

Optimal Forms of Noun Phrases in Korean*

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Kwak, Eun-Joo. 2012. Optimal Forms of Noun Phrases in Korean. *The Linguistic Association of Korea Journal*. 20(1). 109-131. Languages show a different strategy to mark the crosslinguistically prevalent grammatical features of plurality and definiteness. English makes use of a plural morpheme and articles to mark these features while Mandarin Chinese adopts unmarked forms for them. No matter which strategy a language takes, nominal forms make consistent patterns. Basically, Korean adopts a marking strategy for the features. However, marking itself is not mandatory for most categories of nouns, and thus alternate forms occur in Korean. To account for proper nominal forms in Korean, I resort to the Optimality Theory of de Swart & Zwarts (2009, 2010). I argue that a markedness constraint and faithfulness constraints are co-ranked in Korean unlike other languages and that some of the faithfulness constraints are subcategorized and situated in different positions in the hierarchical ordering of optimality. Hence, more than one nominal form turns out to be equally optimal and are used alternately.

Key Words: plurality, definiteness, classifier, optimality theory, markedness constraint, faithfulness constraint

1. Introduction

While the concepts of plurality and definiteness are common to languages, linguistic forms to mark them make diverse patterns. Singular and plural noun phrases (henceforth NPs) are not distinguished morphologically in Mandarin Chinese, but they are differentiated by the occurrence of a plural morpheme or

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articles in English. Contrasting with the consistent patterns in Mandarin Chinese and English, the plurality of Korean shows a more complex inventory of forms. Without being accompanied by the occurrence of a determiner, both bare-formed and plural-marked NPs may denote plural entities.

- (1) *haksayng/haksayng-tul*
 student/ student-PL
 'a student or (the) students/(the) students'

Regardless of the occurrence of the plural morpheme *-tul*, the two forms of *haksayng* 'student' in (1) are interpreted as plurals. However, the occurrence of a determiner *ku* 'the' disambiguates nominal interpretations.

- (2) *ku haksayng/ku haksayng-tul*
 the student/ the student-PL
 'the student/the students'

The bare-formed *ku haksayng* is construed only as a singular NP while the plural-formed *ku haksayngtul* has a plural reading.

Given the contrast between the languages, here are a few questions to be answered. First, why does Korean have an extensive set of nominal forms for plurals unlike the simple inventories of English and Mandarin Chinese? Second, how can we systematically derive proper forms for plurals, which seem affected by the grammatical feature of definiteness? Third, are there any cross-linguistic similarities behind the apparent diverse patterns of nominal forms? To get proper answers to these questions, we will consider these issues in the framework of Optimality Theory (henceforth OT) and argue that faithfulness constraints are located on the same level of optimality as an markedness constraint in Korean. This parallel position of the constraints allows diverse forms of plural NPs.

2. Optimality Theory Semantics

2.1. The Notion of Optimality

Originally developed as a theoretical framework for phonology by Prince & Smolensky (1993), Optimality Theory has been adopted in syntax and later in semantics and pragmatics. Under the notion of optimization, a key principle of OT, speakers are assumed to select the optimal form for a given meaning, and hearers are assumed to take the optimal interpretation for a given form. Determining optimal forms and meanings may involve more than one constraint which is possibly in conflicts. Thus, linguistic rules are assumed soft and violable in OT. Low-ranked rules may be violated to satisfy rules that are considered more important or highly ranked in the grammar.

Conflicts in the application of linguistic rules are attributed to two different drives behind the rules. One is a drive for economy, which favors simpler expressions over complex ones. Constraints based on this drive are called economy or markedness constraints. The other is a drive to opt for different forms for different meanings, which provides a basis for faithfulness constraints.

One of the hypotheses in OT is that languages share the same set of constraints but show differences in the ranking of the constraints. The same set of constraints shows the universal aspect of languages, while differences in their ranking represent diversities of languages. In the following, we will consider what kind of constraints need to be postulated and how they are ranked to drive proper nominal forms in English and Mandarin Chinese.

2.2. A Markedness Constraint: *FunctN

The interpretations of NPs are divided into two parts: lexical information contributed by nouns and functional information conveyed by plural morphology, definite/indefinite articles, classifiers, case markers, etc. While functional information for nominal readings is explicitly specified in English, it is not overtly represented in Mandarin Chinese.

