ka **twu** [sengcek-i hwulywungha-n]/  
 professor-Nom two grade-Nom excellent-Rel  
 [Park kyoswu-uy] ceyca-lul chwuchenhay-ss-ta.  
 professor-Gen pupil-Acc recommend-Past-Dec

Therefore, *seys* or *twul* in (40c, d) tells us that the nominal element following each is an NP and the ungrammaticality of (40c, d) means that the NP movement in question is obligatory under (6). Incidentally, note that the sentences in (41) would be treated as a result of head movement even under the structure in (6). Crucially the contrast between (40c, d) and (41) which is caused by the change in the form of a numeral means that the head movement in question is also obligatory. In other words, this amounts to saying that under (6), when a numeral selects an ordinary noun as its complement, the noun should undergo either NP or head movement. So, the movement in question is a new type of movement in that it is obligatory and it can choose its moving size. The problem is that it is not clear whether this new type of movement can be successfully motivated.

<sup>20</sup> Incidentally, this contrast would be independent evidence for the claim that a classifier and a noun move in (18) and (19) respectively. Also it means that when *han* 'one', *twu* 'two', *sey* 'three', or *ney* 'four', instead of *hana*, *twul*, *seys*, or *neys*, is used, an X<sup>0</sup> adjoined structure is employed.

#### 4. Concluding Remarks

As indicated in many studies (Cheng and Sybesma 1999, Simpson 2005, Park 2009 etc.), on one hand, the functions of numerals and classifiers are semantically distinct in that numerals have the function of number specification and classifiers provide the function of individuation. On the other hand, they are semantically closely related in that numerals have to be related to a linguistic form that denotes a unit. Then, taken as a whole, it would be conceptually natural to postulate distinct head positions for a numeral and a classifier respectively and assume that a numeral selects a classifier as its complement, which are encoded in the structure in (7). What we have seen so far is that those structural assumptions are also empirically supported for the N-Case type numeral classifier construction and *amwu* expressions. I also showed that a Kayne-based alternative to (7) has serious problems that are related to movement operations that are unavoidable under the alternative. Finally, given that it is plausible that the structural assumptions in (8) might hold for the other types, it has certain implications for the relationships among the four types of numeral classifier constructions in Korean. I will leave discussion of those for future research.

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Received: 2011. 08. 25

Revised: 2011. 12. 08

Accepted: 2011. 12. 12