The Syntax of Numeral Classifiers:
A Small Clause inside a DP*

So-Young Park
(Seoul National University)

This paper presents a unified analysis of various numeral classifier constructions in Korean. Capitalizing on the idea that a small clause structure is embedded within a DP, four patterns of numeral classifier constructions will be shown to receive a straightforward account. Pattern I, where a noun host precedes its numeral classifier, represents a basic underlying structure. Pattern II, where a genitive-marked numeral classifier precedes the noun associate, is analyzed as being derived from Pattern I by inverting the numeral classifier prior to its host noun (i.e., predicate inversion). When it comes to Pattern III and Pattern IV, where a noun associate and its numeral classifier surface separated from each other but the former does not have the Case-marking on a numeral classifier while the latter does. I propose that the two nominal phrases are linked to each other by a trace and by a *pro*, respectively. The proposed account, coupled with the minimal set of nominal functional projections, dispenses with stipulations on movement, and argues for the DP-hypothesis in Korean.

Keywords: numeral classifiers, small clauses, predication, predicate inversion, numeral classifier floating, nominal functional projections

1. Introduction

Korean, as one of the classifier languages, exhibits four patterns of numeral classifier constructions, as illustrated in (1) and (2) below.

(1) a. ku-nun   ***chayk***   ***sey***   ***kwen-ul***   ilkessta.
        he-Top   book   three   Cl-Acc   read
        'He read (the) three books.'

    b. ku-nun   ***sey***   ***kwen-uy***   ***chayk-ul***   ilkessta.
        he-Top   three   Cl-Gen   book-Acc   read

---

  c. ku-nun   *chayk-ul*   *sey*   *kwen*   ilkessta.
      he-Top   book-Acc   three   Cl   read

  d. ku-nun   *chayk-ul*   *sey*   *kwen-ul*   ilkessta.
      he-Top   book-Acc   three   Cl-Acc   read

(2) a. Pattern I: N   Num   Cl-Case (Nom/Acc)
     b. Pattern II: Num   Cl-Gen   N-Case
     c. Pattern III: N-Case   Num Cl
     d. Pattern IV: N-Case   Num Cl-Case

This paper proposes a DP structure which can derive such a variety of numeral classifier constructions without making stipulations on movement. The DP structure proposed in this paper diverges from the previous approach in this field (Terada 1990, Kitahara 1993, J-H Kim 1994, Kawashima 1998, Cheng & Sybesma 1999, Kakegawa 2000, K-Y Choi 2001, C Kim 2005, Watanabe 2006, etc.), in that the proposed DP structure contains a predication structure inside it (inspired by Kayne 1994; Den Dikken 1998, 2006; Muromatsu 1998). I suggest that a small clause structure, labeled as RP (Den Dikken 2006, "Relator Phrase"), consists of a nominal subject and a #P (Number Phrase) predicate, and this RP is embedded within DP, as represented in (3) below. The #P predicate, in turn, embeds a ClP (Classifier Phrase) projection inside it.

(3)
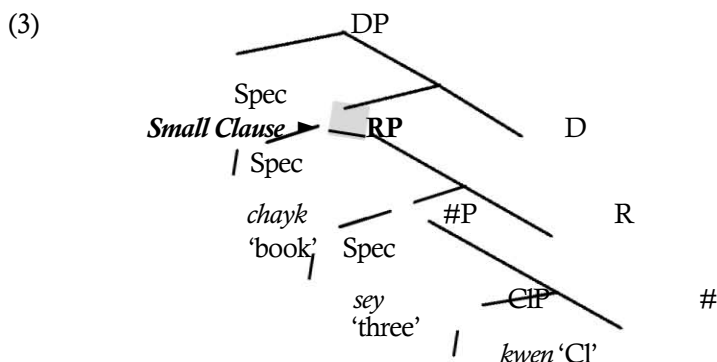
This paper will proceed as follows; in section 2, I examine the previous literature in the field and discuss problems to be resolved. In section 3, the proposal is laid out. Finally, section 4 recapitulates the main points of this paper.

2. Problems of the Previous Studies

The existence of various patterns of numeral classifier constructions as in (1)[1] raises the following questions.

(4)　a. Are they syntactically related?
　　　b. How are they derived if they are syntactically related?
　　　c. What is the syntactic relation between the nominal host and its numeral classifier?

The majority of the previous literature within the generative grammar framework (Terada 1990, Kitahara 1993, Kakegawa 2000, C Kim 2005, Watanabe 2006) based their analyses on the assumption that those patterns are interrelated syntactically by movement and attempted to offer a principled account of the whole range of numeral classifier constructions. However, there are major problems to be resolved in the field. First, there has been no consensus in the kinds and the number of nominal functional projections which are minimally necessary to account for the numeral classifier constructions. Second, it is not entirely clear what motivates DP-internal movement, which is assumed to derive the various patterns. In what follows, we examine how the previous studies provide an answer to the research questions listed in (4) above. We will go over three analyses, the analysis of Kitahara (1993), the analysis of Kakegawa (2000) and that of Watanabe (2006), one by one.

2.1. Kitahara's (1993) Analysis

Kitahara (1993) proposes the following structures for pattern I and III in Japanese: (5) below for derivation of Pattern III and (6) for Pattern I, respectively.

---

[1] Japanese allows four patterns of numeral classifier constructions, as illustrated in (i).

(i)　a. kare-wa　***hon***　***san***　***satu-o***　　yonda.
　　　　he-Top　book　three　CL-Acc　　read
　　　　'He read (the) three books.'
　　　b. kare-wa　***san　satu-no***　***hon-o***　　yonda.
　　　　he-Top　three CL-Gen　book-Acc　read
　　　c. kare-wa　***hon-o***　***san　satu***　　yonda.
　　　　he-Top　book-Acc three　CL　　read
　　　d. kare-wa　***san***　***satu***　***hon-o***　　yonda.
　　　　he-Top　three　CL　　book-Acc　read

Korean and Japanese share the first three patterns in (i). But Japanese marginally allows Pattern IV of Korean shown in (1d) (i.e., "the double-o constraint" of Japanese), and Korean disallows the fourth pattern of Japanese in (id). Such a parametric variation between Korean and Japanese is worth showing, but goes far beyond the scope of this paper.

(5) [$_{DP}$ hon-o   [$_{NCP}$ ~~hon-o~~ [$_{NC'}$ ~~hon-o~~   san   satsu]] D$_{<+ACC>}$]
     book-Acc   three Cl

(6) a. [$_{DP}$ [$_{NCP}$ hon [$_{NC'}$ ~~hon~~   san   satsu-o]]D$_{<+ACC>}$]
                                book   three Cl-Acc

   b. [$_{DP}$hon   san   satsu-o [$_{NCP}$ ~~hon~~[$_{NC'}$ ~~hon   sansatsu-o~~]]D$_{<+ACC>}$]
        book three Cl-Acc

Kitahara (ibid.) assumes two nominal functional projections: NCP (Numeral Classifier Phrase) and DP. A nominal host occupies the complement position of its numeral classifier. In (5), *hon-o* 'book-Acc', the complement of the numeral classifier, moves to Spec/NCP to enter into the checking relation with the numeral classifier and further moves to Spec/DP where [+Acc] is checked off. In (6a), *hon* 'book' moves to Spec/NCP and then the whole NCP whose head bears the [+Acc] feature moves to Spec/DP.

   According to Kitahara (ibid.), the need for checking the (accusative) Case-feature as well as that of checking a nominal's phi-feature motivates DP-internal movement. An accusative-marked NP in a floating pattern must move to Spec/DP whose head bears the Case-feature. However, it is controversial whether D in Japanese is indeed responsible for (accusative) Case. Also, this view has a drawback in that it is hard for it to be generalized to the sentence-level syntax across languages. Case is DP-external, assigned usually by being in the relationship with verbal extended projections. D, in general, is rather considered as the locus for definiteness or referentiality of noun phrases (Longobardi 1994, Li 1999, Chomsky 2000, Borer 2005, Simpson 2005).

2.2. Kakegawa's (2004) Analysis

   Kakegawa's (2004), on the other hand, proposes the following structures: structure (7) for Pattern III and (8) for Pattern I.