(3) Wò kàngjiàn xióng le

I see bear ASP

'I see a bear/some bears/the bear(s).'

The bare nominal *xióng* 'bear' is not accompanied by any article or plural morphology. This simple formed NP may be interpreted as an indefinite or definite NP, and the number for the NP is not confined to singular or plural.

To derive bare nominals in languages like Mandarin Chinese, a markedness constraint is postulated in OT. (cf. de Swart & Zwarts 2009, 2010)

◆ *FunctN: Avoid functional structure in the nominal domain.

According to *FunctN, a nominal structure which is not followed by any functional category is preferred over more complex forms. Functional expressions that are barred by *FunctN include plural morphology, definite and indefinite articles, classifiers, case markers, etc. *FunctN is categorized as an avoid constraint in that it bars complexities. It is a gradable constraint since each grammatical marker adds to the complexity of the form.

Suppose that four different syntactic structures are possible for NPs as follows:

- (4) a. [_{NP} N]
 b. [_{NumP} Num [_{NP} N]]
 c. [_{DP} D [_{NP} N]]
 d. [_{DP} D [_{NumP} Num [_{NP} N]]]

(4a) is the most unmarked form without any violation of *FunctN while (4d) is the most marked form with the occurrences of the determiner phrase (DP) and the number phrase (NumP). If a language does not have any faithfulness constraint other than *FunctN, [_{NP} N] will be the only nominal structure allowed in that language.

The fact that bare nominals are widely used in Mandarin Chinese shows that the markedness constraint of *FunctN is highly ranked in the set of constraints that constitute the grammar of the language. The high position of the constraint

has the effect of overruling other faithfulness constraints that opt for different forms for different nominal readings. On the other hand, the nominal structure in English allows more complex forms including articles or plural morphology. Hence, faithfulness constraints need to be introduced to bar the application of *FunctN.

2.3. A Faithfulness Constraint: FPL

In English, plural NPs are distinctly marked with plural morphology while singular NPs are of unmarked forms as exemplified in (5).

(5) I saw a bear/bears.

According to the typological study such as Greenberg (1966) and Corbett (2000), if there is only one marked form for the pair of a singular and a plural, it is the plural that takes the marked form. The unmarked form is considered as a singular. English nominals fit with this generalization, having only the plural morpheme. Contrastingly, both singulars and plurals in Polish are of marked forms.

To accommodate this generalization to OT semantics, a new constraint is proposed. (cf. de Swart & Zwarts 2009, 2010)

- ◆ FPL: Reference to a group of individuals must be reflected in a special plural form of the nominal.


According to FPL, singulars and plurals are morphologically distinguished, and plural NPs take marked forms. Since morphological markedness is not required for singulars, languages like English do not have special forms for singular NPs. Since a one-to-one corresponding relation holds between forms and references, FPL is categorized a faithfulness constraint.


In the OT analysis, languages share the same set of constraints, which may be ranked differently depending on languages. Since constraints are assumed soft and violable, lower ranked constraints are violated when they are in conflicts with higher ranked ones. The markedness constraint of *FunctN and

the faithfulness constraint of FPL cannot be applied together because *FunctN prefers simpler nominal structures while FPL prefers complex structures to reflect the plurality of NPs. Hence, relative ordering between the two constraints determines nominal forms for a given language.

As discussed in section 2.2, NPs in Mandarin Chinese take bare forms without articles and plural morphology. Thus, *FunctN should be ranked higher than FPL. On the other hand, plurality is morphologically distinguished in English, which requires FPL to be ranked over *FunctN. The optimization process for Mandarin Chinese plural NPs is specified in Table 1.

Table 1. No Plural Marking in Mandarin Chinese

Meaning	Form	*FunctN	FPL
$\exists x_{pl}[\text{bear}(x)]$ $\wedge \text{see}(x)(I)$			
	Wò kàngjiàn xióng le I see bear ASP		*
	Wò kàngjiàn xióng _{pl} le I see bear ASP	*	

The first column of the table shows the intended meaning in the first-order logic, which is paraphrased as ‘I saw bears.’ The second column has two candidate forms to deliver this meaning, one with a bare form and the other with a plural marked form. Each of the forms violates one of the constraints. The bare formed NP violates FPL, and the plural formed NP violates *FunctN. Since FPL is lower ranked in Mandarin Chinese, the sentence with the bare form is optimal as shown by the pointing hand ().