(7) [$_{NumP}$ hon-o   [$_{ClP}$san   ~~hon-o   satsu~~] satsu]
                  book-Acc   three   Cl

(8) [$_{DP}$[$_{NumP}$ hon   [$_{ClP}$ san   ~~hon   satsu~~] satsu] o]
                 book   three   Cl   Acc

Kakegawa (ibid.) posit three kinds of nominal functional projections, ClP, NumP and DP. A number is base-generated under Spec/ClP, whose head is occupied by a classifier. A nominal host occupies the complement position of a ClP. In (7) and (8), a noun *hon* 'book' moves to the Spec/NumP position to check off its phi feature by being in a Spec-Head agreement relation with the

Num Head. The D position is occupied by the accusative marking.

Kakegawa (ibid.) argues that checking a host noun's phi features is the motivation for DP-internal movement. The background of this idea is that selection restriction is established between a classifier and its noun associate in classifier languages; a noun selects a certain classifier which matches with its semantic features (i.e., *myeng* in Korean for human beings, *cang* for sheer objects, *tay* for machines, etc.) But, those semantic features, in essence, are different in nature from phi features such as gender and number, which induce formal verb agreement in many languages and determine the grammaticality of a sentence. It is unlikely that these fine-faceted lexical semantic features can be considered as formal syntactic features which motivate movement (Chomsky 1995). *salam han mari* 'person one-Cl' (for animals), for instance, is considered to be pragmatically odd, apart from its grammaticality judgment.

2.3. Watanabe's (2006) Analysis

Finally, Watanabe (2006) posits the pattern in (9a) below as the underlying structure from which the other patterns are derived by merge and movement. (9a) is the structure for Japanese Pattern I, (9b) for Pattern II, and (9c) for Pattern III.

(9) a. [$_{CaseP}$ hon [$_{#P}$ san [$_{NP}$ ~~hon~~] satsu] o]
      book   three   Cl   Acc

   b. [$_{QP}$ san-satsu-no [$_{CaseP}$ hon [$_{#P}$ ~~san satsu~~] o]
      three-Cl-Gen   book   Acc

   c. [$_{DP}$ hon-o [$_{QP}$ san satsu [$_{#P}$ ~~hon-o~~]]]
      book-Acc   three Cl

Watanabe (ibid.) posits four nominal functional projections: #P, CaseP, QP and DP. In structure (9a), a classifier occupies the # Head and a number occupies the Spec/#P position. In order to obtain correct linear ordering, the NP *hon* 'book' moves to the Spec of CaseP position driven by the EPP feature of a Case Head. The assumption here is that the accusative Case is assigned by CaseP projected inside a DP. The second pattern given in (9b) emerges from the #P's movement to Spec/QP when Q is merged on top of CaseP. The genitive marking on the numeral classifier is assumed to be inserted at PF, in contrast to the case of accusative Case. The third pattern given in (9c) is derived when the CaseP *hon-o* 'book-Acc' moves to Spec/DP. CaseP and D are in the agreement relation with respect to specificity, and raising CaseP to Spec/DP is argued to obligatorily yield non-specific readings.

Watanabe (ibid) posits those four functional projections to accommodate all

the possible linear orderings of numeral classifiers by relying on remnant movement only. The three patterns have the distinct syntactic status as CaseP, QP, and DP, respectively. The distinct syntactic status which varies depending on the patterns leads us to expect that they would syntactically behave in a different manner or they are semantically different. However, their syntactic behaviors seem to be similar; they all can occur as arguments of verbs. Semantically, all the three patterns can denote referential objects in the world, without being necessarily quantificational.

Watanabe (ibid.) assumes the EPP feature based on feature agreement (Chomsky 2001) as the motivation for movement. However, it seems that his motivation for movement cannot be fully justified. The NP's raising to the Spec/CaseP position is stipulated to obtain the surface ordering. As for the motivation of movement of the #P to Spec/QP as in (9b), Watanabe (ibid.) argues that the mass-count distinction is represented by the [±Number] feature on the # head, and due to this Number information, #P and Q are in the agreement relation. Quantifiers in Japanese other than numerals exhibit the need for checking singularity of the # head, and this is, he argues, evidence for the optional movement of a numeral classifier to Spec/QP. However, this logic is quirky. A numeral classifier already has information regarding the mass-count distinction, and there is no necessary reason for it to enter into the checking relation with Q, as is also shown in the derivation of the first pattern in (9a). If there is no obligatory reason to move, movement does not occur in terms of economy considerations. Finally, Watanabe (ibid.) explains that movement of CaseP to Spec/DP as in (9c) is triggered by the agreement relation between Case and D, which concerns specificity. Obligatory non-specific readings emerge when CaseP raises to Spec/DP. However, this derivation also seems to be unusual in that specific readings are supposed to be derived when Spec/DP or D positions are lexically filled (Longobardi 1994, Li 1998, Borer 2005).

In summary, we examined the three analyses, the analysis of Kitahara (1993), that of Kakegawa (2000) and that of Watanabe (2006). They differ from each other in the number and the kinds of nominal functional projections, which vary depending on the choice of a certain syntactic mechanism regarding movement. The motivations for movement such as Case-checking or phi-feature-checking cannot be fully justified. However, they share the main features of the analyses; in all the analyses, a noun host occupies the complement position of a numeral classifier or a classifier, and the nominal functional projections embed the nominal host one after another, thereby forming a simple layered structure.

In what follows, however, I argue that this basic syntactic relation between a nominal host and its numeral classifier should be changed and propose that they are instead in predication relationship. A nominal host and its numeral

classifier are in a predication relation, forming a small clause RP as a whole. This RP is embedded within DP. I argue that the first pattern in (1a) represents an underlying structure and the other patterns are derived from it. Based on this idea, this paper attempts to provide a unified account which can account for the whole range of numeral classifier constructions, by appealing to a minimal set of nominal functional projections and the general theory of movement.

3. A Proposal

3.1. A Small Clause inside a DP

In this section, a proposal is laid out. I propose that numeral classifier con- structions have an underlying structure, in which a predication structure, more specifically a small clause, is embedded within a DP.[2] My analysis diverges from the previous analyses of numeral classifier construction, which are basi- cally built upon a simple layered structure, whereby one nominal functional projection embeds another functional projection one by one (Kitahara 1993, J- H Kim 1994, Kawashima 1998, Cheng & Sybesma 1999, Kakegawa 2000, C Kim 2005, Watanabe 2006).

The idea of DP structure which embeds a predication structure, in fact, is not new. Kayne (1994) proposes DP structures embedding CPs for relatives and possessives. In the same spirit, in order to endorse predication internal to nominal categories on a par with clausal syntax, Den Dikken (1998, 2006) proposes a DP structure embedding a small clause inside it. Den Dikken (ibid.) analyzes the *N of a N* construction as given in (10) below.

(10) a. that idiot of a doctor

   b.
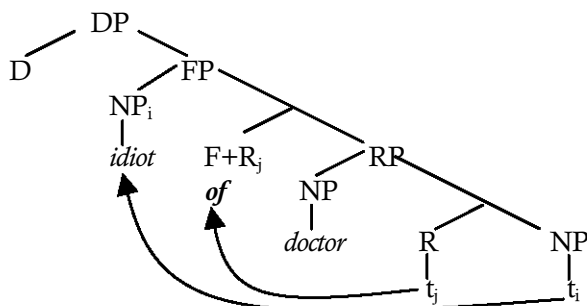
In (10b), the DP contains a small clause RP where two nominal constituents

---

are in a predication relation by the mediation of a functional head Relator. The surface string in (10a) has the linear order where the predicate *idiot* precedes the subject *doctor*. We should move the predicate *idiot* skipping over its subject in (10b) to get the right surface order. But this movement is not the shortest movement because of the intervening subject and violates the locality condition.

Den Dikken (1998, 2006) solves this problem by positing a Linker phrase labeled as FP. FP has a function to provide the link between an inverted predicate and its subject at the original position. The Relator undergoes head movement to the Linker head F, resulting in domain-extension. The two nominal constituents inside the small clause thus become equidistant from the Spec/FP position. Predication inversion[3] takes place, whereby the predicate NP *idiot* moves to Spec/FP, skipping the subject NP of the small clause without violating the locality condition. Predicate inversion necessitates head movement of the small clause head to a higher Linker head F. The resulting incorporation complex is spelled out as *of* in the nominal domain, which is a nominal counterpart of a clausal copular *be*.