As in Mandarin Chinese, two different forms may be postulated in English to deliver a plural reading as in Table 2.

Table 2. Plural Marking in English

Meaning	Form	FPL	*FunctN
$\exists x_pl[\text{bear}(x)$ $\wedge \text{see}(x)(I)]$			
	I saw bear	*	
	I saw bears		*


Since singulars and plurals are morphologically distinguished, FPL should be ranked over *FunctN in English. In this new ordering, the bare form, which violates the highly ranked FPL, is less optimal. Hence, the plural marked *bears* is used to denote a group of individuals.

For a restricted category of nouns, however, English also shows Chinese patterns as to plurality. Nouns for animals that are fished on or hunted do not have distinguished forms for plural NPs.

(6) Carp breed from May to July.

Although *carp* in (6) denotes plural entities, it is not followed by the plural morpheme. This phenomenon is called 'local markedness' in Tiersma (1982) and explained by a frequency-based approach in Haspelmath (2006). Nouns for fish and hunted animals are used more frequently in their plural readings, which are regarded as semantically unmarked. Hence, morphologically unmarked forms are used for plural nouns in this category. To deal with the local markedness, de Swart and Zwarts (2010) adopt another constraint *PL, which does not allow plural marking. This constraint is restricted to only a particular category of nouns such as fish names, so the constraint is specified for the application like *PL_{FISH}. Finally, this constraint should be ranked higher than FPL and *FunctN to derive unmarked formed plurals.

Table 3. Unmarked Plural in English

Meaning $\exists x_{pl} \text{ carp}(x)$	Form	*PL _{FISH}	FPL	*FunctN
	carp		*	
	carps	*		*

As shown in Table 3, the unmarked form *carp* violates one constraint while the plural form *carps* violates two constraints. Moreover, *carps* violates the most highly ranked one, so it is not considered optimal.

2.4. A Faithfulness Constraint: FDEF

The use of a definite article may be interpreted in several ways. It may convey uniqueness, maximality, or familiarity. *The queen of the Netherlands* refers to a unique entity, which is the only queen in the Netherlands, and *the stars* denotes the maximal group of individuals referring to all the stars. The definite NP *the dog* may denote a familiar entity in the discourse, occurring in a sentence such as *I saw a dog in the park, and the dog wagged its tail*. Hence, de Swart and Zwarts (2009, 2010) use the term ‘discourse uniqueness’ to cover the different uses of a definite article, and propose a faithfulness constraint for definite NPs.¹⁾

- ◆ FDEF: Reference to discourse unique individuals (unique/maximal or familiar ones) requires the use of an expression of definiteness.

According to FDEF, definite and indefinite NPs are distinctly represented, and definite NPs are marked expressions which should be explicitly represented.

As noted in section 2.2, NPs in Mandarin Chinese occur in bare forms

1) de Swart and Zwarts (2010) do not exclude other means of conveying definiteness, quoting Enç (1991) and Karimi (2003). Definiteness is delivered by case marking in Turkish and by specificity in Persian.

without being accompanied by any article. *Xióng* 'bear' may be construed as either a definite or indefinite NP. On the other hand, NPs in English are distinctly expressed by their definiteness, as shown by the contrast *a book/books* and *the book(s)*. To account for these different patterns, de Swart and Zwarts argue that the ranking of the constraints is distinguished. When *FunctN outranks FDEF, the grammar does not include definite articles as exemplified by Mandarin Chinese, Polish, and Hindi. However, when FDEF is ranked over *FunctN, a definite article is included in the grammar. Here is the different ranking of the constraints.

- (7) a. Mandarin Chinese: *FunctN >> {FPL, FDEF}
 b. English: *PL_{FISH} >> {FPL, FDEF} >> *FunctN

The relative ordering between FPL and FDEF is not meaningful in both of the languages. When definiteness is explicitly represented, plurality is also expressed. Given the ranking, the lower ranked FPL and FDEF are not operative or have a visible effect in Mandarin Chinese, so bare NPs are used to deliver (in)definite singular and plural NPs. However, these constraints are ranked higher than *FunctN in English, in which both definiteness and plurality are overtly expressed. The different patterns of NPs between Mandarin Chinese and English are not attributed to different constraints but to the different orderings for the same set of constraints.

3. An OT Analysis for Nominal Forms in Korean

3.1. Dual Forms of Definite NPs

NPs in Mandarin Chinese and English show consistency in their forms. NPs in bare forms may be construed as either definite or indefinite NPs in Mandarin Chinese while definite NPs in English are always accompanied by the definite article. The consistency is realized in the distinct ranking of the constraints *FunctN and FDEF. Unlike these languages, Korean allows dual forms for definite readings.

- (8) Haksayng-i chacawassta. Haksayng/ku haksayng-i sihem-ey
 student-Nom came student/the student-Nom exam-Loc
 kwanhay cilmwun-ul hayssta.
 regarding question-Acc did
 'A student came. The student asked a question about an exam.'

When *haksayng* in the first sentence introduces an individual in the discourse, it becomes a familiar entity in the following discourse. Then, any NP referring to this familiar entity should be understood as definite. Note that both the bare-formed *haksayng* and the NP with the definite determiner *ku haksayng* are allowed in the second sentence to deliver the discourse unique reading. This means that both forms are equally optimal in Korean.

In the OT analysis, optimality is represented by the ranking of a set of constraints. Then, I argue that the equal optimality of bare forms and definite-marked forms for definite readings is attributed to the co-ranking of the two constraints *FunctN and FDEF.

◆ {*FunctN, FDEF}

The mutual ranking of the constraints conjoined by bracketing is irrelevant. Since the markedness constraint and the faithfulness constraint are not distinguished in the ranking, bare forms and definite-marked forms show the same level of violation. Hence, both forms are judged to be optimal and used alternately.

3.2. Dual Forms of Plural NPs

In Korean, dual forms are not confined to definite readings but observed in plural readings. Unlike Mandarin Chinese and English, Korean allows dual forms of NPs to refer to plural entities.

- (9) Haksayng/haksayng-tul-i moyessta.
 student/student-PL-Nom gathered
 '(The) students gathered.'

The predicate *moyessta* 'gathered' takes only a group of individuals as its argument due to its collectivity. Given the fact that both the bare-formed *haksayng* and the plural-marked *haksayngtul* may occur with the predicate, plural marking is optional in Korean. Since the obligatory marking or nonmarking of plurality is the result of the distinct ordering between *FunctN and FPL, the optional occurrence of the plural morpheme should be attributed to the co-ranking of the constraints. Hence, I propose that the relevant ranking in Korean should be postulated as follows:

◆ {*FunctN, FDEF, FPL}

Since the mutual ranking between *FunctN and FPL is not relevant, NPs of plural denotations will be assigned the same level of optimality whether they violate either *FunctN or FPL. Thus, dual forms of NPs are legitimately allowed.

3.3. The Optionality of a Classifier Phrase

According to the seminal work of Chierchia (1998a), one of the properties shared by mass nouns is that they may not combine with a numeral directly but should be accompanied by a classifier or measure phrase when counted.²⁾ In contrast, the occurrence of a classifier phrase is not mandatory for count nouns. English and Mandarin Chinese show consistency again in the occurrences of classifiers. Count nouns do not need a classifier in English while all nouns in Mandarin Chinese are counted through the use of a classifier.³⁾

2) Chierchia (1998a) makes a distinction between classifier and measure phrases. They share some properties in that they are inherently relational and quantize a certain domain of objects. However, measure phrases are more restricted in their occurrences. They combine only a restricted range of numeral determiners and hardly allow adjectival modification.

3) When the notion of classifier is widened to include expressions for containers and collective nouns, English count nouns may be preceded by classifiers.

- (i) a. two cigarettes, three flowers
- b. two packs of cigarettes, a bunch of flowers

To express the number of cigarettes or flowers, these count nouns do not need classifiers as shown in (ia). However, they may be grouped to make a pack or a bunch as represented

- (10) a. three cigarettes
 b. *three bloods, *four furnitures, *two honesties
- (11) yi gen xiangyan/sān zhī xióng
 one CL cigarette/three CL bear
 'a cigarette/three bears'

While the counting of entities for English count nouns is just expressed by the use of a numeral, mass nouns, categorized as materials, collections, and abstract nouns, need a classifier to be counted as shown by the contrast in (10). However, the occurrence of a classifier is required for all nouns in Mandarin Chinese when they are combined with a numeral as shown in (11).