An inverse predication in the clausal domain must use the copular *be*, as exemplified in (12) below. In sentences in (12), a verb like *consider* is used in the matrix clause.

(11) [$_{RP}$ John [my best friend]]

(12) a. I consider John (to be) my best friend.
      b. I consider my best friend *(to be) John.

The small clause RP in (11) surfaces in the complement position of *consider* in

---

[3] The sentences in (i) and (ii) below illustrate predicate inversion in English (Moro 1997, Den Dikken 2006). Each (a) sentence exhibits the canonical ordering of a subject and its predicate, whereas each (b) sentence exhibits the inverted ordering.

(i)   a. Brian is the best candidate.
       b. *The best candidate* is Brian.

(ii)   a. World War II is an example of this.
   b. *An example of this* is World War II.

Sentences with predicate inversion have distinct syntactic properties from those of the sentences with the canonical ordering with respect to A-bar extraction and distributions of the copular as exemplified in (iii) and (iv) below.

(iii) a. *Which man$_i$* do you think t$_i$ is the best candidate?
       b. **Which man$_i$* do you think the best candidate is t$_i$?

(iv)   a. I consider Brian (to be) the best candidate.
       b. I consider the best candidate *(to be) Brian.

Refer to Den Dikken (2006) for the theoretical explanations of these phenomena.

(12). When *consider* embeds an inverse predication as in (12b), the copular *be* must be used. Den Dikken (1998, 2006) holds that the obligatory use of *be* and *of* in the nominal domain is the syntactic signal of the application of inversion of a predicate around its subject. Those elements serve as Linker elements, facilitating predicate inversion.

 Capitalizing on this idea, I propose that numeral classifier constructions have a DP structure embedding a small clause labeled as RP, as in (13) below.

(13)
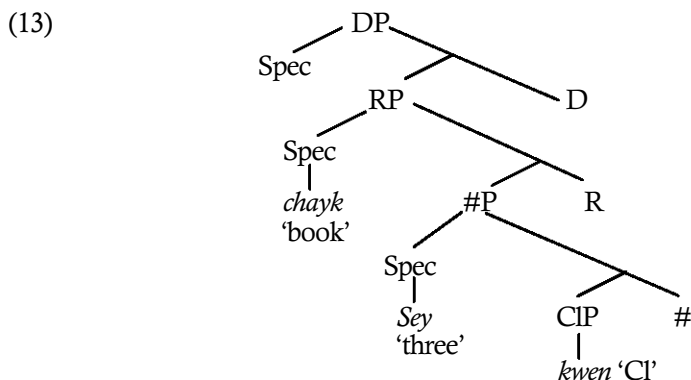
A number is generated under Spec/#P and a classifier occupies a ClP head position. A numeral classifier forms a #P, as a whole, and serves as a predicate of its nominal host at Spec/RP.[4] The predication relationship established between a noun and its numeral classifier is mediated by Relator head. The Rela-

---

[4] English numerals differ from Korean numeral classifiers in that the former do not behave as predicates, as a reviewer pointed out. The nominal expression, *the three cats*, for instance, can be analyzed as in (i) below (Borer 2005).

 (i) [DP   the[#P   three [ClP cats   [NP ~~cats~~]]]]

Borer (2005) argues that *-s* is a classifier inflection, namely a spell-out of a dividing feature. The noun with the dividing feature undergoes head-to-head movement to check its feature and the number *three* projects a #P on top of ClP. As structure (i) shows, a simple layered structure suffices to account for English numerical expressions and we don't need to postulate a rather complicated DP-structure embedding a clausal structure like Korean. This contrast tells us something about the functions of classifiers in Korean. Classifiers in classifier languages represent the shapes that some objects are partitioned into and this is why a selection restriction should be observed between a noun and a classifier. That is, aside from the dividing feature that is purely functional, classifiers talk about the properties of molecules into which nouns are partitioned. By contrast, *-s,* a pure functional item for individuation, tell us nothing about the shapes of individuated entities and can be freely attached to any nouns without any selection restriction.
 Numeral classifier constructions, on the other hand, can be assimilated to pseudo-partitives in non-classifier languages. Corver (1998), for instance, presents an analysis of pseudo-partitives in English as having a nominal structure embedding a small clause. Classifiers in classifier languages and measure nouns in non-classifier languages share some common aspects in that both are used in order to individuate some mass stuff and exhibit selection restrictions with their nominal associates.

tor head[5] is not a novel functional category nor a lexical category, but an abstract functional head in the structure which mediates the predication relationship between two terms. The Relator head is not a category only confined to the nominal domain, but a general functional head that expresses predication relations at any domain, given that predications exist either in sentential domain or in nominal domain.

The treatment of a numeral classifier as a nominal predicate (Miyagawa 1989) can be justified by the following examples given in (14) and (15) below.

(14) a. chayk-i   sey-kwen-i-ta.
         book-Nom   three-CL-Cop-DC
      b. sakwa-ka   sey-kay-i-ta.
         apple-Nom   three-CL-Cop-DC

(15) a. chayk   sey-kwen/#sey-myeng/#sey-tay
         book   three-CL/three-CL (for person)/three-CL (for cars)
      b. sakwa   sey-kay/#sey-myeng/#sey-tay
         apple   three-CL/three-CL (for person)/three-CL (for cars)

The nouns and the numeral classifiers in (14) occur in subject-predicate structure in sentences. The examples in (15) show that selection restriction, the hallmark of the subject-predicate relationship, is established between the DPs and the numeral classifiers. The small clause analysis can capture those phenomena.

A numeral classifier as a nominal predicate is further demonstrated by its occurrences in other environments than numeral classifier constructions. It can appear as a predicate, being separate from its nominal host, as exemplified in (16).

(16) A: meyli-uy   chayk-un   elmana   toyni?
         Mary-Gen   book-Top   how many   become
         'How many books does Mary have?'

      B: tases   kwen-iya.
         five   Cl-Cop
         'Five books.'

In (16), a numeral classifier only can be uttered as an answer to the question, which supports a numeral classifier as a nominal predicate.

---

[5] Den Dikken (2006: 15-16) states that the Relator Head can be realized as a copular, as a prepositional element, or even as T.

In addition to this, numeral classifiers can be coordinated with adjectival predicates, which are typical elements for predication as in (17) below. Given that conjoined phrases must have the same semantic category it can be another piece of evidence for the claim of a numeral classifier as a predicate.

(17) a. sakwa-ka   tases kay-i-ko   *acwu*   *masissta*.
          apple-Nom   five   Cl-Cop-and   very   delicious
          'There are five delicious apples.'

    b. chayk-i   sey   kwen-i-ko   *maywu*   *twukkepta*.
          book-Nom   three Cl-Cop-and   very   thick
          'There are three thick books.'

The examples in (17) demonstrate that numeral classifiers can be considered as nominal predicates.

The underlying structure given in (13) employs three nominal functional projections such as ClP, #P, and DP, which are universally or minimally attested (Li 1998, Cheng & Sybesma 1999, Borer 2005, Simpson 2005). D is the locus for the definiteness feature, # is for the counting or quantizing feature (Borer 2005), and Cl is responsible for the individuating or dividing feature (Borer 2005, Simpson 2005). I consider that those three nominal functional projections reflect the minimal steps of human computations of nominal phrases. The small clause RP consists of a nominal subject and a #P predicate,[6] and finally the DP layer embeds the small clause RP, completing the nominal phrase.

I proposed that a classifier projects an independent head from that of a number in structure (13). However, there have been arguments against classifiers as independent heads. K-Y Choi (2001), in particular, claims that numerals are heads but classifiers are modifiers adjoined to the numeral heads. K-Y Choi (ibid.) presents two arguments; first, classifiers can be omitted, while numerals cannot. Second, classifiers cannot be modified. K-Y Choi (ibid.) claims that the analysis of classifiers as heads of some functional projection cannot capture those facts. However, I claim that they cannot be real arguments against classifiers as independent heads, provided that classifiers are suffixal elements in Korean and numbers and classifiers are in adjacent functional projections. Also, given that numbers, in the absence of classifiers, have dual functions of dividing as well as counting, which holds for other languages such as Turkish, the optionality of classifiers is expected. In addition to this, classifiers semantically have the function of individuating NPs, whereas numerals relate

---

[6] Given that a numeral classifier provides information regarding quantizing and atomic properties of its host noun, we may assume that a numeral classifier predicate is, in fact, headed by an additional null predicate roughly equated with 'Quantity-of'.

to the function of number specification or quantification. They are semantically distinct, which suggests that they project distinct functional structures. An NP with a quantization specification, for instance, does not necessarily imply a set of individuated entities. Rather, it can mean a non-individuated entity which is quantified (i.e., *much, lots of*, etc.).

In this paper, I argue that the predication relationship established between a nominal and its numeral classifier underlies all the patterns of numeral classifier constructions. Numeral classifiers, in all the numeral classifier constructions, have a quantizing and an individualizing function, and these basic functions in relation to a host noun are assumed to be invariant across the constructions. Pattern I, where a noun host precedes its numeral classifier, is argued to represent an underlying structure. Pattern II, where a genitive-marked numeral classifier precedes the noun associate, is analyzed to be derived from Pattern I by inverting the numeral classifier prior to its host noun (i.e., predicate inversion). We have Pattern III and Pattern IV left, where a noun associate and its numeral classifier surface separated from each other, and I propose that they are linked to each other by a trace and a *pro*, respectively.

3.2. Pattern I

Let us start with analyzing the first pattern, as in (1a) and repeated in (18).

(18) a. ku-nun   ***chayk   sey   kwen-ul***   ilkessta.
        he-Top   book   three Cl-Acc   read
        'He read (the) three books.'
    b. Pattern I: N   Num-Cl-Case (Acc/Nom)

This pattern I has a basic structure given in (19) below.

(19)
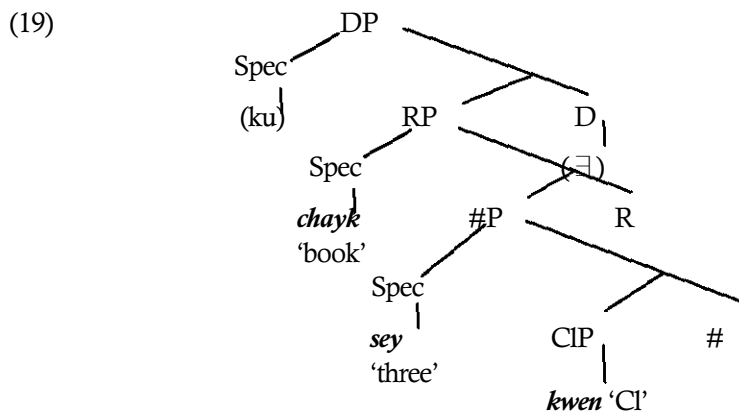
As in (19), a number is generated under Spec/#P and a classifier is in the Cl head. The nominal *chayk* 'book' occupies the Spec/RP position. The subject nominal phrase and the numeral classifier phrase form a small clause RP,[7] and then a DP projection embeds this small clause. Regarding the D, an existential operator may bind the position, giving rise to an indefinite reading. Or, D with a definite feature may merge, yielding a definite reading. Note that a demonstrative which marks a definiteness feature can be realized at a Spec/DP position (contra M-Y Kang 2001).[8] The whole nominal constituent is Case-assigned by the relevant head like AgrO (Koizumi 1995). The accusative marking on the numeral classifier, under my analysis, is DP-external, not DP-internal, which is assigned or checked by an extended verbal projection (contra Kitahara 1993, Watanabe 2006).

3.3. Pattern II

Let us turn to Pattern II, as exemplified in (1b) and repeated in (20) below.

(20) a. ku-nun   ***sey***   ***kwen-uy***   ***chayk-ul***   ilkessta.
       he-Top   three   Cl-Gen   book-Acc   read
    b. Pattern II: Num-CL-Gen   N-Case (Acc/Nom)

It seems to have been a predominant view in the Korean literature that Pattern II is derivationally unrelated to Pattern I; a genitive-marked numeral classifier in Pattern II is merely an adjunct, whereas a numeral classifier in Pattern I is

---

[7] A reviewer asked about the matter of Case on the host noun because it surfaces without Case on it. It is possible that a host noun in Pattern I has a syntactic status lower than DP, without any need for being Case-licensed.

[8] Semantically speaking, demonstratives give rise to definite readings of nominal phrases. Given that D is the locus for the definite feature, it is obvious that demonstratives are somehow linked to D. There are two possible options in their syntactic status, in observance with the tenet that Korean is a head-final language: demonstratives as adjuncts to DP, or as Spec of DP. Evidence from restrictions on word order supports the latter option. Demonstratives exhibit the fixed order in relation to other attributive adjectival items, as exemplified in (i).

   (i) a. ***i / ku / ce***   onkac   hen/say   sinpal
        this/that/that   all   old/new   shoes
        'all these/those old/new shoes'

     b. *onkac   ***i / ku / ce***   hen/say   sinpal
         all   this/that/that   old/new   shoes

     c. *onkac   hen/say   ***i / ku / ce***   sinpal
         all   old/new   this/that/that   shoes

In (i) above, demonstratives should precede the other pre-nominal modifiers which specify quantifies or properties of head nouns. The rigid ordering restriction can be directly expected if demonstratives are specifiers associated with a certain functional head, not adjuncts (on a par with adverbs as specifiers of functional heads in Cinque (1999)).

not an adjunct but something else (H-B Im 1991, J-H Kim 1994, etc.). However, I propose that Pattern II is derived from Pattern I by movement, namely, predicate inversion.

Let us get into a detailed analysis of Pattern II, as represented in (21) below.

(21)
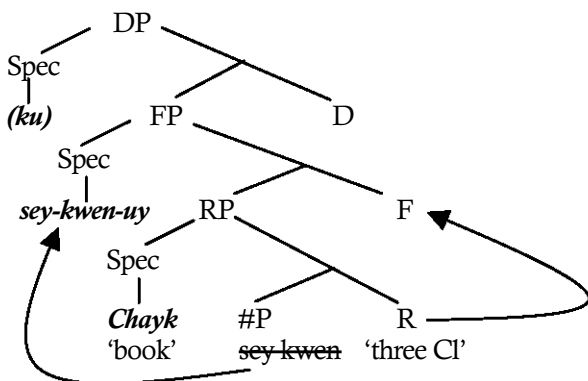
A numeral classifier phrase moves to a Spec position of a higher Linker projection FP, skipping the subject in the Spec of RP position. Given that a phase is propositional (Chomsky 2001), the small clause RP is taken to be a phase (Den Dikken 2006) and hence the extraction of the #P predicate out of the small clause, which is not in the edge position, is impossible. The head of the small clause R, then, is raised up to the next higher Linker head F, a head that provides the link between the raised predicate and the small clause, thereby resulting in domain (phase) extension. The phase-hood is extended and the FP becomes a new phase. The #P predicate, as a result, can move out of the small clause, skipping the subject at the position of Spec/RP.[9] A DP layer completes this entire nominal construction, as also indicated by the optional realization of a demonstrative at Spec/DP. The entire nominal constituent gets accusative Case-marked by AgrO.

---

[9] There is no denying that information structure, in general, plays a role in constituent order variation. However, this is not the only method available to represent focus. Moro (1997) suggests that breaking the symmetry (in spirit of Kayne 1994) inside a small clause motivates the movement inverting a predicate. Note that Moro (ibid.) posits a 'bare' small clause, where two constituents are in a symmetrical relation. But this paper does not adopt this clausal structure for a small clause. Den Dikken (2006), on the other hand, suggests that licensing a null predicate is the motivation for movement of a predicate in a small clause. According to Den Dikken (ibid.), an inverted predicate constituent has a reduced free relative structure, whose null head must move to Spec/TP to be licensed, behaving like *pro*. Adopting this idea, let us suppose that there is a null predicate embedding the #P predicate (Reference 6). I speculate that this null predicate can be licensed either by incorporating it into the Relator head or by moving the whole predicate constituent to Spec/FP, which, in turn, gives rise to Pattern I and II respectively. More elaboration on this issue is required.