In contrast with the consistent patterns for the use of classifiers in English and Mandarin Chinese, Korean shows flexibility in counting expressions. Mass nouns in Korean are always accompanied by a classifier to be counted, which fits with Chierchia (1998a)'s argument for the properties of mass nouns.

- (12) *sey mwul /sey pyeng-uy mwul
 three water/three CL-Poss water
 'three bottles of water'

The mass term *mwul* does not deliver a counting reading just with the occurrence of a numeral but should be preceded by a classifier like *pyeng* 'bottle.' However, count nouns allow dual forms when counted. The count noun *haksayng* may be combined with a numeral directly or preceded by a classifier.

- (13) sey haksayng(-tul)/sey myeng-uy haksayng(-tul)
 three student(-PL)/ three CL-Poss student(-PL)
 'three students'

To denote three individuals of students, the numeral *sey* may or may not followed by the classifier *myeng* 'person.' The optional occurrence of a classifier for the counting of count nouns does not accord with the typological argument

in (ib). Following the general notion of classifier, we adopt the narrow sense of classifier which does cover expressions for containers and collective nouns.

of Chierchia (1998a) and poses a serious problem.⁴⁾

For the explicit marking of a numeral by a classifier or measure phrase, I propose a faithfulness constraint as follows:

- ◆ FCL: The occurrence of a numeral is accompanied by a classifier or measure phrase.

If the occurrence of a classifier or measure phrase is restricted to mass nouns as discussed by Chierchia (1998a), the constraint of FCL may be specified in a more restricted way. However, since Korean count nouns also allow the occurrence of a classifier, FCL itself should be a general constraint to cover both count and mass nouns. Then, it should be divided into two local constraints in accord with the nominal categories: one for mass nouns, i.e., FCL_{MASS} and the other for count nouns, i.e., FCL_{COUNT}.

The mandatory occurrence of a classifier for the counting of mass nouns should be reflected in the higher ranking of FCL_{MASS} than *FunctN, and the optionality of a classifier for count nouns follows from the co-ranking of FCL_{COUNT} and *FunctN. Here is the resulting ordering of the constraints for Korean nominals.

- ◆ FCL_{MASS} >> {*FunctN, FDEF, FPL, FCL_{COUNT}}

Only FCL_{MASS} is ranked over *FunctN, and thus counting expressions for mass nouns do not allow dual forms. The other constraints are all co-ranked with *FunctN, so the occurrences of the definite determiner, the plural marker, and classifiers for count nouns are all optional in Korean.

4) For the typological study of languages, Chierchia (1998a,b) proposes 'nominal mapping parameters [arg] and [pred]. To set the features of the parameters, the countability of NPs and the specification of functional categories need to be determined. Given the mass properties enumerated by Chierchia, the optional occurrence of a classifier for nouns makes it very awkward to determine the countability of the nouns and the features of the parameters. Hence, Korean does not fit with any of the language categories suggested by Chierchia.

3.4. The Optimality of Definite Plural NPs

Unlike English and Mandarin Chinese, definiteness and plurality are optionally marked in Korean NPs. In spite of their optionality, however, dual forms are not always available. When NPs are preceded by the definite determiner *ku*, only plurally marked ones are used to denote a group of individuals. (cf. Song 1975, Nemoto 2005, Kwak 2010)

- (14) **Ku haksayng/ku haksayng-tul-i moyessta.*
 the student /the student-PL-Nom gathered
 ‘The students gathered.’

Since the predicate *moyessta* is collective, its argument, the agent of the gathering event, must denote a group of individuals. As shown by the acceptability judgment in (14), the argument position of this collective predicate cannot be taken by the singular-formed *ku haksayng* but only by the plural-marked NP. Here, plural marking is not optional but mandatory for the definite NP.

The mandatory marking of plurality is not confined to NPs with the definite determiner. To deliver plural denotations, plural marking is required even for the NPs preceded by the demonstrative determiner such as *i* ‘this’ and *ce* ‘that.’