When it comes to genitive marking on a numeral classifier, I propose that this genitive marking is a reflex of predicate inversion in the nominal domain, on a par with *of* in English, as illustrated in (10) before. The Linker head F into which the Relator head is raised is lexicalized as the genitive marking on the numeral classifier at Spec/#P. In other words, the genitive marking in Pattern II is the realization of the Linker.[10]

Traditionally, the genitive marking *-uy* has been considered to be inserted (at PF) in the context where two nominals get apposed (H-B Im 1991). Alternatively, it can be considered as structural Case assigned by being in an agreement relation with a certain nominal functional category (J-S Bak 2006). However, this view of *-uy* in Pattern II as a Case marker cannot effectively account for why *-uy* in numeral classifier constructions should be obligatorily used, as illustrated in (22) below. Note that Korean is a language that allows Case-dropping rather freely.

(22) a. sey-kwen-*(uy)   chayk
         three-Cl-Gen   book

     b. tases-kay-*(uy)   sakwa
         five-Cl-Gen   apple

This genitive marking sharply contrasts with other instances of Case marking, in that its omission always results in ungrammaticality, which typically does not conform to Case-dropping, a wide-spread phenomenon in Korean.

I do not dispute *-uy* as a genitive Case marker in general. This paper suggests a possibility that a sub-class of *-uy* can be analyzed as a Linker which signals that non-local movement has taken place inside a nominal phrase.[11] The analysis of genitive marking as a Linker of some sort here partially shares the insight of K-H Kim (1990) and K-B Choi (1995) as to the function of *-uy*. K-H Kim (1990) holds that *-uy* is a linker element which enhances semantic connections between two items. K-B Choi (1995) argues that *-uy* must be present in order to fix modification relationship when the relationship between two items is not predictable on its own. This insight can carry over to numeral classifier constructions. That is, *-uy* attached on a numeral classifier is a linker element which provides a link between a raised predicate and its host noun remaining in a base position, when the predication word order gets inverted. The

---

[10] This view accounts for why no genitive marking can intervene between a host noun and its numeral classifier in Pattern I, whereas genitive marking must intervene in Pattern II (i.e., *chay (*-uy) sey kwen* 'book-Gen three-Cl' vs. *sey kwen*(-uy) chayk* 'three-Cl-Gen book'). The former is Linkerless, while the latter involves a Linker in its derivation.

[11] For instance, the genitive marking in examples *kicek*(-uy) hankang* 'a miracle of Han river', *hwansang*(-uy) mas* 'a fantasy of taste', *tokil-loputhe*(-uy) phyenci* 'a letter from Germany', etc. can be considered as possible candidates, which should be confirmed through further investigation.

analysis of a sub-class of *-uy* as a linker cannot be too odd. It is well-known that *-i/ka*, a nominative Case marker, for instance, can also mark a topic or a focus occurring with specific predicate types. Given this fact, it is not a problem to admit the multiple usages of *-uy*.

The genitive marking of a numeral classifier which lands in Spec/FP, a lower position than DP, is confirmed by the fact that a demonstrative can be inserted right before this numeral classifier, as exemplified in (23).

(23) a. ***i/ku/ce***   sey-kwen-***uy***   chayk
         this/that/that   three-Cl-Gen   book

   b. ***i/ku/ce***   tases-kay-***uy***   sakwa
         this/that/that   five-Cl-Gen   apple

Demonstratives, which occupy Spec/DP (Reference 8), occur before the numeral classifier constructions, and it follows that the genitive-marked numeral classifiers reside in Spec/FP positions.

Den Dikken and Singhapreecha (2004) investigate the existence of linkers in complex noun phrases whose function is to provide a link between an inverted predicate and its subject. Linkers are cross-linguistically attested and they analyze *de* in French, *tʰîi* in Thai, *de* in Chinese, *no* in Japanese, and so on as linkers to signal that DP-internal predicate inversion has taken place.

(24) a. a jewel of an island
   b. [$_{DP}$ a [$_{FP}$ jewel [F(=*of*) [$_{SC}$ [an island] [~~jewel~~]]]]]

(25) a. une   pizza   de   chaude   (French)
         A   pizza   DE   hot-AGR'a hot pizza'
   b. [$_{DP}$ une [$_{FP}$ pizza [F(=*de*) [$_{SC}$ [pizza] [~~chaude~~]]]]]

(26) a. zai   Beijing   de   ren   (Mandarin)
         In   Beijing   DE   people 'people in Beijing'
   b. [$_{DP}$ [$_{FP}$ [$_{PP}$ zai Beijing] [F(=*de*) [$_{SC}$ [ren] [$_{PP}$~~zai Beijing~~]]]]]

Those linkers serve as a functional aid to the inversion operation. Given that an inversion structure and the linkers which make it possible are attested cross-linguistically, the analysis of *-uy* in Pattern II as a linker gets further support from the cross-linguistic perspectives.[12]

---

[12] A reviewer pointed out that English *of* can occur very productively in appositive constructions, whereas Korean *-uy* cannot, as shown in (i) and (ii) below.

(i)   The city of Chicago
(ii) a. *seuwl-uy   tosi   b. *tosi-uy   seuwl
         Seoul-Gen   city 'the city of Seoul'   city-Gen   Seoul

Predicate inversion has an effect on information structure. In particular, Pattern II has an inverted information structure, as compared to Pattern I. J-H Kim (1994) states that Pattern I focuses on the quantity information a numeral classifier denotes while Pattern II focuses on the kind information its host noun denotes. H-S Woo (1998: 69-70), similarly, holds that Pattern I has a meaning that the quantity information of a numeral classifier is focused, whereas Pattern II is used when the quantity information is minimal or contextually predictable. I suggest that this tendency in interpretations of Pattern I and II can be compared to the one shown in a sentence pair with a canonical word ordering and with an inverted ordering as illustrated in (27) below.

(27) a. John is the best candidate.
     b. The best candidate is John.

Sentence (27a) is of a canonical ordering. The subject *John* serves as a topic the sentence is about and *the best candidate* in the predicate position is a comment which adds information about the topic. But sentence (27b), where the predicate gets inverted, has an inverted information structure; the inverted predicate *the best candidate* serves as a topic and the subject *John* as a comment.

This phenomenon can be detected in the numeral classifier constructions, Pattern II which, I argue, emerges by undergoing predicate inversion.

(28) a. sakwa sey   kay   b. sey   kay-uy   sakwa
       apple   three Cl   three Cl-Gen apple

In other words, the numeral classifier in (28a) with Pattern I newly adds quantity information to the noun host while in (28b) with Pattern II the noun host provides information about the identity of the quantized entities.[13]

Similar observations were made in other classifier languages. Muromatsu (1998) reports that Japanese Pattern I represents the statement about a noun host (i.e., it is about books whose number is three) while Japanese Pattern II expresses the statement about its numeral classifier (i.e., it is about three volumes that are books). Simpson (2005) points out that the word order in which a noun precedes its numeral classifier in South-East Asian languages is frequently found in presentational situations such as buying or ordering situation types; a nominal element is first identified and then its additional information

---

[13] A reviewer noted that information structure would not be the only source for the order variation. Pattern I is used most often and comes out naturally for most people, but it is unlikely that people would ever say Pattern II in colloquial speech (refer to H-S Woo (1998) for statistical frequencies of both uses). This paper suggests only one factor involving information structure of the factors which possibly trigger word order variations. Other factors than information structure, which are not entirely clear, remain to be investigated.

is added on about it. That is, predicate inversion accompanies an inverted information structure. Word order variations in the nominal projections correlate to information structure.

3.4. Pattern III

Let us turn to Pattern III, as exemplified in (1c) and repeated in (29) below.

(29) a. ku-nun   *chayk-ul*   *sey*   *kwen* ilkessta.
        he-Top   book-Acc   three   CL   read
     b. Pattern III: N-Case   Num-CL

I argue that the Case-marked noun phrase and the numeral classifier are generated as constituents of a small clause inside a DP and the noun phrase moves to get Case leaving behind the numeral classifier, as represented in (30).