- (15) a. *i/ce haksayng* ‘this/that student’
 this/that student
 b. *i/ce haksayng-tul* ‘these/those students’
 this/that student-PL

Although the singular form *haksayng* itself may be used to denote a group of entities, the demonstrative NPs *i haksayng* and *ce haksayng* have only an atomic reading. Likewise, personal pronouns also do not allow ambiguities in their number construal.

- (16) a. *ku/ku-tul* ‘he/they’
 he/he-PL

- b. kukes/kukes-tul 'it/they'
it/it-PL

The third person singular pronouns have singular forms *ku* and *kukes*, and their plural counterparts are followed by the plural morpheme *-tul*. The singular pronouns *ku* and *kukes* are not used for plural denotations, which is sharply contrasted with the flexible interpretations of singular formed indefinite NPs. Plural marking is mandatory again for the plural denotations of the pronouns.

To reflect obligatory marking for definite NPs and optional marking for indefinite ones, I argue that FPL should be divided into two categories in Korean, namely FPL_{DEF} and FPL_{INDEF}. FPL_{DEF} is a faithfulness constraint restricted to plural definite NPs, and FPL_{INDEF} is confined to plural indefinite NPs. Furthermore, the different optionality of plural marking by definiteness drives these constraints to take distinct positions in the ranked set of constraints. To account for the obligatory marking of plurality in definite NPs, FPL_{DEF} should take a higher position than *FunctN in the ranking. On the other hand, the optionality of plural marking in indefinite NPs shows that FPL_{INDEF} should be co-ranked with *FunctN. Therefore, the resulting ranking for the constraints is revised like the following:

$$\blacklozenge \{FPL_{DEF}, FCL_{MASS}\} \gg \{*FunctN, FDEF, FPL_{INDEF}, FCL_{COUNT}\}$$

Since FPL_{DEF} is highly ranked, singular-formed definite plural NPs, which violate the constraint, are judged not to be optimal, and thus do not occur in Korean. In contrast, FPL_{INDEF} is co-ranked with *FunctN, so indefinite plural NPs may violate *FunctN or FPL_{INDEF} to make optimal forms.

The obligatory plural marking for definite NPs is not affected by the occurrence of the definite determiner. As discussed in the previous section, the co-ranking of *FunctN and FDEF results in the optionality of the definite determiner for definite readings. In spite of the dual forms, definiteness itself is not varied, so plural marking is required even for determinerless definite NPs.

- (17) Haksayng-tul-i moyessta. *Haksayng/haksayng-tul-i
 student-PL-Nom gathered student /student-PL-Nom
 chwukcey-lul culkyessta.
 festival-Acc enjoyed
 '(The) students gathered. The students enjoyed the festival.'

The determinerless forms *haksayng* and *haksayngtul* in the second sentence are definite because they refer to the students introduced in the discourse by the first sentence. In spite of the fact that they are not preceded by the definite determiner, only the plural marked NP is allowed in this sentence. Hence, the higher ranking of FPL_{DEF} is observed regardless of which constraint definite NPs violate between *FunctN or FDEF in the lower ranking.

The optimization process for definite NPs is as follows:

Table 4. Unmarked Definite Plural in Korean

Meaning δx_{pl} student(x)	Form	FPL_{DEF}	*FunctN/ FDEF
	<i>haksayng</i>	*	*
☞	<i>haksayng-tul</i>		**
	<i>ku haksayng</i>	*	*
☞	<i>ku haksayng-tul</i>		**

Referring to a group of contextually prominent students, *haksayng* and *ku haksayng*, which are not followed by the plural morpheme *-tul*, violate FPL_{DEF} while the marked forms of *haksayngtul* and *ku haksayngtul* violate *FunctN. *Haksayng* and *haksayngtul* are not marked for definiteness, violating FDEF. *Ku haksayng* and *ku haksayngtul* meet FDEF while violating *FunctN. The four possible forms for definite plural entities are divided by their marking for definiteness and plurality. When they are marked for definiteness or plurality,

they meet FPL_{DEF} or $FDEF$. Without being marked, they meet $*FunctN$. Hence, each of the four forms violates two constraints equally. Then, optimal forms are determined by the ranking of constraints that they violate. Since *haksayngtul* and *ku haksayngtul* do not violate the highly ranked constraint FPL_{DEF} , they are judged to be optimal.