(30)
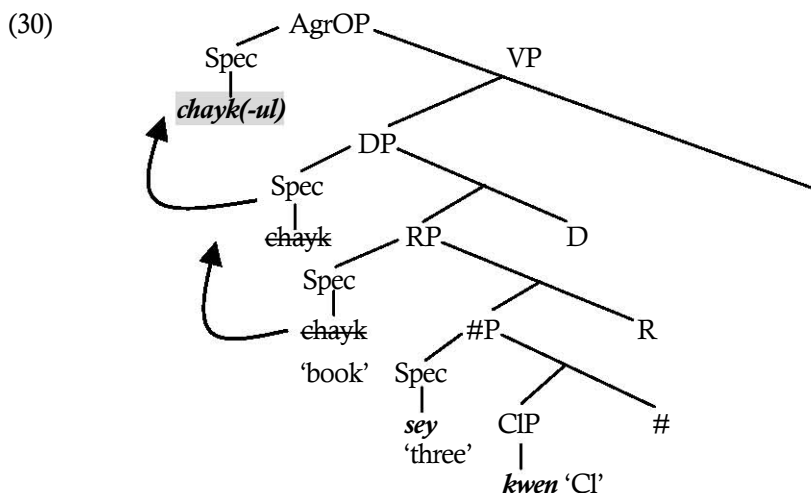
The subject of the small clause moves to Spec/DP, which is an escape hatch for its extraction, and then further gets extracted to Spec/AgrOP to get accusative-marked,[14] leaving behind the numeral classifier inside a VP.

The sub-extraction analysis ensures that this Pattern III has a non-specific

---

[14] This paper assumes the Case-assignment theory by AgrO (Koizumi 1995). Alternatively, a Case feature can be checked via agreement with the relevant head like v (Chomsky 2000). Given the latter option, however, movement of the host noun at Spec/RP to Spec/DP in structure (30) is required for the noun to enter into the agreement relation with the relevant head. The host noun in its original position is too deeply embedded within the nominal to be accessible for Case-checking by v in terms of the Phase Impenetrability Condition (Chomsky 2000).

reading,[15] which has been pointed out in the previous literature (Muromatsu 1998, H-S Woo 1998, Kakegawa 2000, C Kim 2005, Watanabe 2006); the subject of a small clause cannot be extracted if the entire DP is specific (the specificity condition, Fiengo & Higginbotham 1981). Relevant examples are given in (31) below.

> (31) a. na-nun   pise-lul   sey-myeng   kwuhako issta.
>   I-Top   secretary-Acc   three-Cl   looking-for
>   'I am looking for three secretaries.'
>
>   b. ??haksayng-i   twu-myeng   mikwukinita.
>   student-Nom   two-Cl   be American
>   'The two students are Americans.'

The object in (31a) should be interpreted as non-specific by being combined with the verb *kwuhata* 'look-for'. Sentence (31b) shows that Pattern III cannot be used in an individual-level predicate context. The ungrammaticality of this sentence also supports that Pattern III should be interpreted as non-specific, given that an individual-level predicate requires its subject to be specific (Diesing 1992). Alternatively, the incompatibility with individual-level predicates can be explained by the subject island condition. That is, a subject of an individual-level predicate, in contrast to stage-level predicates, is VP-external (Diesing 1992). Extraction is prohibited from the subject which itself occupies a non-Head-governed position. (31b) is thus unacceptable, which can directly follow from the sub-extraction analysis.

   I claim that this third pattern is derived from syntactic movement, whereby a subject of a small clause is extracted from an entire DP to get Case (contra adverbial analyses of floating quantifiers: Dowty & Brodie 1984, Kawashima 1998, Hoji & Ishii 2004, Nakanishi 2004). The subject first lands in Spec/DP, an escape hatch for movement, before further moving up to its Case position. This analysis is supported by the examples regarding demonstrative distributions as give in (32).

---

[15] A reviewer noted that Pattern III may have a specific reading as a raised nominal can be specific as in (i) below.

> (i) na-nun   [*ku*   sakwa]-lul   sey-kay   mekessta.
>   I-Top   that   apple-Acc   three-Cl   ate
>   'I ate three apples of that kind.'

However, it should be noted that the raised nominal *ku sakwa* 'that apple' gets construed roughly like 'that kind of apples', rather than those specific apples. That is, *ku* 'that' expresses the specificity of the kind of apples, rather than that of apples themselves. This pattern is marginal with an individual-level predicate, which requires its subject to be specific, as exemplified in (ii) below.

> (ii) ??*ku*   sakwa-ka   sey-kay   phalahta.
>   that   apple-Nom three-Cl   blue   'The three apples are green.'

(32) a. con-un   [sakwa]-ul   (**ku/i**)   sey kay   sassta.
      John-Top   apple-Acc   that/this three Cl   bought
      'John bought those/these three apples.'

b. con-un   [chayk]-ul   (**ku/i**)   sey kwen ilkessta.
      John-Top   book-Acc   that/this three Cl   read
      'John read those/these three books.'

In (32a) and (32b), a demonstrative, which occupies Spec/DP, appears prior to a numeral classifier. Since the Spec/DP position is already filled with the demonstrative, the subject cannot move to Spec/DP, which is an escape hatch, and hence its further extraction from the entire DP is prohibited.

The following evidence given in (33) concerning the asymmetry between unaccusatives and passives vs. unergatives (Miyagawa 1989) also supports that this third pattern underlyingly forms a constituent and its numeral classifier is the result of stranding.

(33) a. kamca-ka   kkulhnun mwul-ye **tases-kay** ikessta. (Unaccusative)
      potato-Nom boiling   water-Ins five-Cl   got cooked
      'Five potatoes got cooked in the boiling water.'

b. cha-ka   totwuk-eykey **tases-tay** kangthal-tanghayssta. (Passive)
      car-Nom   thief-dat   five-Cl   steal-Pass
      'Five cars were stolen by a thief.'

c. *haksayng-i   khun moksoli-lo   **tases-myeng** wussessta.
      student-Nom   loud voice-Ins   five-Cl   laughed
      (Unergative)
      'Five students laughed loudly.'

In unaccusatives and passives as in (33a) and (33b), a numeral classifier can be stranded inside the VP of its original position, and it can be construed as being linked to its nominal associate thanks to its trace. However, this is not possible in the case of unergatives, which do not take a VP-internal argument and hence there is no trace of a subject linked to a numeral classifier inside VP.

3.5. Pattern IV

Finally, let us turn to Pat tern IV, as exemplified in (1d) and repeated in (34).

(34) a. ku-nun   **chayk-ul**   **sey**   **kwen-ul**   ilkessta.
      he-Top   book-Acc   three CL-Acc   read
b. Pattern IV: N-Case   Num-CL-Case

There was a view that Pattern III and IV share the same structure in essence (H-B Im 1998, K-Y Choi 2001) but they differ only with respect to whether optional Case-dropping on a numeral classifier occurs. In contrast to this view, however, I propose that Pattern IV is derivationally unrelated to Pattern III; Pattern IV, unlike Pattern III, has the structure in which a DP and a numeral classifier are base-generated independently and does not involve any syntactic movement between them, as represented in (35). A numeral classifier phrase has an internal structure identical to the structure given in (13).

(35) [$_{DP}$ chayk$_i$]-ul   … [$_{DP}$ ***pro**$_i$* sey-kwen]-ul
         book-Acc   three-Cl-Acc

I argue that inside the numeral classifier DP there is a *pro* co-indexed with the host DP.[16]

I assume that the first DP in (24) is base-generated separately in the Spec of (low) TopicP position (C Kim 2005). The accusative marking on the first DP has a topical property (H-B Im 1998). The second DP gets a thematic role from the verb and gets construed as being linked to the topical DP thanks to the *pro* co-indexed with it. The second DP gets assigned accusative Case by AgrO.

(36)

Theta-role assignment
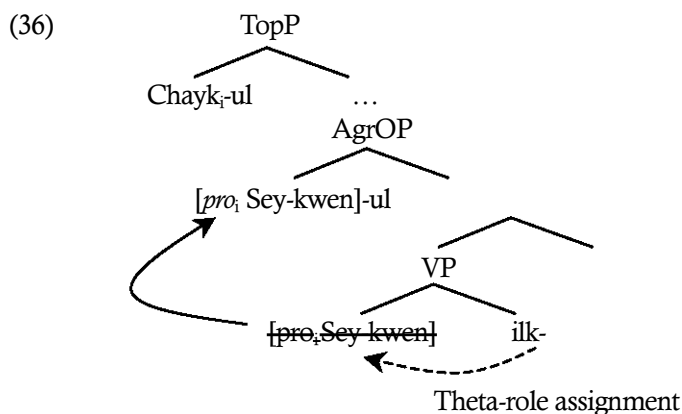
A split numeral classifier with Pattern IV is base-generated separately from its DP associate and the link that relates them is not syntactic movement.[17] This

---

[16] An overt pronominal like *kukes* 'it' can be realized in place of *pro*.

    (i) na-nun   sakwa-lul   [*kukes* twu-kay]-lul sassta.
       I-Top   apple-Acc   it   two-Cl-Acc bought   'I bought the two apples.'

[17] S-Y Kim (2002) presents an argument against a movement analysis for Pattern IV. The numeral classifier *sey-mali* 'three-Cl' in (i) below is interpreted as being associated with *khokkili* 'elephant', which is too deeply embedded within the subject to be connected by syntactic movement.

claim is supported by the fact that a demonstrative can appear before a numeral classifier in Pattern IV, in contrast to Pattern III, as illustrated in (37) below.[18]

(37) a. con-i   [sakwa]-ul (***ku/i***)   sey kay-lul   sassta.
        John-Nom   apple-Acc   that/this   three Cl-Acc   bought
        'John bought those/these three apples.'

     b. con-un   [chayk]-ul   (***ku/i***)   sey   kwen-ul motwu ilkessta.
        John-Top   book-Acc   that/this   three Cl-Acc   all   read
        'John read all those/these three books.'

Pattern III involving movement does not allow the occurrence of a demonstrative prior to a numeral classifier, because a demonstrative blocks the extraction of a DP by filling the escape hatch of that movement. In contrast, the examples in (37) with Pattern IV, with the same condition, are well-formed, which suggests that this pattern is not a product of syntactic movement.

This Pattern IV does not have the asymmetry depending on unaccusatives and passives vs. undergatives, in contrast to Pattern III, as in (38) below.

(38) a. kamca-ka   kkulhnun mwul-ye ***tases-kay-ka*** ikessta.(Unaccusative)
        potato-Nom boiling   water-Ins five-Cl-Nom got cooked
        'Five potatoes got cooked in the boiling water.'

     b. cha-ka   totwuk-eykey ***tases-tay-ka*** kangthal-tanghayssta.(Passive)
        car-Nom thief-dat   five-Cl-Nom steal-Pass
        'Five cars were stolen by a thief.'

     c. haksayng-i   khun moksoli-lo ***tases-myeng-i*** wussessta.(Unergative)
        student-Nom loud voice-Ins   five-Cl-Nom   laughed
        'Five students laughed loudly.'

Regardless of the predicate types, a Case-marked split numeral classifier can occur. This reveals that the numeral classifier does not bear any trace inside it which is linked to a subject (contra Miyagawa 2005). They are not associated by any syntactic movement.

I put forth the base-generation analysis of Pattern IV, in sharp contrast to Pattern III which involves sub-extraction. The straightforward evidence for this

---

(i) [i   tongmulwen-uy ***khokkili***-uy   kili]-ka   ***sey-mali***-ka   ta   taluta.
    this zoo-Gen   elephant-Gen   length-Nom three-Cl-Nom all   different
    'Three elephants in this zoo differ in their lengths of noses.'

[18] Those sentences sound perfect when we put some pauses between the first DPs and the second DPs.

claim comes from island effects, as exemplified in (39) below. Note the contrast between (39a) with Pattern IV and (39b) with Pattern III.

(39) a. haksayng$_i$-i [$_{Cpx}$ $_{NP}$[[***pro$_i$*** sey-myeng]-i ssun] nonmwun-i]
      student-Nom   three-Cl-Nom   wrote   paper-Nom

      wuswuhata.
      excellent

      'As for the students, the papers that three of them wrote are excellent.'

   b. *haksayng$_i$-i [$_{Cpx}$ $_{NP}$[[***t$_i$*** sey-myeng] ssun]   nonmwun-i]
      student-Nom   three-Cl   wrote   paper-Nom

      wuswuhata.
      excellent

The sentences in (39) illustrate a multiple nominative construction. In (39a) with Pattern IV, the initial nominative-marked subject is co-indexed with the *pro* contained in its numeral classifier phrase within a complex NP island. The legitimateness of this sentence confirms the claim that there is no chain linking relationship for Pattern IV between a DP and its numeral classifier phrase. The DP is base-generated in its position. By contrast, sentence (39b) which employs Pattern III, on the same condition, is unacceptable, which, in turn, shows that a DP and its numeral classifier are linked by syntactic movement.

3.6. Summary

In section 3, I discussed the syntactic structure of each pattern of numeral classifier constructions. The main claims in section 3 can be summed up as follows.

(40) a. Numeral classifier constructions have a DP structure embedding a small clause, which consists of a host noun and its numeral classifier.
    b. A numeral classifier serves as a predicate of its noun associate.[19]

---

[19] The analysis of predicate inversion has an implication that pronominal adjectives also start out as predicates inside nominals but surface preceding the nominals via predicate inversion. This analysis can directly account for demonstrative recursion (Fukui 1986) inside a nominal, as exemplified in (i) below. The derivations are given in (ii).

   (i) ***ku***   nolan   ***ku***   sey-pal-uy   ***ku***   cacenke
       that   yellow   that   three-wheel-Gen   that   bicycle
       'that yellow three-wheeled bicycle'

   (ii) a. [$_{DP}$ ***ku***   [$_{RP}$ [***ku*** cacenke]   [sey-pal]]]
             that   that bicycle   three-wheel

    c. Pattern I represents a basic underlying structure.

    d. Pattern II is derived from Pattern I by predicate inversion.

    e. Pattern III has a sub-extraction structure, where a host noun phrase gets extracted from the entire DP to get Case.

    f. Pattern IV is derivationally unrelated to Pattern III. A host noun and its numeral classifier are linked by *pro* which is contained within the latter.

4. Conclusion

In this paper, I proposed the analysis of numeral classifier constructions. Capitalizing on the idea that a predication structure is embedded within DP, this paper showed that the various patterns of numeral classifier constructions can receive a systematic account.

The analysis of numeral classifier constructions in this paper identified the three nominal functional projections, ClP for a dividing feature, #P for a quantizing or counting feature and DP for a definiteness feature, which seem to be also attested across languages (Ritter 1991, Li 1998, Cheng & Sybesma 1999, Borer 2005, etc.). The postulation of those nominal functional projections was necessary to offer a principled account for the spurious-looking behaviors of DP-internal elements.

The analysis of this paper sheds light on parametric variations with respect to the semantics and the syntax of noun phrases in classifier languages. Chierchia (1998), in particular, argues that nouns in classifier languages denote kinds of type <e>, and thus exhibit free distributions as argument without resorting to determiners. In contrast, an NP denotation of non-classifier languages is of type <e, t>, thereby necessitating the projection of D which type-shifts <e, t> to <e> for a noun to serve as an argument. This view implies that in terms of syntax, classifier languages lack nominal functional projections like D, and noun phrases of those languages are projections of N not D (Fukui

---

    b. [$_{DP}$ **ku** [$_{FP}$ sey-pal-uy [$_{RP}$ [**ku** cacenke] [sey-pal]]]]
           that   three-wheel-Gen   that bicycle

    c. [$_{DP}$ **ku** [$_{RP}$ [**ku** sey-pal-uy   ku cacenke] [nolan-]]]
           that   that three-wheel-Gen that bicycle   yellow

    d. [$_{DP}$ **ku** [$_{FP}$ nolan [$_{RP}$ [**ku** sey-pal-uy   **ku** cacenke] [nolan-]]]]
           that   yellow   that three-wheel-Gen that bicycle

First, *sey-pal* 'three-wheel' merges as a predicate of the DP *ku cacenke* 'that bicycle' as in (iia), and then it undergoes predicate inversion and lands in Spec/FP, lower than the position of *ku* 'that' at Spec/DP as in (iib). The product of (iib), in turn, serves as an input for another predication by the adjective *nohah-* 'yellow' as in (iic). The adjective gets inverted, thereby resulting in the ultimate configuration as in (iid).

1986, Fukui & Takano 2000).