3.5. The Optimality of Nonhuman Nouns

As discussed in section 3.3., count nouns in Korean may or may not occur with a classifier, showing a distinct behavior from the typological account of Chierchia (1998a). A more scrutiny, however, reveals the fact that the use of a classifier is mandatory for some category of count nouns. The acceptability of human nouns like *haksayng* is not affected by the occurrence of a classifier in counting readings whereas that of nonhuman nouns like *sakwa* is much worsened without the use of a classifier.⁵⁾

- (18) a. sey haksayng(-tul)/sey myeng-uy haksayng(-tul)
 three student(-PL)/ three CL-Poss student(-PL)
 'three students'
- b. *sey sakwa(-tul)/sey kay-uy sakwa
 three apple(-PL)/three CL-Poss apple
 'three apples'

While either of the expressions in (18a) may be naturally used, the acceptability for the ones in (18b) is sharply contrasted. To accommodate the contrasting acceptability shown in (18b), FCL needs to be subcategorized as FCL_{HUMAN} and $FCL_{NONHUMAN}$ instead of FCL_{COUNT} and FCL_{MASS} . To derive optimal forms for nonhuman nouns, a relevant ordering for the constraints should be in the following:

$$\blacklozenge \{FPL_{DEF}, FCL_{NONHUMAN}\} \gg \{*FunctN, FDEF, FPL_{INDEF}, FCL_{HUMAN}\}$$

5) The acceptability judgments for (18) are from Kang (1994). Depending on native speakers, the occurrence of *-tul* in (18b) are judged to be less natural.

Since optional marking is the result of co-ranking between the markedness constraint and the faithfulness constraints, FCL_{HUMAN} is ranked in the same position as *FunctN and $FCL_{NONHUMAN}$ is ranked over it.

Although the modified subcategorization of FCL feeds into the required optimization for nominal forms, it is questionable why FCL should be divided by the semantic feature of humanness. As noted in section 3.4., plurality is obligatorily marked for definite NPs, which include personal pronouns. This means that singular formed pronouns cannot be used to refer to a group of individuals. Then, the naturalness of *kukes* in (19b) is quite unexpected.

- (19) a. Sey myeng-uy haksayng-i moyessta. *Ku-ka ta
 three CL-Poss student-Nom gathered he-Nom all
 chwukcey-lul culkyessta.
 festival-Acc enjoyed
 'Three students gathered. They all enjoyed a festival.'
- b. Sey kay-uy sakwa-lul sassta. Kukes-ul ta mekessta.
 three CL-Poss apple-Acc bought it-Acc all ate
 '(Pro) bought three apples. (Pro) ate them all.'

Ku and *kukes* are used to deliver only singular readings. A group of individuals denoted by *sey myenguy haksayng* cannot be referred to by the singular pronoun *ku*. However, three apples denoted by *sey kayuy sakwa* may be taken by the singular *kukes* in the following discourse.

The apparent number mismatch in (19b) leads us to two possibilities. One is that *kukes* is used to denote both atoms and sums, and the other is that *sakwa* is not a count noun. To maintain the ambiguity of *kukes*, it needs to be answered why plural marking is optional only for *kukes* unlike other definite expressions. No matter which account is provided for this question, it is not easy to get away from an ad-hoc controversy. The second possibility is pursued by Park (2008) and Kwak (2009), in which nonhuman nouns are discussed to be mass nouns and *-tul* functions as a distributive marker rather than a plural marker for these nouns. If we assume that nonhuman nouns are mass as argued by Kwak (2009), FCL does not need to be subcategorized by humanness. The obligatory uses of classifiers are followed from the noncountability of nonhuman nouns.

Then, the original subcategorization by countability suffices for the OT analysis, and the relevant ordering of the constraints is the one suggested in the previous section.

$$\blacklozenge \{FPL_{DEF}, FCL_{MASS}\} \gg \{*FunctN, FDEF, FPL_{INDEF}, FCL_{COUNT}\}$$

Since nonhuman nouns are categorized as mass, the mandatory use of a classifier for them is accounted for by the higher ordering of FCL_{MASS} than $*FunctN$.

4. Crosslinguistic Comparisons and Accounts for Optimal Forms

de Swart and Zwarts (2009, 2010) categorize languages according to their morphological features and the ordering of the three constraints, $*FunctN$, FPL , and $FDEF$.