If the analysis of this paper is on the right track, the distinct semantics and syntax of noun phrases, parameterized especially for classifier languages as such, are to be disputed. This paper, instead, suggests that the semantics of bare nouns are same across languages; denotations of bare nouns in classifier languages are identical to those of non-classifier languages. The interpretations associated with the functional categories are also same cross-linguistically and those nominal functional categories are necessitated also in classifier languages (Li 1998, Cheng & Sybesma 1999, Simpson 2005, Watanabe 2006, etc.), which strengthens the DP-hypothesis of those languages.

References

Bak, Jung-Sup. (2006). Optionality of the Korean genitive marker 'uy'. *Studies in Generative Grammar* 16.1, 3-18.

Baker, Mark. (2005). *Lexical Categories: Verbs, Nouns, and Adjectives.* Cambridge University Press.

Borer, Hagit. (2005). *Structuring Sense I*, Oxford University Press.

Chae, Wan. (1990). kwuke punlyusa-uy kinung-kwa uymi. *Cintanhakpo* 70, 167-180.

Cheng, Lisa and Rint Sybesma. (1999). Bare and not so bare nouns and the structure of NP. *Linguistic Inquiry* 30.4, 509-542.

Chierchia, Gennaro. (1998). Reference to kinds across languages. *Natural Language Semantics* 6, 339-405.

Choi, Ki-Yong. (2001).The structure and interpretation of non-genitive numeral classifier constructions in Korean. *Language Research* 37.3, 445-482.

Choi, Kyung-Bong. (1995). kwuke myengsa kwanhyeng kwuseng-uy uymi kwankyey-ey tayhan kochal. *Kwukehak* 26, 33-58.

Chomsky, Noam. (1995). *The Minimalist Program*. MIT Press.

Chomsky, Noam. (2000). Minimalist inquiries. In M. Michaels and J. Uriagereka, eds., *Step by Step: Essays on Minimalist Syntax*. 89-155. MIT Press.

Chomsky, Noam. (2001). Derivation by phase. 1-52. In M. Kenstowicz ed., *Ken Hale: A Life in Language*. MIT Press.

Cinque, Guglielmo. (1999). *Adverbs and Functional Heads*. Oxford University Press.

Den Dikken, Marcel. (1998). Predicate inversion in DP. In Artemis Alexiadou and Chris Wilder, eds., *Possessors, Predicates and Movement in the Determiner Phrase*. 177-214. John Benjamins.

Den Dikken, Marcel. (2006). *Relators and Linkers*. MIT Press.

Den Dikken, Marcel and Pornsiri Singhapreecha. (2004). Complex noun phrase and linkers. *Syntax* 7.1, 1-54.

Diesing, Molly. (1992). *Indefinites*. MIT Press.

Dowty, David and Belinda Brodie. (1984). The semantics of "floated" quantifiers in a

transformationless grammar. *WCCFL 3 Proceedings*, 75-90.

Fiengo, Robert and James Higginbotham. (1981). Opacity in NP. *Linguistic Analysis* 7, 395-422.

Fukui, Naoki. (1986). *A Theory of Category Projection and Its Applications*. Ph.D. dissertation, MIT.

Fukui, Naoki and Yuji Takano. (2000). Nominal structure: An extension of the symmetry principle. In P. Svenonius, ed., *The Derivation of VO and OV*. 219-254. John Benjamins.

Hoji, Hajime and Yasu Ishii. (2004). What gets mapped to the tripartite structure of quantification in Japanese. *WCCFL 23 Proceedings*. 101-114.

Im, Hong-Bin. (1991). On the properties of Korean classifiers (kwuke punlyusa-uy sengkyek-ey tayhaye). *Kwukehak-uy saylowun isik-kwa cenkay*. 586-611.

Im, Hong-Bin. (1998). Existence presupposition and the genitive marker 'uy' (concay cencay-wa sokkyekphyoci uy). *Kuke Munpep-uy Simchung* 2. 230-256. Thayhaksa.

Im, Hong-Bin. (1998). kwuke yanghwa phyohyen-kwa sengpuncwucey. *Kuke Munpep-uy Simchung* 2, 301-327. Thayhaksa.

Kakegawa, Tomomi. (2000). Noun phrase word order and definiteness in Japanese. *WCCFL 19 Proceedings*, 246-259.

Kang, Bem-Mo. (2002). Categories and meanings of Korean floating quantifiers. *Journal of East Asian Linguistics* 11.4, 375-398.

Kang, Myung-Yoon. (2001). DP and nominal phrases in Korean. *Korean Linguistics* 13, 15-37.

Kawashima, Ruriko. (1998). The structure of extended nominal phrases. *Journal of East Asian Linguistics* 7, 1-26.

Kayne, Richard. (1994). *The Antisymmetry of Syntax*. MIT Press.

Kim, Christina. (2005). Order and meaning: Numeral classifiers and specificity in Korean. *WCCFL 24 Proceedings*, 218-226.

Kim, Ji-Hong. (1994). swulyangsa-lul kacin myengsakwu-uy nonhang kwuco. *Baytalmal* 19, 1-48.

Kim, Ki-Hyuck. (1990). kwanhyeng kwuseng-uy thonge hyensang-kwa uymikwankye. *Hangeul* 209, 59-97.

Kim, Soo-Yeon. (2002). Numeral quantifiers in small clause. *Korean Journal of Linguistics* 27.4, 557-579.

Kitahara, Hisatsugu. (1993). Numeral classifier phrases inside DP and the specificity effect. *Japanese/Korean Linguistics* 3, 171-186.

Koizumi, Masatoshi. (1995). *Phrase Structure in Minimalist Syntax*. Ph.D. dissertation, MIT.

Li, Y. Audrey. (1998). Argument determiner phrases and number phrases. *Linguistic Inquiry* 29, 693-702.

Li, Y. Audrey. (1999). Plurality in a classifier language. *Journal of East Asian Linguistics* 8, 75-99.

Longobardi, Giuseppe. (1994). Reference and proper names. *Linguistic Inquiry* 25, 609-

665.

Merchant, Jason. (1996). Object scrambling and quantifier float in German. *NELS* 26, 179-193.

Miyagawa, Shigeru. (1989). *Structure and Case Marking in Japanese*. Academic Press.

Miyagawa, Shigeru. (2005). Locality in syntax and floated numeral quantifiers in Japanese and Korean. *Proceedings of the 14ʰ Japanese/Korean Linguistics Conference* 1-15. CSLI.

Miyagawa, Shigeru and Koji Arikawa. (2006). Locality in syntax and floated numeral quantifiers. Ms. MIT & St. Andrews University.

Moro, Andrea. (1997). *The Raising of Predicates*. New York: Cambridge University Press.

Muromatsu, Keiko. (1998). *On the Syntax of Classifiers*. Ph.D. dissertation. University of Maryland.

Nakanishi, Kimiko. (2004). *Domains of Measurement: Formal Properties of Non-split/Split Quantifier Constructions*. Ph.D. dissertation, University of Pennsylvania.

Park, Hye-Son. (2007). Mapping hypothesis and the Korean DP. *Studies in Modern Grammar* 48, 197-215.

Park, So-Young. (2008). *Functional Categories: The Syntax of DP and DegP*. Ph.D. dissertation, University of Southern California.

Ritter, Elizabeth. (1991). Functional categories in noun phrases: evidence from Modern Hebrew. In S. Rothstein, ed., *Syntax and Semantics* 25. Academic Publishers. 37-62.

Sportiche, Dominique. (1988). A theory of floating quantifiers and its corollaries for constituent structure. *Linguistic Inquiry* 19, 425-449.

Simpson, Andrew. (2005). Classifiers and DP-structure in South East Asia. In G. Cinque & R. Kayne, eds., *Handbook of Comparative Syntax*. 806-838. Oxford University Press.

Terada, Michiko. (1990). *Incorporation and Argument Structure in Japanese*. Ph.D. dissertation, UMass.

Watanabe, Akira. (2006). Functional projections of nominals in Japanese: Syntax of classifiers. *Natural Language and Linguistic Theory* 24, 241-306.

Woo, Hyung-Sik. (1998). An analysis on distribution and function of the quantified structures in Korean. *Discourse and Cognition* 5.2, 57-80.

So-Young Park
Linguistics Department
Seoul National University
599 Gwanak-ro, Gwanak-gu
Seoul, 151-742, Korea
E-mail: soyoungp@snu.ac.kr