- (20) a. $*FunctN \gg \{FPL, FDEF\}$: no number morphology, no articles
(Mandarin Chinese)
- b. $\{FPL, FDEF\} \gg *FunctN$: number morphology, articles
(English, German, French, Hebrew, Bulgarian)
- c. $FPL \gg *FunctN \gg FDEF$: number morphology, no articles
(Hindi, Polish)

The first category includes Mandarin Chinese, in which $*FunctN$ ranges over the faithfulness constraints. Since the higher ranking of $*FunctN$ makes all marked forms non-optimal, Mandarin Chinese is not equipped with morphology for number distinction and articles for definiteness. The second category encompasses diverse languages such as English, German, French, Hebrew, and Bulgarian, where $*FunctN$ takes a lower position than the faithfulness constraints. Hence, number morphology and articles for definiteness are developed in these languages. In the languages of the third category, i.e., Hindi and Polish, $*FunctN$ takes a position between FPL and $FDEF$ in the ordering. Number distinction is morphologically marked but definiteness article are not

part of the grammar of these languages. In none of the languages listed above, is *FunctN ranked in the same position with the faithfulness constraints. Hence, alternate forms are not allowed in these languages for plurality or definiteness.

According to the current study, the long inventory of NP forms in Korean is due to the co-ranking of *FunctN and the faithfulness constraints.

(21) Korean

{FPL_{DEF}, FCL_{MASS}} >> {*FunctN, FDEF, FPL_{INDEF}, FCL_{COUNT}};
number morphology, articles

FPL and FDEF are not ranked lower than *FunctN, so number morphology and the definite determiner are part of the grammar. FPL_{DEF} takes a higher position than *FunctN, so the occurrence of the plural morpheme is obligatory for definite NPs. Similarly, FCL for mass nouns is ranked over *FunctN, which drives the occurrence of a classifier mandatory for them. However, FPL_{INDEF} and FCL_{COUNT} are ranked on the same level of *FunctN, so the occurrences of the plural morpheme and the definite determiner are optional for indefinite NPs and count nouns, respectively.

5. Conclusion

While the concepts of plurality and definiteness are prevalent to languages, linguistic strategies to mark these grammatical features are varied crosslinguistically. Specific morphological forms for plurals may be adopted and independent articles may be used for definite NPs. English is a language to make use of both of the strategies while none of the strategies is incorporated in the grammar of Mandarin Chinese. No matter which strategy a language adopts, nominal forms show consistent patterns depending on their grammatical features. In contrast with the crosslinguistic consistency of morphology or grammar for plurality and definiteness, Korean allows a long inventory for nominal forms, which includes alternate forms for the grammatical features.

To account for the distinctive nominal patterns in Korean, I have resorted to the OT analysis of de Swart and Zwarts (2009, 2010). They postulate the

markedness constraint *FunctN to deal with no specific marking for grammatical features and the faithfulness constraints FPL and FDEF for the morphological marking of plurality and definiteness, respectively. Additionally, they argue that these constraints make a hierarchical ordering of optimality and that nominal forms in a language show different patterns depending on which constraint takes a higher position than the others.

According to de Swart and Zwarts, the markedness constraint and the faithfulness constraints are hierarchically separate in English and Mandarin Chinese, and only one of them is effective in determining proper forms. *FunctN is ordered lower than FPL and FDEF in English, so plurality and definiteness are explicitly marked. On the other hand, *FunctN takes a higher position than FPL and FDEF in Mandarin Chinese, so nominal forms do not make a distinction by plurality or definiteness.

I have proposed that *FunctN is not set separately from the faithfulness constraints in Korean. Hence, plural- or definite-marked NPs follow FPL or FDEF, violating *FunctN. Contrastingly, unmarked nominal forms follow *FunctN while violating the faithfulness constraints. Hence, nominal forms show the same level of optimality regardless of grammatical marking. I have proposed another faithfulness constraint FCL for the use of a classifier and argued that FPL and FCL may be located in a higher position than *FunctN depending on the grammatical features of NPs such as definiteness or countability. Therefore, diverse nominal forms in Korean are attributed to two factors. One is the co-ordering of *FunctN and the faithfulness constraints in optimality, and the other is that FPL and FCL are subcategorized by definiteness and countability and take different hierarchical positions in optimality ordering.

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